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# **OmniSwitch CLI Reference Guide**

Alcatel-Lucent 

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**This user guide documents release 6.4.4 of the OmniSwitch 6400 Series, OmniSwitch 6850 Series, OmniSwitch 6850E Series, OmniSwitch 6855 Series, and OmniSwitch 9000E Series  
The functionality described in this guide is subject to change without notice.**

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This OmniSwitch product contains components which may be covered by one or more of the following U.S. Patents:

- U.S. Patent No. 6,339,830
- U.S. Patent No. 6,070,243
- U.S. Patent No. 6,061,368
- U.S. Patent No. 5,394,402
- U.S. Patent No. 6,047,024
- U.S. Patent No. 6,314,106
- U.S. Patent No. 6,542,507
- U.S. Patent No. 6,874,090



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# About This Guide

This *OmniSwitch CLI Reference Guide* is a comprehensive resource to all Command Line Interface (CLI) commands available on the OmniSwitch 6400 Series, OmniSwitch 6850 Series, OmniSwitch 6855 Series, OmniSwitch 6850E Series, and OmniSwitch 9000E Series switches.

## Supported Platforms

This information in this guide applies to the following products:

- OmniSwitch 6850E Series (9600, 9700, and 9800 switches)
- OmniSwitch 9000E Series (9700E and 9800E switches)
- OmniSwitch 6400 Series
- OmniSwitch 6850 Series
- OmniSwitch 6855 Series

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**Note.** This *OmniSwitch CLI Reference Guide* covers Release 6.4.4, which is supported on the OmniSwitch 6400 Series, OmniSwitch 6850 Series, OmniSwitch 6855 Series, OmniSwitch 6850E Series, and OmniSwitch 9000E Series switches.

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## Unsupported Platforms

The information in this guide does not apply to the following products:

- OmniSwitch (original version with no numeric model name)
- OmniSwitch 6600 Family
- OmniSwitch 6800 Family
- OmniSwitch 7700/7800
- OmniSwitch 8800
- OmniSwitch 9000
- Omni Switch/Router
- OmniStack
- OmniAccess

## Who Should Read this Manual?

The audience for this user guide is network administrators and IT support personnel who need to configure, maintain, and monitor switches and routers in a live network. Anyone wishing to gain knowledge on the details of all CLI commands available on the OmniSwitch will benefit from the material in this reference guide. However, advanced users who have already familiarized themselves with the OmniSwitch CLI commands will benefit most from the detailed content in this guide.

## When Should I Read this Manual?

Read this guide whenever you want detailed information on individual CLI commands. Although this guide provides helpful information during any stage of the configuration process, it is a good idea to first familiarize yourself with the software features available on the switch before investigating the detailed command information in this guide.

Overview information, procedures, and live network examples on switch software features may be found in the *OmniSwitch CLI Reference Guide*, *OmniSwitch AOS Release 6 Network Configuration Guide*, and the *OmniSwitch AOS Release 6 Advanced Routing Configuration Guide*. Once you are familiar with the procedures and base CLI commands in these configuration guides you can obtain more detailed information on the individual commands in this guide.

## What is in this Manual?

This reference guide includes information on every CLI command available in the switch. Command reference information is included for base software commands as well as commands associated with optional software packages, such as Advanced Routing (multicast routing protocols and OSPF). The information provided for each CLI command includes:

- Command description.
- Syntax.
- Description of all keywords and variables included in the syntax.
- Default values.
- Usage guidelines, which include tips on when and how to use the command.
- Examples of command lines using the command.
- Related commands with descriptions.
- Release history, which indicates the release when the command was introduced.
- SNMP information, such as the MIB files related to a set of CLI commands. In addition each CLI command includes the corresponding MIB variables that map to all parameters included in a command.

## What is Not in this Manual?

Primarily a reference, this guide does not provide step-by-step instructions on how to set up particular features on the switch. It also does not provide overview or application examples on software features. For comprehensive information on how to configure particular software features in the switch, consult the appropriate configuration guide.

This guide also does not provide any information on the network management applications, WebView and OmniVista. Further information on WebView and OmniVista can be found in the context-sensitive on-line help available with those applications.

## How is the Information Organized?

Each chapter in this guide includes reference material for all commands related to a single software feature, such as server load balancing or link aggregation. Typically commands in a single chapter will share a common prefix.

## Text Conventions

The following table contains text conventions and usage guidelines for CLI commands as they are documented in this guide.

<b>bold text</b>	Indicates basic command and keyword syntax. Example: <b>show snmp station</b>
<i>italicized text</i>	Indicates user-specific information such as IP addresses, slot numbers, passwords, names, etc. Example: <b>no snmp station</b> <i>ip_address</i>  Italicized text that is not enclosed with straight brackets ([ ]) indicates required information.
[ ] (Straight Brackets)	Indicates optional parameters for a given command. Example: <b>show aaa server</b> [ <i>server_name</i> ] Here, you can enter either of the following options: <b>show aaa server</b> <b>show aaa server</b> <i>server_name</i> (where <i>server_name</i> is the user-specified server name, e.g., <b>show aaa server myserver1</b> )  Note that this example includes <i>italicized text</i> . The optional parameter in this case is a user-specified server name.
{ } (Curly Braces)	Indicates that the user must choose between one or more parameters. Example: <b>port mirroring</b> { <b>enable</b>   <b>disable</b> } Here, you must choose one of the following: <b>port mirroring enable</b> or <b>port mirroring disable</b>

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(Vertical Pipes)	Used to separate parameter choices within a command string. For example, the command string <b>show health threshold [rx   txrx   memory   cpu]</b> separates the choices <b>rx</b> , <b>txrx</b> , <b>memory</b> , and <b>cpu</b> . Examples: <b>show health threshold rx</b> <b>show health threshold txrx</b> <b>show health threshold memory</b> <b>show health threshold cpu</b>
“” (Quotation Marks)	Used to enclose text strings that contain spaces. The quotation marks are required input on the command line. Example: <b>vlan 2 “new test vlan”</b>

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# Documentation Roadmap

The OmniSwitch user documentation suite was designed to supply you with information at several critical junctures of the configuration process. The following section outlines a roadmap of the manuals that will help you at each stage of the configuration process. Under each stage, we point you to the manual or manuals that will be most helpful to you.

## Stage 1: Using the Switch for the First Time

**Pertinent Documentation:** *Getting Started Guide*  
*Release Notes*

A hard-copy *Getting Started Guide* is included with your switch; this guide provides all the information you need to get your switch up and running the first time. This guide provides information on unpacking the switch, rack mounting the switch, installing modules, unlocking access control, setting the switch's IP address, and setting up a password. It also includes succinct overview information on fundamental aspects of the switch, such as hardware LEDs, the software directory structure, CLI conventions, and web-based management.

At this time you should also familiarize yourself with the Release Notes that accompanied your switch. This document includes important information on feature limitations that are not included in other user guides.

## Stage 2: Gaining Familiarity with Basic Switch Functions

**Pertinent Documentation:** *Hardware Users Guide*  
*Switch Management Guide*

Once you have your switch up and running, you will want to begin investigating basic aspects of its hardware and software. Information about switch hardware is provided in the platform-specific *Hardware Users Guide*. This guide provides specifications, illustrations, and descriptions of all hardware components—chassis, power supplies, Chassis Management Modules (CMMs), Network Interface (NI) modules, uplink modules, stacking modules, and cooling fans. It also includes steps for common procedures, such as removing and installing switch components.

The *Switch Management Guide* for your switch platform is the primary user guide for the basic software features on a single switch. This guide contains information on the switch directory structure, basic file and directory utilities, switch access security, SNMP, and web-based management. It is recommended that you read this guide before connecting your switch to the network.

## Stage 3: Integrating the Switch Into a Network

**Pertinent Documentation:** *Network Configuration Guide*  
*Advanced Routing Configuration Guide*

When you are ready to connect your switch to the network, you will need to learn how the OmniSwitch implements fundamental software features, such as 802.1Q, VLANs, Spanning Tree, and network routing protocols. The *Network Configuration Guide* for your switch platform contains overview information, procedures and examples on how standard networking technologies are configured in the OmniSwitch.

The *Advanced Routing Configuration Guide* includes configuration information for networks using advanced routing technologies, such as OSPF and multicast routing protocols (DVMRP and PIM-SM).

**Anytime**

The *OmniSwitch CLI Reference Guide* contains comprehensive information on all CLI commands supported by the switch. This guide includes syntax, default, usage, example, related CLI command, and CLI-to-MIB variable mapping information for all CLI commands supported by the switch. This guide can be consulted anytime during the configuration process to find detailed and specific information on each CLI command.



## Related Documentation

The following are the titles and descriptions of all the related OmniSwitch AOS Release 6 user manuals:

- *OmniSwitch 6400 Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 6400 Series switch up and running. Also provides information on fundamental aspects of OmniSwitch software and stacking architecture.

- *OmniSwitch 6850 Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 6850 Series switch up and running. Also provides information on fundamental aspects of OmniSwitch software and stacking architecture.

- *OmniSwitch 6855 Series Getting Started Guide*

Describes the basic information you need to unpack and identify the components of your OmniSwitch 6855 shipment. Also provides information on the initial configuration of the switch.

- *OmniSwitch 6850E Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 6850E Series up and running. Also provides information on fundamental aspects of OmniSwitch software architecture.

- *OmniSwitch 9000E Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 9000E Series switch up and running. Also provides information on fundamental aspects of OmniSwitch software architecture.

- *OmniSwitch 6400 Series Hardware Users Guide*

Complete technical specifications and procedures for all OmniSwitch 6400 Series chassis, power supplies, and fans. Also includes comprehensive information on assembling and managing stacked configurations.

- *OmniSwitch 6850 Series Hardware User Guide*

Complete technical specifications and procedures for all OmniSwitch 6850 Series chassis, power supplies, and fans. Also includes comprehensive information on assembling and managing stacked configurations.

- *OmniSwitch 6855 Series Hardware User Guide*

Complete technical specifications and procedures for all OmniSwitch 6855 Series chassis, power supplies, and fans.

- *OmniSwitch 6850E Series Hardware Users Guide*

Complete technical specifications and procedures for all OmniSwitch 6850E Series chassis, power supplies, fans, and Network Interface (NI) modules.

- *OmniSwitch 9000E Series Hardware User Guide*

Complete technical specifications and procedures for all OmniSwitch 9000E Series chassis, power supplies, and fans.

- *OmniSwitch CLI Reference Guide*

Complete reference to all CLI commands supported on the OmniSwitch 6400, 6850, 6850E, 6855, and 9000E. Includes syntax definitions, default values, examples, usage guidelines and CLI-to-MIB variable mappings.

- *OmniSwitch AOS Release 6 Switch Management Guide*

Includes procedures for readying an individual switch for integration into a network. Topics include the software directory architecture, image rollback protections, authenticated switch access, managing switch files, system configuration, using SNMP, and using web management software (WebView).

- *OmniSwitch AOS Release 6 Network Configuration Guide*

Includes network configuration procedures and descriptive information on all the major software features and protocols included in the base software package. Chapters cover Layer 2 information (Ethernet and VLAN configuration), Layer 3 information (routing protocols, such as RIP), security options (authenticated VLANs), Quality of Service (QoS), and link aggregation.

- *OmniSwitch AOS Release 6 Advanced Routing Configuration Guide*

Includes network configuration procedures and descriptive information on all the software features and protocols included in the advanced routing software package. Chapters cover multicast routing (DVMRP and PIM-SM), and OSPF.

- *OmniSwitch Transceivers Guide*

Includes information on Small Form Factor Pluggable (SFPs) and 10 Gbps Small Form Factor Pluggables (XFPs) transceivers.

- Technical Tips, Field Notices

Includes information published by Alcatel-Lucent's Customer Support group.

- *Release Notes*

Includes critical Open Problem Reports, feature exceptions, and other important information on the features supported in the current release and any limitations to their support.

## User Manual CD

Some products are shipped with documentation included on a User Manual CD that accompanies the switch. This CD also includes documentation for other Alcatel-Lucent data enterprise products.

All products are shipped with a Product Documentation Card that provides details for downloading documentation for all OmniSwitch and other Alcatel-Lucent data enterprise products.

All documentation is in PDF format and requires the Adobe Acrobat Reader program for viewing. Acrobat Reader freeware is available at [www.adobe.com](http://www.adobe.com).

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**Note.** In order to take advantage of the documentation CD's global search feature, it is recommended that you select the option for *searching PDF files* before downloading Acrobat Reader freeware.

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To verify that you are using Acrobat Reader with the global search option, look for the following button in the toolbar:



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**Note.** When printing pages from the documentation PDFs, de-select Fit to Page if it is selected in your print dialog. Otherwise pages may print with slightly smaller margins.

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## Technical Support

An Alcatel-Lucent service agreement brings your company the assurance of 7x24 no-excuses technical support. You'll also receive regular software updates to maintain and maximize your Alcatel-Lucent product's features and functionality and on-site hardware replacement through our global network of highly qualified service delivery partners. Additionally, with 24-hour-a-day access to Alcatel-Lucent's Service and Support web page, you'll be able to view and update any case (open or closed) that you have reported to Alcatel-Lucent's technical support, open a new case or access helpful release notes, technical bulletins, and manuals. For more information on Alcatel-Lucent's Service Programs, see our web page at [service.esd.alcatel-lucent.com](http://service.esd.alcatel-lucent.com), call us at 1-800-995-2696, or email us at [esd.support@alcatel-lucent.com](mailto:esd.support@alcatel-lucent.com).



# 1 Ethernet Port Commands

The Ethernet port software is responsible for configuring and monitoring Ethernet ports (10 Mbps, 100 Mbps, 1 Gbps, and 10 Gbps). This includes:

- Performing hardware diagnostics, loading software, and initializing hardware.
- Notifying other software modules in the system when Ethernet links become active or inactive.
- Configuring basic line parameters for Ethernet ports.
- Gathering basic line statistics for Ethernet ports and passing this information to the user interface and configuration manager.

MIB information for the Ethernet Port commands is as follows:

*Filename:* AlcatelIND1Port.mib  
*Module:* alcatelIND1PortMIB

*Filename:* IETF\_ETHERLIKE.mib  
*Module:* EtherLike-MIB

A summary of the available commands is listed here.

Trap port commands	trap port link
<b>Interfaces commands</b>	<b>interfaces speed</b> <b>interfaces mode</b> <b>interfaces autoneg</b> <b>interfaces crossover</b> <b>interfaces pause</b> <b>interfaces e2e-flow-vlan</b> <b>interfaces duplex</b> <b>interfaces admin</b> <b>interfaces cli-prompt</b> <b>interfaces alias</b> <b>interfaces ifg</b> <b>interfaces no I2 statistics</b> <b>interfaces max frame</b> <b>interfaces flood</b> <b>interfaces flood rate</b> <b>interfaces wait-to-restore</b> <b>interfaces transceiver ddm</b> <b>show interfaces</b> <b>show interfaces capability</b> <b>show interfaces flow control</b> <b>show interfaces pause</b> <b>show interfaces e2e-flow-vlan</b> <b>show interfaces accounting</b> <b>show interfaces counters</b> <b>show interfaces counters errors</b> <b>show interfaces collisions</b> <b>show interfaces status</b> <b>show interfaces port</b> <b>show interfaces ifg</b> <b>show interfaces flood rate</b> <b>show interfaces traffic</b> <b>show interfaces transceiver</b>
<b>Combo port commands</b>	<b>interfaces hybrid preferred-fiber</b> <b>interfaces hybrid autoneg</b> <b>interfaces hybrid crossover</b> <b>interfaces hybrid duplex</b> <b>interfaces hybrid speed</b> <b>interfaces hybrid pause</b> <b>show interfaces hybrid</b> <b>show interfaces hybrid status</b> <b>show interfaces hybrid pause</b> <b>show interfaces hybrid capability</b> <b>show interfaces hybrid accounting</b> <b>show interfaces hybrid counters</b> <b>show interfaces hybrid counters errors</b> <b>show interfaces hybrid collisions</b> <b>show interfaces hybrid traffic</b> <b>show interfaces hybrid port</b> <b>show interfaces hybrid flood rate</b>

<b>Debug interfaces commands</b>	<b>debug interfaces set backpressure</b> <b>debug interfaces backpressure</b>
<b>Link monitoring commands</b>	<b>interfaces link-monitoring admin-status</b> <b>interfaces link-monitoring time-window</b> <b>interfaces link-monitoring link-flap-threshold</b> <b>interfaces link-monitoring link-error-threshold</b> <b>interfaces clear-link-monitoring-stats</b> <b>show interfaces link-monitoring config</b> <b>show interfaces link-monitoring statistics</b>
<b>Link fault propagation commands</b>	<b>link-fault-propagation group</b> <b>link-fault-propagation group source</b> <b>link-fault-propagation group destination</b> <b>link-fault-propagation group wait-to-shutdown</b> <b>show link-fault-propagation group</b>
<b>TDR commands</b>	<b>interfaces tdr-test-start</b> <b>interfaces no tdr-statistics</b> <b>show interfaces tdr-statistics</b>
<b>Interface violation commands</b>	<b>interfaces violation-recovery-time</b> <b>interfaces violation-recovery-maximum</b> <b>interfaces violation-recovery-trap</b> <b>interfaces clear-violation-all</b> <b>show interfaces port</b> <b>show interfaces violation-recovery</b>

---

## trap port link

Enables trap link messages. If enabled, a message is displayed on the Network Management Station (NMS) whenever the specified port changes state.

**trap** {*slot* | *slot/port[-port2]*} **port link** {**enable** | **disable** | **on** | **off**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>enable</b>	Port link up/down traps are displayed on the NMS.
<b>disable</b>	Port link up/down traps are not displayed on the NMS.
<b>on</b>	Same as <b>enable</b> .
<b>off</b>	Same as <b>disable</b> .

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>   <b>on</b>   <b>off</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to enable or disable trap link messages for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to enable or disable trap link messages on a specific interface or range of interfaces.

### Examples

```
-> trap 3/1 port link enable
-> trap 3 port link enable
-> trap 3/1-6 port link enable
```

### Release History

Release 6.1; command was introduced.



## Related Commands

[show interfaces status](#)

Displays interface line settings.

## MIB Objects

```
esmConfigTable  
  esmPortSlot  
  esmPortIF
```

---

## interfaces speed

Configures interface line speed.

```
interfaces {slot | slot/port[-port2]} speed {auto | 10 | 100 | 1000 | 10000 | max {100 | 1000}}
```

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>auto</b>	The switch automatically sets the line speed to match the attached device (auto-sensing).
<b>10</b>	Sets the interface to 10 Mbps.
<b>100</b>	Sets the interface to 100 Mbps.
<b>1000</b>	Sets the interface to 1 Gigabit.
<b>10000</b>	Sets the interface to 10 Gigabit.
<b>max 100</b>	Sets the maximum speed to 100 megabits.
<b>max 1000</b>	Sets the maximum speed to 1000 megabits (1 Gigabit).

### Defaults

parameter	default
<b>auto   10   100   1000   10000   max 100   max 1000</b>	Auto

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **auto** option sets the speed to auto-sensing.
- The 10 Gigabit fiber ports only support 10000 Mbps.
- Enter a slot number to configure the interface speed for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the interface speed for a specific interface or range of interfaces.

## Examples

```
-> interfaces 3/1 speed auto
-> interfaces 3 speed 100
-> interfaces 3/1-8 speed auto
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">interfaces duplex</a>	Configures duplex mode.
<a href="#">interfaces autoneg</a>	Enables and disables auto negotiation.
<a href="#">show interfaces status</a>	Displays interface line settings.

## MIB Objects

```
esmConfTable
    esmPortCfgSpeed
```

---

## interfaces mode

Configures the mode of the ports to allow the switch to act in standalone or stacking mode.

**interfaces** {*slot* | *slot/port*} **mode** {**uplink** | **stacking**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i>	The slot and port number (3/1).
<b>uplink</b>	Configures the ports as uplinks allowing the switch to act in standalone mode for network connectivity.
<b>stacking</b>	Configures the ports as stacking to allow the switch to be stacked in a virtual chassis.

### Defaults

parameter	default
<b>mode</b>	uplink

### Platforms Supported

OmniSwitch 6850E, 6855-U24X

### Usage Guidelines

- Mode change does not take affect until the switch is rebooted.
- Only supported on the 10-Gigabit SFP+ ports
- Changing the mode of one port automatically changes the other port to the same mode. Mixing port modes is not supported.
- After changing the mode a message will display in approximately 5 seconds indicating success or failure. Re-enter the command if the change is not successful.
- Enter a slot number to configure the mode for all interfaces on a specific slot.
- Enter a slot and port number to configure the mode for a specific interface.

### Examples

```
-> interfaces 4/25 mode stacking
WED JUL 01 18:08:29 : HSM-CHASSIS (101) info message:
+++ Ni 4 Port 25,26 are set to stackable for next boot:OK

-> interfaces 4 mode uplink
WED JUL 01 18:08:29 : HSM-CHASSIS (101) info message:
+++ Ni 4 Port 25,26 are set to uplink for next boot:OK
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

### [show stack topology](#)

Displays the current operating topology of switches in a stacked configuration.

### [show stack status](#)

Displays the current redundant stacking status for a stacked configuration.

### [show ni](#)

Displays the current status for a switch in standalone mode.

## MIB Objects

esmPortModeTable

esmPortModeIndex

esmPortSavedMode

---

## interfaces autoneg

Enables or disables auto negotiation on a single port, a range of ports, or an entire Network Interface (NI).

**interfaces** {*slot* | *slot/port[-port2]*} **autoneg** {**enable** | **disable** | **on** | **off**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>enable</b>	Enables auto negotiation.
<b>disable</b>	Disables auto negotiation.
<b>on</b>	Same as enable.
<b>off</b>	Same as disable.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>   <b>on</b>   <b>off</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If auto negotiation is disabled, auto MDIX, auto speed, and auto duplex are not accepted. See the [interfaces crossover](#) command on [page 1-12](#) for more information.
- Copper Gigabit ports do not support disabling of auto negotiation.
- Enter a slot number to configure auto-negotiation for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure auto-negotiation for a specific interface or range of interfaces.

### Examples

```
-> interfaces 3 autoneg disable
-> interfaces 3/1 autoneg disable
-> interfaces 3/1-4 autoneg disable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">interfaces speed</a>	Configures interface speed.
<a href="#">interfaces crossover</a>	Configures crossover port settings.
<a href="#">show interfaces status</a>	Displays interface line settings.
<a href="#">show interfaces capability</a>	Displays auto negotiation, speed, duplex, and crossover settings.

## MIB Objects

esmConfTable  
esmPortCfgAutoNegotiation

---

## interfaces crossover

Configures port crossover settings on a single port, a range of ports, or an entire Network Interface (NI).

**interfaces** {*slot* | *slot/port[-port2]*} **crossover** {**auto** | **mdix** | **mdi**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>auto</b>	The interface will automatically detect crossover settings.
<b>mdix</b>	Sets the crossover configuration to Media Dependent Interface with Crossover (MDIX), which is the standard for hubs and switches.
<b>mdi</b>	Sets the crossover configuration to Media Dependent Interface (MDI), which is the standard for end stations.

### Defaults

parameter	default
<b>auto</b>   <b>mdix</b>   <b>mdi</b> (all copper ports)	auto

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If auto negotiation is disabled, then automatic crossover will also be disabled. See the [interfaces autoneg](#) command on [page 1-10](#) for more information.
- You cannot configure crossover settings on fiber ports. These ports use the MDI standard.
- Enter a slot number to configure crossover settings for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure crossover settings for a specific interface or range of interfaces.

### Examples

```
-> interfaces 3 crossover mdi
-> interfaces 3/1 crossover mdix
-> interfaces 3/1-4 crossover auto
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<a href="#">interfaces speed</a>	Configures interface speed.
<a href="#">interfaces autoneg</a>	Enables and disables auto negotiation.
<a href="#">show interfaces status</a>	Displays interface line settings.
<a href="#">show interfaces capability</a>	Displays auto negotiation, speed, duplex, and crossover settings.

## MIB Objects

esmConfTable  
esmPortCfgCrossover

---

## interfaces pause

Configures whether or not the switch will transmit, honor, or transmit and honor flow control PAUSE frames on the specified interface. PAUSE frames are used to temporarily pause the flow of traffic between two connected devices to help prevent packet loss when traffic congestion occurs between switches.

**interfaces** {*slot* | *slot/port[-port2]*} **pause** {**tx** | **rx** | **tx-and-rx** | **disable**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>tx</b>	Transmits PAUSE frames to peer switches when traffic congestion occurs on the local interface. Does not honor PAUSE frames from peer switches.
<b>rx</b>	Allows interface to honor PAUSE frames from peer switches and temporarily stop sending traffic to the peer. Does not transmit PAUSE frames to peer switches.
<b>tx-and-rx</b>	Transmits and honors PAUSE frames when traffic congestion occurs between peer switches.
<b>disable</b>	Disables flow control on the interface.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Defaults

By default, flow control is disabled on all switch interfaces.

### Usage Guidelines

- Note that if the standalone switch is a 24-port unit, then only the **interfaces pause** command is required to enable end-to-end (E2E) flow control. However, if the switch is a 48-port unit, then a flow control VLAN, which is configured using the **interfaces e2e-flow-vlan** command, is required in addition to enabling RX/TX pause flow control.
- A stack of switches or a chassis-based switch will honor receive pause frames.
- Flow control is only supported on interfaces configured to run in full-duplex mode; half-duplex mode is not supported.
- If both autonegotiation and flow control are enabled on the same local interface, autonegotiation calculates operational flow control settings for that interface. Note that the operational settings, as shown in the following table, override the configured settings as long as autonegotiation and flow control are both enabled for the interface:

Configured Local Tx	Configured Local Rx	Configured Remote Tx	Configured Remote Rx	Operational Local Tx	Operational Local Rx
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	No	No	No
No	Yes	No	Yes	Yes	Yes
No	No	No	Yes	No	No
Yes	Yes	No	No	No	No
Yes	No	Yes	Yes	No	No
No	Yes	Yes	No	No	Yes
No	No	Yes	No	No	No
Yes	Yes	No	Yes	Yes	Yes
Yes	No	No	No	No	No
No	Yes	Yes	Yes	Yes	Yes
No	No	Yes	Yes	No	No
Yes	Yes	Yes	No	No	No
Yes	No	No	Yes	Yes	No
No	Yes	No	No	No	No

- If autonegotiation is disabled, the configured flow control settings are applied to the local interface.
- Enter a slot number to configure how flow control PAUSE frames are processed for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure how flow control PAUSE frames are processed on a specific interface or range of interfaces.

## Examples

```
-> interfaces 3/1 pause tx
-> interfaces 4/2 pause rx
-> interfaces 1 tx-and-rx
-> interfaces 3/1-6 pause tx
-> interfaces 3/1-6 disable
```

## Release History

Release 6.3.2; command was introduced.

## Related Commands

[interfaces hybrid pause](#)

Configures flow control settings for combo ports.

[interfaces e2e-flow-vlan](#)

Configures a dedicated VLAN for carrying end-to-end (E2E) flow control messages to remote systems.

[show interfaces pause](#)

Displays interface flow control settings.

## MIB Objects

esmConfigTable

    esmPortCfgFlow

dot3PauseTable

    dot3PauseAdminMode

---



## Related Commands

- show interfaces e2e-flow-vlan** Displays the E2E flow control VLAN configuration.
- interfaces pause** Configures whether or not the switch will transmit, honor, or transmit and honor flow control PAUSE frames.
- show interfaces pause** Displays interface flow control settings.

## MIB Objects

esmE2EFlowVlan

---

## interfaces duplex

Configures duplex mode. In full duplex mode, the interface transmits and receives data simultaneously. In half duplex mode, the interface can transmit *or* receive data at a given time. Auto duplex setting causes the switch to advertise all available duplex modes (half/full/both) for the port during autonegotiation.

**interfaces** {*slot* | *slot/port[-port2]*} **duplex** {**full** | **half** | **auto**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>full</b>	Sets interface to full duplex mode.
<b>half</b>	Sets interface to half duplex mode.
<b>auto</b>	Switch will automatically set both the duplex mode settings to auto-negotiation.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>full   half   auto</b>	<b>full</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Half duplex mode is not supported on Gigabit modules if a port is detected as Gigabit (1000 Mbps).
- OS9-GNI-C24 modules can be configured for full and half duplex. All other Gigabit Ethernet modules on the OmniSwitch 9000 only support full duplex mode.
- On OS9-GNI-C24 modules, if a link is down and auto negotiation is enabled, then half duplex is not accepted since these modules are Gigabit modules by default.
- Gigabit and 10 Gigabit fiber ports only support full duplex.
- Enter a slot number to configure the duplex mode for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the duplex mode for a specific interface or range of interfaces.

## Examples

```
-> interfaces 3/1 duplex auto
-> interfaces 3 duplex half
-> interfaces 3/1-4 auto
```

## Release History

Release 6.1; command was introduced.

## Related Commands

### [interfaces speed](#)

Configures interface line speed. Set to **auto** to set speed and duplex mode to auto-sensing.

### [show interfaces status](#)

Displays interface line settings (for example, speed, and mode).

## MIB Objects

esmConfTable

    esmPortAutoDuplexMode

---



## interfaces admin

Administratively enables or disables interfaces.

```
interfaces {slot | slot/port[-port2]} admin {up | down}
```

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>up</b>	Enables the interface.
<b>down</b>	Disables the interface.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>up   down</b>	up

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to administratively enable or disable all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to administratively enable or disable a specific interface or range of interfaces.

### Examples

```
-> interfaces 3/1 admin up
-> interfaces 3 admin down
-> interfaces 3/1-4 admin up
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [show interfaces](#)

Displays general interface information (for example, hardware, MAC address, input errors, and output errors).

### [show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

## MIB Objects

ifTable

ifAdminStatus

---

## interfaces cli-prompt

Enables or disables the display of a confirmation prompt when an interface is administratively disabled using the **interfaces admin {up | down}** command.

**interfaces cli-prompt {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the display of a confirmation prompt when an interface is administratively disabled.
<b>disable</b>	Disables the display of a confirmation prompt when an interface is administratively disabled.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used in conjunction with the **interfaces admin** command to enable or disable the confirmation prompt.
- By default, the warning prompt will not be displayed.
- If the interface is already operationally down, the warning prompt will not be displayed.
- If a range of interfaces or slots is provided in the **interfaces admin down** command and the display of confirmation prompt is enabled, then the prompt will be displayed irrespective of the operational status of the interface.
- The configuration of this command can be captured in the snapshot when the display of the warning prompt is enabled.
- The configuration of this command cannot be captured in any interface show commands.

### Examples

```
-> interfaces cli-prompt enable
-> interfaces 1/1 admin down
-> Confirm Command (Y/N) :

-> interfaces cli-prompt disable
-> interfaces 1/1 admin down
```

## Release History

Release 6.3.4; the command was introduced.

## Related Commands

[interfaces admin](#)

Administratively enables or disables interfaces.

## MIB Objects

N/A

---

## interfaces alias

Configures a description (alias) for a single port.

**interfaces** *slot/port* **alias** *description*

---

### Syntax Definitions

*slot/port*

The slot and port number (3/1).

*description*

A description for the port, which can be up to 40 characters long. Spaces must be contained within quotes (for example, "IP Phone").

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To remove an alias use a description consisting of two quotes without any spaces (for example, "").
- On combo ports the configuration changes made with the **interfaces alias** command apply to both the fiber and to the copper port. You cannot configure separate aliases.

### Examples

```
-> interfaces 3/1 alias switch_port
-> interfaces 2/2 alias "IP Phone"
-> interfaces 3/1 alias ""
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show interfaces](#)

Displays general interface information (for example, hardware, MAC address, input errors, and output errors).

[show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

### MIB Objects

```
ifXTable
  ifAlias
```

---

## interfaces ifg

Configures the inter-frame gap on Gigabit Ethernet interfaces.

**interfaces** {*slot* | *slot/port[-port2]*} **ifg** *bytes*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>bytes</i>	Inter-frame gap value, in bytes. Valid range is 9–12.

### Defaults

parameter	default
<i>bytes</i>	12

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to configure the inter-frame gap value for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the inter-frame gap value for a specific interface or range of interfaces.

### Examples

```
-> interfaces 3/1 ifg 10
-> interfaces 3 ifg 10
-> interfaces 3/1-4 ifg 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show interfaces ifg](#) Displays the inter-frame gap value for one or more ports.

### MIB Objects

esmConfTable  
esmPortCfgIfg

---

## interfaces no l2 statistics

Resets all statistics counters.

**interfaces** {*slot* | *slot/port[-port2]*} **no l2 statistics** [**cli**]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>cli</b>	Clears the counters from the CLI only; SNMP statistics continue to maintain cumulative totals.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command requires an upper or lower case “L” character in front of the “2” character. Entering the digit “1” (one) will result in an error message.
- When the **cli** parameter is not specified, both CLI and SNMP statistics are cleared.
- Enter a slot number to reset the statistics counters for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to reset the statistics counters for a specific interface or range of interfaces.

### Examples

```
-> interfaces 3/1 no l2 statistics
-> interfaces 3 no l2 statistics
-> interfaces 3/1-6 no l2 statistics
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1.R02; **cli** parameter was added.

## Related Commands

<b>show interfaces</b>	Displays general interface information, including when statistics were last cleared.
<b>show interfaces accounting</b>	Displays interface accounting information (for example, packets received/transmitted and deferred frames received).
<b>show interfaces counters</b>	Displays interface counters information (for example, unicast, broadcast, and multi-cast packets received/transmitted).
<b>show interfaces counters errors</b>	Displays interface error frame information (for example, CRC errors, transit errors, and receive errors).
<b>show interfaces collisions</b>	Displays interface collision information (for example, number of collisions and number of retries).

## MIB Objects

alCetherStatsTable  
alCetherClearStats

---



## interfaces max frame

Configures the maximum frame size for Gigabit Ethernet interfaces.

**interfaces** {*slot* | *slot/port[-port2]*} **max frame** *bytes*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>bytes</i>	Maximum frame size, in bytes. Valid range is 1518–9216.

### Defaults

---

parameter	default
<i>bytes</i> (Gigabit Ethernet Packets)	9216
<i>bytes</i> (Ethernet Packets)	1553

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to configure the maximum frame size for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the maximum frame size on a specific interface or range of interfaces.

### Examples

```
-> interfaces 3/1 max frame 1518
-> interfaces 3 max frame 1518
-> interfaces 3/1-3 max frame 1518
```

### Release History

Release 6.1; command was introduced.

**Related Commands****show interfaces**

Displays general interface information (for example, hardware, MAC address, input errors, and output errors).

**MIB Objects**

esmConfTable

esmPortCfgMaxFrameSize

---

## interfaces flood multicast

Enables flood rate limiting for multicast traffic on the specified interface.

**interfaces** *slot*[/*port*[-*port2*]] **flood multicast** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>enable</b>	Enables multicast rate limiting.
<b>disable</b>	Disables multicast rate limiting.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When the **interfaces flood multicast** command is used to enable rate limiting, the peak flood rate value configured for an interface is also applied to multicast traffic.
- Applying the peak flood rate value to multicast traffic also limits IP Multicast Switching (IPMS) and non-IPMS multicast traffic.
- When multicast rate limiting is disabled, the peak flood rate value for the interface is no longer applied to multicast traffic. This does not prevent the normal flow of multicast traffic on the specified interface.
- Enter a slot number to enable or disable multicast flood rate limiting for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to enable or disable multicast flood rate limiting on a specific interface or range of interfaces.

### Examples

```
-> interfaces 3 flood multicast
-> interfaces 1/47 flood multicast
-> interfaces 1/45-48 flood multicast
```

### Release History

Release 6.1; command was introduced.

Release 6.4.3; command was deprecated.

## Related Commands

[show interfaces flood rate](#)  
[interfaces flood rate](#)

Displays interface peak flood rate settings.

Configures the peak flood rate for an interface.

## MIB Objects

esmConfTable

esmPortFloodMcastEnable

---

## interfaces flood

Enables broadcast, multicast or unknown unicast traffic storm control on the specified interface.

**interfaces** {*slot* | *slot/port[-port2]*} **flood** [**broadcast** | **multicast** | **unknown-unicast** | **all**] [**enable** | **disable**]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>broadcast</b>	Packets with a destination MAC address of FF:FF:FF:FF:FF:FF.
<b>multicast</b>	Packets with a multicast MAC address.
<b>unknown-unicast</b>	Unicast packets with an unknown destination MAC address.
<b>all</b>	Applies to broadcast, multicast, and unknown unicast packets.
<b>enable</b>	Enables broadcast, multicast, or unknown unicast rate limiting.
<b>disable</b>	Disables broadcast, multicast, or unknown unicast rate limiting.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to enable or disable traffic storm control for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to enable or disable traffic storm control on a specific interface or range of interfaces.
- The keyword **all** applies to all traffic types; broadcast, multicast and unknown-unicast.

### Examples

```
-> interfaces 3 flood broadcast enable
-> interfaces 1/47 flood broadcast enable
-> interfaces 3 flood multicast enable
-> interfaces 1/45-48 flood multicast enable
-> interfaces 3 flood unknown-unicast enable
-> interfaces 1/47 flood unknown-unicast enable
```

```
-> interfaces 3 flood all enable  
-> interfaces 1/47 flood all enable  
-> interfaces 1/45-48 flood all enable
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<a href="#">show interfaces flood rate</a>	Displays interface peak flood rate settings.
<a href="#">interfaces flood rate</a>	Configures the peak flood rate for an interface.

## MIB Objects

```
esmConfTable  
  esmPortMaxFloodRate  
  esmPortMaxMcastFloodRate  
  esmPortMaxUnknownUcastFloodRate  
  esmPortFloodMcastEnable  
  esmPortFloodBcastEnable  
  esmPortFloodUnknownUcastEnable  
  esmPortMaxFloodRateLimit  
  esmPortMaxUnknownUcastFloodRateLimit  
  esmPortMaxMcastFloodRateLimit
```

---

## interfaces flood rate

Configures flood rate limiting for broadcast, multicast, or unknown unicast traffic on the specified interface.

**interfaces** {*slot* | *slot/port[-port2]*} **flood** [**broadcast** | **multicast** | **unknown-unicast** | **all**] **rate** [**mbps** | **pps** | **percentage** *percent*]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>mbps</i>	The number of megabits per second.
<i>pps</i>	The number of packets per second.
<i>percent</i>	The percentage of the port speed.

### Defaults

The default flood limit settings:

port speed	flood limit
10 mbps	4 mbps
100 mbps	49 mbps
1 Gig	496 mbps
10 Gig	997 mbps

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- By default, unknown unicast and multicast traffic is flooded to all Layer 2 ports in a VLAN.
- Enter a slot number to configure flood rate limiting for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure flood rate limiting on a specific interface or range of interfaces.
- The keyword **all** applies to all traffic types, broadcast, multicast and unknown-unicast.
- The CLI command, '**interfaces** *slot[/port[-port2]]* **flood rate** *num*', is supported only during boot up process for backward compatibility.

## Examples

```
-> interfaces 1/1-5 flood all rate mbps 10
-> interfaces 1/1 flood broadcast rate pps 500
-> interfaces 1/2 flood multicast rate percentage 35
-> interfaces 1/3 flood unknown-unicast rate mbps 5
```

## Release History

Release 6.1; command was introduced.

Release 6.4.3; **broadcast**, **multicast**, **unknown-unicast**, and **all** parameters were added.

## Related Commands

<a href="#">show interfaces flood rate</a>	Displays interface peak flood rate settings.
<a href="#">interfaces flood</a>	Enables traffic storm control on the specified interface.

## MIB Objects

```
esmConfTable
  esmPortMaxFloodRate
  esmPortMaxMcastFloodRate
  esmPortMaxUnknownUcastFloodRate
  esmPortFloodMcastEnable
  esmPortFloodBcastEnable
  esmPortFloodUnknownUcastEnable
  esmPortMaxFloodRateLimit
  esmPortMaxUnknownUcastFloodRateLimit
  esmPortMaxMcastFloodRateLimit
```

---



## interfaces violation-recovery-time

Configures the time interval after which the port is automatically re-activated if the port was shutdown for any violation. This value is configurable on a global basis (applies to all ports on all modules) and on a per-slot or per-port basis.

**interfaces** [*slot* | *slot/port[-port2]*] **violation-recovery-time** {*seconds* | **default**}

**interfaces** {*slot* | *slot/port[-port2]*} **violation-recovery-time default**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>seconds</i>	The number of seconds after which a port is reactivated. The valid range is 30-600 seconds or specify 0 to disable the recovery timer.
<b>default</b>	Sets the recovery time to the global value for the specified ports. This parameter is only available when a slot, port, or range of ports is specified with this command.

### Defaults

- By default, this command configures the global recovery time. The global value applies to all ports on all modules in the switch.
- By default, the violation recovery time is set to 300 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When the recovery timer expires, the interface is operationally re-enabled and the violation on the interface is cleared.
- The violation recovery time value does not apply to interfaces that are in a permanent shutdown state. A port in this state is only recoverable using the **interfaces clear-violation-all** command.
- The interface violation recovery mechanism is not supported on link aggregates, but is supported on the link aggregate member ports.
- Set the recovery time to 0 to disable this violation recovery mechanism.
- Enter a slot number to configure the recovery time for all interfaces on a specific slot.
- Enter a slot and port number or a range of ports to configure the recovery time for a specific interface or a range of interfaces.
- When this command is used to configure the recovery time for all ports on a slot or for a specific port or range of ports, the value specified overrides the global maximum recovery time configured for the switch.

- When configuring the time for a specific slot, port, or range of ports, use the **default** parameter to reset this value to the global maximum number of attempts.

## Examples

```
-> interfaces violation-recovery-time 600
-> interfaces 2 violation-recovery-time 100
-> interfaces 2/3 violation-recovery-time 200
-> interfaces 2/4-9 violation-recovery-time 500
-> interfaces 2/4-9 violation-recovery-maximum default
-> interfaces 2/3 violation-recovery-time 0
-> interfaces violation-recovery-time 0
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

[interfaces violation-recovery-maximum](#)

Configures the maximum number of recovery attempts before a port is permanently shut down.

[show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

[show interfaces violation-recovery](#)

Displays the globally configured recovery time, SNMP recovery trap enable/disable status and maximum recovery attempts.

## MIB Objects

```
alaPortViolationRecoveryTable
  alaPortViolationRecoveryTime
```

---

## interfaces violation-recovery-maximum

Configures the maximum number of recovery attempts allowed before the port is permanently shut down. This value is configurable on a global basis (applies to all ports on all modules) and on a per-slot or per-port basis.

**interfaces** [*slot* | *slot/port[-port2]*] **violation-recovery-maximum** *max\_attempts*

**interfaces** {*slot* | *slot/port[-port2]*} **violation-recovery-maximum default**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>max_attempts</i>	The maximum number of recovery attempts. Valid range is 0-50.
<b>default</b>	Sets the number of recovery attempts to the global value for the specified ports. This parameter is only available when a slot, port, or range of ports is specified with this command.

### Defaults

By default, this command configures the global maximum number of recovery attempts. The global value applies to all ports on all modules in the switch.

---

<b>parameter</b>	<b>default</b>
<i>max_attempts</i>	10

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Set the maximum number of recovery attempts value to 0 to disable this recovery mechanism.
- Enter a slot number to configure the number of recovery attempts for all interfaces on a specific slot.
- Enter a slot and port number or a range of ports to configure the number of recovery attempts for a specific interface or a range of interfaces.
- When this command is used to configure the number of recovery attempts for all ports on a slot or for a specific port or range of ports, the value specified overrides the global maximum number of attempts configured for the switch.
- When configuring the number of recovery attempts for a specific slot, port, or range of ports, use the **default** parameter to reset this value to the global maximum number of attempts.
- The number of recovery attempts increments whenever a port recovers using automatic recovery timer mechanism. When the number of recovery attempts exceeds the configured threshold, the port is permanently shut down.

- Once an interface is permanently shut down, only the **interface clear-violations-all** command can be used to recover the interface.
- The recovery mechanism tracks the number of recoveries within a fixed time window (FTW). The  $FTW = 2 * \text{maximum recovery number} * \text{recovery timer}$ . For example, if the maximum number of recovery attempts is set to 4 and the recovery timer is set to 5, the FTW is 40 seconds ( $2 * 4 * 5=40$ ).

## Examples

```
-> interfaces violation-recovery-maximum 25
-> interfaces 2 violation-recovery-maximum 10
-> interfaces 2/3 violation-recovery-maximum 20
-> interfaces 2/4-9 violation-recovery-maximum 50
-> interfaces 2/4-9 violation-recovery-maximum default
-> interfaces 2/3 violation-recovery-maximum 0
-> interfaces violation-recovery-maximum 0
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

### [interfaces violation-recovery-time](#)

Configures the time interval after which the port is automatically re-activated if the port was shut down for any violation.

### [show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

### [show interfaces violation-recovery](#)

Displays the globally configured recovery time, SNMP recovery trap status, and maximum recovery attempts.

## MIB Objects

```
alaPortViolationRecoveryTable
  alaPortViolationRecoveryMaximum
```

---

## interfaces violation-recovery-trap

Enables or disables the sending of a violation recovery trap when any port is re-enabled after the violation recovery time has expired.

**interface violation-recovery-trap {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the ports to send violation recovery traps.
<b>disable</b>	Disables the ports from sending violation recovery traps.

### Defaults

By default, the sending of a violation recovery trap is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This is a global command that is applied to all ports on all modules.

### Examples

```
-> interfaces violation-recovery-trap enable
-> interfaces violation-recovery-trap disable
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

<a href="#">interfaces violation-recovery-time</a>	Configures the time interval to automatically re-enable the ports that were shutdown due to a violation.
<a href="#">show interfaces violation-recovery</a>	Displays the globally configured recovery time, SNMP recovery trap status, and maximum recovery attempts.

### MIB Objects

```
esmViolationRecovery
  esmViolationRecoveryTrap
```

---

---

## interfaces clear-violation-all

Clears all port violations set by various applications on the switch for the given port.

**interfaces** {*slot* | *slot/port[-port2]*} **clear-violation-all**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

All application violations associated with a specific port are cleared when this command is used.

### Examples

```
-> interfaces 1/3 clear-violation-all
-> interfaces 1 clear-violation-all
-> interfaces 1/3-7 clear-violation-all
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show interfaces port](#) Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

### MIB Objects

esmConfTable  
esmPortViolationClearAll

---

## interfaces wait-to-restore

Configures the wait to restore timer on a specific slot, port, or a range of specified ports. The timer is enabled when a link up event is detected. Other applications are notified of the link up event only after the wait to restore timer has elapsed.

**interfaces** {*slot* | *slot/port*[-*port2*]} **wait-to-restore** *seconds*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>seconds</i>	The number of seconds the switch waits before notifying other applications. The valid range is 0-300 in multiples of 5.

### Defaults

By default, the timer is set to zero (disabled).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Set the wait-to-restore timer to zero to disable the timer.
- Enter a slot number to configure the timer value for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the timer value for a specific interface or a range of interfaces.

### Example

```
-> interfaces 1 wait-to-restore 30
-> interfaces 1/1 wait-to-restore 10
-> interfaces 1/1-7 wait-to-restore 250
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

### [show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

## MIB Objects

esmConfTable  
esmPortWaitToRestoreTimer

---



## interfaces transceiver ddm

Configures the DDM administrative status or trap capability.

**interfaces transceiver ddm [trap] {enable | disable}**

---

### Syntax Definitions

<b>trap</b>	Indicates the enable / disable parameter applies to the traps functionality.
<b>enable</b>	Enables DDM functionality or traps warning/alarm threshold violations.
<b>disable</b>	Disables DDM functionality or traps warning/alarm threshold violations.

### Defaults

---

parameter	default
<b>ddm</b>	<b>disable</b>
<b>trap</b>	<b>disable</b>

---

By default, the polling period is set to 60 seconds for the OS6850 and 1 second for the OS6400/6855.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- DDM capability will vary based on the transceiver manufacturer.
- DDM status must be enabled in order to enable traps; traps are enabled separately.
- Information will be read sequentially from a different SFP at the predefined Polling intervals listed in the defaults table above. The number of SFPs in the switch will determine how often each SFP is polled.

### Examples

```
-> interfaces transceiver ddm enable
-> interfaces transceiver ddm trap enable
-> interfaces transceiver ddm trap disable
-> interfaces transceiver ddm disable
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

**show interfaces transceiver**      Displays the interface DDM status.

## MIB Objects

```
ddmConfiguration
  ddmConfig
  ddmTrapConfig
  ddmNotificationType
```

---

## interfaces link-monitoring admin-status

Enables or disables link monitoring on a specific slot, port, or a range of specified ports.

**interfaces** {*slot* | *slot/port[-port2]*} **link-monitoring admin-status** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>enable</b>	Enables link monitoring for the specified port.
<b>disable</b>	Disables link monitoring for the specified port.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable</b>   <b>disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Configuring link monitoring parameters are allowed even if the link monitoring status is disabled for the specified ports.
- The Automatic Recovery Timer and link monitoring must not be enabled on Remote Fault Propagation (RFP) enabled ports.
- Enter a slot number to configure link monitoring for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure link monitoring for a specific interface or range of interfaces.

### Example

```
-> interfaces 1 link-monitoring admin-status enable
-> interfaces 1/1 link-monitoring admin-status enable
-> interfaces 1/1-7 link-monitoring admin-status enable
-> interfaces 2/5 link-monitoring admin-status disable
-> interfaces 2/5-20 link-monitoring admin-status disable
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

- show interfaces port** Displays the administrative, operational, violation, and recovery status and configuration for the specified port.
- show interfaces link-monitoring config** Displays the link monitoring configuration for the specified ports.
- show interfaces link-monitoring statistics** Displays the link monitoring statistics for the specified ports.

## MIB Objects

alaLinkMonConfigTable  
alaLinkMonStatus

---

## interfaces link-monitoring time-window

Configures the monitoring time window on a specific slot, port, or a range of specified ports. This is the length of time during which the link is monitored.

**interfaces** {*slot* | *slot/port[-port2]*} **link-monitoring time-window** *seconds*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>seconds</i>	The length of time during which the link is monitored. The valid range is 0–3600 seconds.

### Defaults

By default, the time window value is set to 300 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to configure the monitoring time window for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the monitoring time window for a specific interface or a range of interfaces.

### Example

```
-> interfaces 1 link-monitoring time-window 20
-> interfaces 1/1 link-monitoring time-window 40
-> interfaces 1/1-7 link-monitoring time-window 2500
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

- show interfaces port** Displays the administrative, operational, violation, and recovery status and configuration for the specified port.
- show interfaces link-monitoring config** Displays the link monitoring configuration for the specified ports.
- show interfaces link-monitoring statistics** Displays the link monitoring statistics for the specified ports.

## MIB Objects

alaLinkMonConfigTable  
alaLinkMonTimeWindow

---

## interfaces link-monitoring link-flap-threshold

Configures the number of link flaps allowed on a specific slot, port, or a range of specified ports in the time interval, before the port is shutdown.

**interfaces** {*slot* | *slot/port[-port2]*} **link-monitoring link-flap-threshold** *link\_flaps*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>link_flaps</i>	The number of link flaps. The valid range is 2-10.

### Defaults

By default, the number of link flaps allowed is set to 5.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to configure the number of link flaps allowed for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the number of link flaps allowed for a specific interface or a range of interfaces.

### Example

```
-> interfaces 1 link-monitoring link-flap-threshold 6
-> interfaces 1/1 link-monitoring link-flap-threshold 3
-> interfaces 1/1-7 link-monitoring link-flap-threshold 10
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

- show interfaces port** Displays the administrative, operational, violation, and recovery status and configuration for the specified port.
- show interfaces link-monitoring config** Displays the link monitoring configuration for the specified ports.
- show interfaces link-monitoring statistics** Displays the link monitoring statistics for the specified ports.

## MIB Objects

alaLinkMonConfigTable  
alaLinkMonLinkFlapThreshold

---



## interfaces link-monitoring link-error-threshold

Configures the number of MAC errors allowed on a specific slot, port, or a range of specified ports in the time interval, before the port is shutdown. MAC errors refer to lost frames, error frames, alignment frames and cyclic redundancy check (CRC).

**interfaces** {*slot* | *slot/port[-port2]*} **link-monitoring link-error-threshold** *mac\_errors*

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<i>mac_errors</i>	The number of MAC errors. The valid range is 1-100.

### Defaults

By default, the number of MAC errors allowed is set to 5.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to configure the number of MAC errors allowed on all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the number of MAC errors allowed on a specific interface or on a range of interfaces.

### Example

```
-> interfaces 1 link-monitoring link-error-threshold 30
-> interfaces 1/1 link-monitoring link-error-threshold 10
-> interfaces 1/1-7 link-monitoring link-error-threshold 35
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

- show interfaces port** Displays the administrative, operational, violation, and recovery status and configuration for the specified port.
- show interfaces link-monitoring config** Displays the link monitoring configuration for the specified ports.
- show interfaces link-monitoring statistics** Displays the link monitoring statistics for the specified ports.

## MIB Objects

alaLinkMonConfigTable  
alaLinkMonLinkErrorThreshold

---

## interfaces clear-link-monitoring-stats

Clears the link monitoring statistics on a specific slot, port, or a range of specified ports.

**interfaces** {*slot* | *slot/port[-port2]*} **clear-link-monitoring-stats**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to clear monitoring statistics for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to clear monitoring statistics for a specific interface or a range of interfaces.

### Example

```
-> interfaces 1 clear-link-monitoring-stats
-> interfaces 1/1 clear-link-monitoring-stats
-> interfaces 1/1-7 clear-link-monitoring-stats
```

### Release History

Release 6.4.4; command introduced.

### Related Commands

**show interfaces port** Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

**show interfaces link-monitoring config** Displays the link monitoring configuration for the specified ports.

**show interfaces link-monitoring statistics** Displays the link monitoring statistics for the specified ports.

### MIB Objects

```
alaLinkMonStatsTable
  alaLinkMonStatsClearStats
```

---

## interfaces hybrid preferred-fiber

Configures one or more combo ports to use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s), when both ports are enabled and have a valid link. In addition, this mode configures automatic failover to copper if a valid copper link is present on RJ-45 side and fiber link fails to come up.

**interfaces** {*slot* | *slot/port[-port2]*} **hybrid preferred-fiber**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

All combo ports are set to preferred fiber by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

This command is no longer required, preferred-fiber is the only mode supported.

### Examples

```
-> interfaces 1/47 hybrid preferred-fiber
-> interfaces 1/47-48 hybrid preferred-fiber
-> interfaces 1 hybrid preferred-fiber
```

### Release History

Release 6.1; command was introduced.

Release 6.4.4; preferred-fiber is the default setting and cannot be changed.

### Related Commands

**show interfaces hybrid status** Displays interface line settings (for example, speed, mode) for combo ports only.

### MIB Objects

```
esmHybridConfTable
  esmPortCfgHybridMode
  esmPortCfgHybridType
```

---

## interfaces hybrid autoneg

Enables or disables auto-negotiation on a single combo port, a range of combo ports, or all combo ports on a switch.

**interfaces** {*slot* | *slot/port[-port2]*} **hybrid** {**fiber** | **copper**} **autoneg** {**enable** | **disable** | **on** | **off**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that configuration changes will be made to the SFP port(s).
<b>copper</b>	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
<b>enable</b>	Enables auto negotiation.
<b>disable</b>	Disables auto negotiation.
<b>on</b>	Same as enable.
<b>off</b>	Same as disable.

### Defaults

By default, auto-negotiation is enabled for the interface.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.
- The MIB table and MIB object listed in the “MIB Objects” section below apply to the inactive configured media only. See the “MIB Objects” section in the [interfaces autoneg](#) section for the MIB table and MIB object for the active configured media.
- Enter a slot number to configure auto-negotiation for all interfaces on a specific slot.
- Enter a slot and port number or a range of ports to configure auto-negotiation for a specific interface on a specific slot.

### Examples

```
-> interfaces 1/47 hybrid copper autoneg disable
-> interfaces 1/47-48 hybrid copper autoneg disable
-> interfaces 1 hybrid copper autoneg disable
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">interfaces hybrid speed</a>	Configures interface speed for combo ports.
<a href="#">interfaces hybrid crossover</a>	Configures crossover port settings for combo ports.
<a href="#">interfaces hybrid speed</a>	Enables or disables flow (pause).
<a href="#">show interfaces hybrid status</a>	Displays interface line settings for combo ports.
<a href="#">show interfaces hybrid capability</a>	Displays auto negotiation, speed, duplex, and crossover settings for combo ports.

## MIB Objects

esmHybridConfTable  
esmHybridPortCfgAutoNegotiation

---

## interfaces hybrid crossover

Configures port crossover settings on a single port, a range of ports, or an entire Network Interface (NI).

**interfaces** {*slot* | *slot/port*[-*port2*]} **hybrid copper crossover** {**auto** | **mdix** | **mdi**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>copper</b>	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
<b>auto</b>	The interface will automatically detect crossover settings.
<b>mdix</b>	Sets the crossover configuration to Media Dependent Interface with Crossover (MDIX), which is the standard for hubs and switches.
<b>mdi</b>	Sets the crossover configuration to Media Dependent Interface (MDI), which is the standard for end stations.

### Defaults

By default, the interface is configured to automatically detect crossover settings.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.
- You cannot configure crossover settings on fiber ports. These ports use the MDI standard.
- The MIB table and MIB object listed in the “MIB Objects” section below apply to the inactive configured media only. See the “MIB Objects” section in the [interfaces crossover](#) section for the MIB table and MIB object for the active configured media.
- Enter a slot number to configure the crossover settings for all interfaces on a specific slot.
- Enter a slot and port number or a range of ports to configure the crossover settings for a specific interface or a range of interfaces.

### Examples

```
-> interfaces 1/47 hybrid copper crossover disable
-> interfaces 1/47-48 hybrid copper crossover mdix
-> interfaces hybrid copper crossover auto
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">interfaces hybrid speed</a>	Configures interface speed for combo ports.
<a href="#">interfaces hybrid autoneg</a>	Enables and disables auto negotiation for combo ports.
<a href="#">interfaces hybrid speed</a>	Enables or disables flow (pause) for combo ports.
<a href="#">show interfaces hybrid status</a>	Displays interface line settings for combo ports.
<a href="#">show interfaces hybrid capability</a>	Displays auto negotiation, speed, duplex, and crossover settings for combo ports.

## MIB Objects

esmHybridConfTable  
esmHybridPortCfgCrossover

---



## interfaces hybrid duplex

Configures duplex mode on combo ports. In full duplex mode, the interface transmits and receives data simultaneously. In half duplex mode, the interface can transmit *or* receive data at a given time. Auto duplex setting causes the switch to advertise all available duplex modes (half/full/both) for the port during autonegotiation.

**interfaces** {*slot* | *slot/port[-port2]*} **hybrid** {**fiber** | **copper**} **duplex** {**full** | **half** | **auto**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that configuration changes will be made to the SFP port(s).
<b>copper</b>	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
<b>full</b>	Sets interface to full duplex mode.
<b>half</b>	Sets interface to half duplex mode.
<b>auto</b>	Switch will automatically set both the duplex mode settings to auto-negotiation.

### Defaults

By default, the duplex mode is set to full for the interface.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.
- The MIB table and MIB object listed in the “MIB Objects” section below apply to the inactive configured media only. See the “MIB Objects” section in the [interfaces duplex](#) section for the MIB table and MIB object for the active configured media.
- Enter a slot number to configure the duplex mode for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the duplex mode for a specific interface or a range of interfaces.

### Examples

```
-> interfaces 1/47 hybrid copper duplex auto
-> interfaces 1/47-48 hybrid copper duplex half
-> interfaces 1 hybrid copper fiber full
```

## Release History

Release 6.1; command was introduced.

## Related Commands

- [interfaces hybrid speed](#) Configures interface line speed for combo ports. Set to **auto** to set speed and duplex mode to auto-sensing.
- [show interfaces hybrid status](#) Displays interface line settings (for example, speed, mode) for combo ports.

## MIB Objects

esmHybridConfTable  
esmHybridPortCfgDuplexMode

---

## interfaces hybrid speed

Configures interface line speed on combo ports.

```
interfaces {slot | slot/port[-port2]} hybrid {fiber | copper} speed {auto | 10 | 100 | 1000 | 10000 | max  
{100 | 1000}}
```

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that configuration changes will be made to the SFP port(s).
<b>copper</b>	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
<b>auto</b>	The switch will automatically set the line speed to match the attached device (auto-sensing).
<b>10</b>	Sets the interface to 10 Mbps.
<b>100</b>	Sets the interface to 100 Mbps.
<b>1000</b>	Sets the interface to 1 Gigabit.
<b>10000</b>	Sets the interface to 10 Gigabit. This option is currently not supported.
<b>max 100</b>	Sets the maximum speed to 100 megabits.
<b>max 1000</b>	Sets the maximum speed to 1000 megabits (1 Gigabit)

### Defaults

By default, the line speed is automatically set to match the speed of the attached device.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.
- The MIB table and MIB object listed in the “MIB Objects” section below apply to the inactive configured media only. See the “MIB Objects” section in the [interfaces speed](#) section for the MIB table and MIB object for the active configured media.
- Enter a slot number to configure the line speed for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to configure the line speed for a specific interface or a range of interfaces.

## Examples

```
-> interfaces 1/47 hybrid copper speed auto
-> interfaces 1/47-48 hybrid copper speed 100
-> interfaces 1/47 hybrid fiber speed 1000
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">interfaces hybrid duplex</a>	Configures duplex mode for combo ports.
<a href="#">interfaces hybrid autoneg</a>	Enables and disables auto negotiation for combo ports.
<a href="#">show interfaces hybrid status</a>	Displays interface line settings for combo ports.

## MIB Objects

```
esmHybridConfTable
    esmHybridPortCfgSpeed
```

---

## interfaces hybrid pause

Configures whether or not the switch will transmit, honor, or transmit and accept flow control PAUSE frames on the specified combo port. PAUSE frames are used to temporarily pause the flow of traffic between two connected devices to help prevent packet loss when traffic congestion occurs between switches.

**interfaces** {*slot* | *slot/port[-port2]*} **hybrid** {**fiber** | **copper**} **pause** {**tx** | **rx** | **tx-and-rx** | **disable**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that configuration changes will be made to the SFP port(s).
<b>copper</b>	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
<b>tx</b>	Transmits PAUSE frames to peer switches when traffic congestion occurs on the local interface. Does not honor PAUSE frames from peer switches.
<b>rx</b>	Allows interface to honor PAUSE frames from peer switches and temporarily stop sending traffic to the peer. Does not transmit PAUSE frames to peer switches.
<b>tx-and-rx</b>	Transmits and honors PAUSE frames when traffic congestion occurs between peer switches.
<b>disable</b>	Disables flow control on the interface.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Defaults

By default, flow control is disabled on all combo ports.

### Usage Guidelines

- Note that if the standalone switch is a 24-port unit, then only the **interfaces pause** command is required to enable end-to-end (E2E) flow control. However, if the switch is a 48-port unit, then a flow control VLAN, which is configured using the **interfaces e2e-flow-vlan** command, is required in addition to enabling RX/TX pause flow control.
- Flow control is only supported on interfaces configured to run in full-duplex mode; half-duplex mode is not supported.

- If both autonegotiation and flow control are enabled on the same local interface, autonegotiation calculates operational flow control settings for that interface. Note that the operational settings, as shown in the following table, override the configured settings as long as autonegotiation and flow control are both enabled for the interface.

Configured Local Tx	Configured Local Rx	Configured Remote Tx	Configured Remote Rx	Negotiated Local Tx	Negotiated Local Rx
No	No	No	No	No	No
Yes	Yes	Yes	Yes	Yes	Yes
Yes	No	Yes	No	No	No
No	Yes	No	Yes	Yes	Yes
No	No	No	Yes	No	No
Yes	Yes	No	No	No	No
Yes	No	Yes	Yes	No	No
No	Yes	Yes	No	No	Yes
No	No	Yes	No	No	No
Yes	Yes	No	Yes	Yes	Yes
Yes	No	No	No	No	No
No	Yes	Yes	Yes	Yes	Yes
No	No	Yes	Yes	No	No
Yes	Yes	Yes	No	No	No
Yes	No	No	Yes	Yes	No
No	Yes	No	No	No	No

- If autonegotiation is disabled, the configured flow control setting is applied to the local interface.
- Enter a slot number to configure the flow control settings for all interfaces on a specific slot.
- Enter a slot and port number or range of port numbers to configure the flow control settings for a specific interface or a range of interfaces.

## Examples

```
-> interfaces 3/21 hybrid fiber pause tx
-> interfaces 4/24 hybrid copper pause rx
-> interfaces 1 hybrid fiber tx-and-rx
-> interfaces 3/21-24 hybrid copper pause tx
-> interfaces 3/21-24 hybrid copper disable
```

## Release History

Release 6.3.2; command was introduced.

## Related Commands

- [interfaces pause](#) Configures flow control settings for switch interfaces.  
[show interfaces hybrid pause](#) Displays flow control settings for combo ports.

## MIB Objects

```
esmHybridConfigTable  
    esmHybridPortCfgFlow  
dot3PauseTable  
    dot3PauseAdminMode
```

---

## show interfaces

Displays general interface information (for example, hardware, MAC address, input errors, and output errors).

**show interfaces** [*slot* | *slot/port*[-*port2*]]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, interface information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces 1/2
Slot/Port 1/2 :
Operational Status      : up,
Last Time Link Changed  : FRI DEC 27 15:10:40 ,
Number of Status Change: 1,
Type                    : Ethernet,
SFP/XFP                 : Not Present,
MAC address             : 00:d0:95:b2:39:85,
BandWidth (Megabits)    : 1000,           Duplex           : Full,
Autonegotiation         : 1 [ 1000-F 100-F 100-H 10-F 10-H ],
Long Frame Size(Bytes) : 9216,           Runt Size(Bytes) : 64,
Rx
Bytes Received          :          7967624, Unicast Frames :          0,
Broadcast Frames:      :          124186, M-cast Frames  :          290,
UnderSize Frames:      :          0, OverSize Frames:    :          0,
Lost Frames             :          0, Error Frames      :          0,
CRC Error Frames:      :          0, Alignments Err   :          0,
Tx
Bytes Xmitted           :          255804426, Unicast Frames :          24992,
Broadcast Frames:      :          3178399, M-cast Frames  :          465789,
UnderSize Frames:      :          0, OverSize Frames:    :          0,
Lost Frames             :          0, Collided Frames:    :          0,
Error Frames            :          0
```



*output definitions*

---

<b>Slot/Port</b>	Interface slot and port.
<b>Operational Status</b>	Interface status (up/down).
<b>Last Time Link Changed</b>	The last time the configuration for this interface was changed. (Currently this field is only displayed on OmniSwitch 6800 Series switches.)
<b>Number of Status Change</b>	The total number of times that the configuration of this interface has changed. (Currently this field is only displayed on OmniSwitch 6800 Series switches.)
<b>Type</b>	Interface type (Ethernet/Fast Ethernet/Gigabit Ethernet).
<b>MAC address</b>	Interface MAC address.
<b>Bandwidth</b>	Bandwidth (in megabits).
<b>Duplex</b>	Duplex mode (Half/Full/Auto).
<b>Autonegotiation</b>	The auto negotiation settings for this interface.
<b>Long Accept</b>	Long Frames status (enable/disable).
<b>Runt Accept</b>	Runt Frames status (enable/disable).
<b>Long Frame Size</b>	Long Frame Size (in Bytes).
<b>Runt Size</b>	Runt Frame Size (in Bytes).
<b>Bytes Received</b>	Number of Bytes received.
<b>Rx Unicast Frames</b>	Number of unicast frames received.
<b>Rx Broadcast Frames</b>	Number of broadcast frames received.
<b>Rx M-cast Frames</b>	Number of multicast frames received.
<b>Rx Undersize Frames</b>	Number of undersized frames received.
<b>Rx Oversize Frames</b>	Number of oversized frames received.
<b>Rx Lost Frames</b>	Number of Lost Frames received.
<b>Rx Error Frames</b>	Number of error frames received.
<b>Rx CRC Error Frames</b>	Number of CRC error frames received.
<b>Rx Alignments Err</b>	Number of Alignments Error frames received.
<b>Bytes Xmitted</b>	Number of Bytes transmitted.
<b>Tx Unicast Frames</b>	Number of unicast frames transmitted.
<b>Tx Broadcast Frames</b>	Number of broadcast frames transmitted.
<b>Tx M-cast Frames</b>	Number of multicast frames r transmitted.
<b>Tx Undersize Frames</b>	Number of undersized frames transmitted.
<b>Tx Oversize Frames</b>	Number of oversized frames transmitted.
<b>Tx Lost Frames</b>	Number of Lost Frames transmitted.
<b>Tx Collided Frames</b>	Number of collision frames received or transmitted.
<b>Tx Error Frames</b>	Number of error frames transmitted.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show interfaces accounting</a>	Displays interface accounting information (for example, packets received/transmitted).
<a href="#">show interfaces counters</a>	Displays interface counter information (for example, unicast packets received/transmitted).
<a href="#">show interfaces counters errors</a>	Displays interface error frame information (for example, CRC errors, transit errors, and receive errors).
<a href="#">show interfaces collisions</a>	Displays interface collision information (for example, number of collisions and number of retries).
<a href="#">show interfaces status</a>	Displays the interface line settings (for example, speed and mode).
<a href="#">show interfaces traffic</a>	Displays interface traffic statistics (input/output bytes and packets).

## **MIB Objects**

### ifTable

- ifOperStatus
- ifType
- ifPhysAddress
- ifSpeed
- ifInDiscards
- IfOutDiscards

### esmConfTable

- esmPortSlot
- esmPortIF
- esmPortCfgLongEnable
- esmPortCfgRuntEnable
- esmPortCfgMaxFrameSize
- esmPortCfgRuntSize

### ifXTable

- ifHCInOctets
- ifHCInUcastPkts
- ifHCInBroadcastPkts
- ifHCInMulticastPkts
- IfHCOutOctets
- IfHCOutUcastPkts
- IfHCOutBroadcastPkts
- IfHCOutMulticastPkts

### alcetherStatsTable

- alcetherStatsRxUndersizePkts
- alcetherStatsCRCAAlignErrors
- alcetherStatsTxUndersizePkts
- alcetherStatsTxOversizePkts
- alcetherStatsTxCollisions

### dot3StatsTable

- dot3StatsFrameTooLong
- dot3StatsFCSErrors
- dot3StatsLateCollisions

---

## show interfaces capability

Displays default auto negotiation, speed, duplex, flow, and cross-over settings for a single port, a range of ports, or all ports on a Network Interface (NI) module.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **capability**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.
- The **show interfaces capability** command displays default settings in two rows of data for each port. The first row of data, identified by the label **CAP**, displays the valid user-defined configuration settings available for the port. The second row, identified by the label **DEF**, displays the default settings for the port.

### Examples

```
-> show interfaces 5/1 capability
Slot/Port  AutoNeg      Flow  Crossover      Speed  Duplex
-----+-----+-----+-----+-----+-----
 5/1  CAP      EN/DIS  EN/DIS  MDI/X/Auto  10/100/1G  Full/Half
 5/1  DEF          EN      EN      Auto        Auto      Auto
```

### output definitions

---

<b>Slot</b>	The slot number.
<b>Port</b>	The port number
<b>AutoNeg</b>	In the row labeled <b>CAP</b> , the field displays the valid auto negotiation configurations for the port. In the row label <b>DEF</b> , the field displays the default auto negotiation settings for the port. The possible values are <b>EN</b> (enabled) or <b>DIS</b> (disabled).

*output definitions (continued)*

---

<b>Flow</b>	In the row labeled <b>CAP</b> , the field displays the valid flow configurations for the port. In the row label <b>DEF</b> , the field displays the default flow settings for the port. The possible values are <b>EN</b> (enabled) or <b>DIS</b> (disabled).
<b>Crossover</b>	In the row labeled <b>CAP</b> , the field displays the valid cross over configurations for the port. In the row label <b>DEF</b> , the field displays the default cross over settings for the port. The possible values are <b>Auto</b> , <b>MDI/X/Auto</b> (MDI/MDIX/Auto), or <b>--</b> (not configurable and/or not applicable).
<b>Speed</b>	In the row labeled <b>CAP</b> , the field displays the valid line speed configurations for the port. In the row label <b>DEF</b> , the field displays the default line speed settings for the port. The possible values are <b>10/100</b> , <b>100</b> , <b>1G</b> , <b>10/100/1G</b> , <b>10G</b> , or <b>Auto</b> .
<b>Duplex</b>	In the row labeled <b>CAP</b> , the field displays the valid duplex configurations for the port. In the row label <b>DEF</b> , the field displays the default duplex settings for the port. The possible values are <b>Full</b> , <b>Full/Half</b> , or <b>Auto</b> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">interfaces autoneg</a>	Enables and disables auto negotiation.
<a href="#">interfaces crossover</a>	Configures crossover port settings.
<a href="#">interfaces speed</a>	Configures interface speed.
<a href="#">interfaces duplex</a>	Configures duplex settings.
<a href="#">show interfaces status</a>	Displays interface line settings.

**MIB Objects**

```
esmConfTable
  esmPortCfgAutoNegotiation
  esmPortCfgFlow
  esmPortCfgCrossover
  esmPortCfgSpeed
  esmPortAutoDuplexMode
```

---

## show interfaces flow control

Displays interface flow control wait time settings.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **flow** [**control**]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>control</b>	Optional command syntax. It displays the same information as <b>show interfaces flow</b> .

### Defaults

By default, flow control wait time settings are displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces 3/20-24 flow
Slot/Port  Active  Wait time(usec)  Cfg-Flow  Cfg-Cross
-----+-----+-----+-----+-----
3/20      -        0                Pause     MDIX
3/21      -        0                Pause     MDIX
3/22      -        0                Pause     MDIX
3/23      -        0                Go        MDIX
3/24      -        0                Go        MDIX
```

#### *output definitions*

---

<b>Slot/Port</b>	Interface slot and port number
<b>Active</b>	Interface status.
<b>Wait time</b>	Flow control wait time, in microseconds.
<b>Cfg-Flow</b>	Flow control status ( <b>Pause</b> or <b>Go</b> ).
<b>Cfg-Cross</b>	The user-configured cross-over setting ( <b>Auto</b> , <b>MDI</b> , or <b>MDIX</b> ).

---

## Release History

Release 6.1; command was introduced.

Release 6.3.2; command deprecated on the OmniSwitch 6855.

Release 6.4.3; command deprecated on OmniSwitch 6400 and OmniSwitch 6850.

## Related Commands

[interfaces crossover](#)

Configures crossover settings.

[show interfaces hybrid pause](#)

Displays interface flow control wait time settings for combo ports.

## MIB Objects

esmConfTable

  esmPortSlot

  esmPortIF

  esmPortPauseSlotTime

  esmPortCfgCrossover

dot3PauseTable

  dot3PauseSlotTime

---

## show interfaces pause

Displays the flow control pause configuration for the specified interface(s).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **pause**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, the flow control pause configuration is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces pause
Slot/Port  Active  Wait time(usec)  Cfg-Pause  Cfg-Cross  Hybrid  Type
-----+-----+-----+-----+-----+-----+-----
1/1        -        0                DIS        MDIX        -
1/2        -        0                DIS        MDIX        -
1/3        -        0                DIS        MDIX        -
1/4        -        0                DIS        MDIX        -
1/5        -        0                DIS        MDIX        -
1/6        -        0                DIS        MDIX        -
1/7        -        0                DIS        Auto        -
1/8        -        0                DIS        Auto        -
1/9        -        65535           DIS        Auto        NA
1/10       -        0                DIS        Auto        -
1/11       -        65535           DIS        Auto        NA
1/12       -        0                DIS        Auto        -
1/13       -        0                DIS        Auto        -
1/14       -        0                DIS        Auto        -
1/15       -        0                DIS        Auto        -
1/16       -        0                DIS        Auto        -
1/17       -        0                DIS        Auto        -
1/18       -        0                DIS        Auto        -
1/19       -        0                DIS        Auto        -
1/20       -        0                DIS        Auto        -
1/21       -        0                DIS        MDI        -
1/21       -        0                DIS        Auto        -
```



```

1/22      -          0      DIS      MDI      -
1/22      -          0      DIS      Auto     -
1/23      -          0      DIS      MDI      -
1/23      -          0      DIS      Auto     -
1/24      -          0      Tx      MDI      -
1/24      Active    65535 Tx-N-Rx Auto     C

```

-> show interfaces 1/24 pause

```

Slot/Port  Active  Wait time(usec)  Cfg-Pause  Cfg-Cross  Hybrid  Type
-----+-----+-----+-----+-----+-----+-----
1/24      -          0      Tx      MDI      -
1/24      Active    65535 Tx-N-Rx Auto     C

```

### output definitions

<b>Slot/Port</b>	Interface slot and port number
<b>Active</b>	Interface status.
<b>Wait time</b>	The amount of time, in microseconds, the neighbor interface will wait after receiving a PAUSE frame from the local interface.
<b>Cfg-Pause</b>	The flow control setting ( <b>Tx</b> = transmit, <b>Rx</b> = receive, <b>Tx-N-Rx</b> = transmit and receive). Configured through the <a href="#">interfaces pause</a> command.
<b>Cfg-Cross</b>	The user-configured cross-over setting ( <b>Auto</b> , <b>MDI</b> , or <b>MDIX</b> ). Configured through the <a href="#">interfaces crossover</a> command.
<b>Hybrid Type</b>	The configured active media type for a hybrid port ( <b>F</b> = fiber, <b>C</b> = copper, <b>NA</b> = not applicable).

### Release History

Release 6.3.2; command was introduced.

### Related Commands

[show interfaces hybrid pause](#) Displays flow control pause settings for combo ports.

### MIB Objects

```

esmConfTable
  esmPortSlot
  esmPortIF
  esmPortPauseSlotTime
  esmPortCfgCrossover
  esmPortActiveHybridType
dot3PauseTable
  dot3PauseSlotTime

```

---

## show interfaces e2e-flow-vlan

Displays the end-to-end (E2E) flow control VLAN configuration for the switch.

**show interfaces e2e-flow-vlan**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E

### Usage Guidelines

- This command is available only on standalone 48-port OmniSwitch 6400, 6850, and 6850E switches.
- There is only one dedicated E2E flow control VLAN configured per switch.

### Examples

```
-> show interfaces e2e-flow-vlan
Configured End-To-End Flow Vlan - 10
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[interfaces e2e-flow-vlan](#) Configures a dedicated VLAN for carrying end-to-end (E2E) flow control messages to remote systems.

[show interfaces pause](#) Displays the flow control pause configuration for the specified interface(s).

### MIB Objects

esmE2EFlowVlan

---

## show interfaces accounting

Displays interface accounting information (for example, packets received/transmitted and deferred frames received).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **accounting**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, accounting information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces 1/2 accounting
1/2 ,
  Rx undersize packets           =                0,
  Tx undersize packets           =                0,
  Rx oversize packets            =                0,
  Tx oversize packets            =                0,
  Rx packets 64 Octets           =           3073753,
  Rx packets 65To127 Octets      =           678698,
  Rx packets 128To255 Octets     =           21616,
  Rx packets 256To511 Octets     =           21062,
  Rx packets 512To1023 Octets    =                2,
  Rx packets 1024To1518 Octets   =             84,
  Rx packets 1519to4095 Octets   =                0,
  Rx packets 4096ToMax Octets    =                0,
  Rx Jabber frames               =                0
```

#### *output definitions*

---

<b>Rx undersize packets</b>	Number of undersized packets received.
<b>Tx undersize packets</b>	Number of undersized packets transmitted.
<b>Rx oversize packets</b>	Number of oversized packets received.
<b>Tx oversize packets</b>	Number of oversized packets transmitted.

*output definitions (continued)*


---

<b>Rx packets Octets</b>	Number of packets received in each listed octet range.
<b>Rx Jabber frames</b>	Number of jabber packets received (longer than 1518 octets).
<b>Tx deferred frames</b>	Number of packets for which transmission was delayed (Ethernet only).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show interfaces</a>	Displays general interface information (for example, hardware, MAC address, and input/output errors).
<a href="#">show interfaces counters</a>	Displays interface counter information (for example, unicast packets received/transmitted).

**MIB Objects**

```
esmConfTable
  esmPortSlot
  esmPortIF
dot3StatsTable
  dot3StatsFrameTooLong
  dot3StatsDeferredTransmissions
alcetherStatsTable
  alcetherStatRxsUndersizePkts
  alcetherStatTxUndersizePkts
  alcetherStatsTxOversizePkts
  alcetherStatsPkts64Octets
  alcetherStatsPkts65to127Octets
  alcetherStatsPkts128to255Octets
  alcetherStatsPkts256to511Octets
  alcetherStatsPkts512to1023Octets
  alcetherStatsPkts1024to1518Octets
  gigaEtherStatsPkts1519to4095Octets
  gigaEtherStatsPkts4096to9215Octets
  alcetherStatsRxJabber
```

---

## show interfaces counters

Displays interface counters information (for example, unicast, broadcast, and multi-cast packets received/transmitted).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **counters**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.
- This command also displays sampling interval statistics that show an average traffic rate per second for active switch interfaces. These statistics are taken every 5 seconds. The actual statistics shown are those taken from the last completed 5-second time interval.
- Note that the sampling interval time period is set to five seconds and is not a configurable value at this time. In addition, the sampling interval is a global value that applies to all switch ports.

### Examples

```
-> show interfaces 3/1 counters
```

```
InOctets      = 54367578586897979,  OutOctets      = 5.78E19,  
InUcastPkts  = 55654265276,    OutUcastPkts  = 5.78E20,  
InMcastPkts  = 58767867868768777, OutMcastPkts  = 5465758756856,  
InBcastPkts  = 576567567567567576, OutBcastPkts  = 786876,  
InPauseFrames = 567798768768767,  OutPauseFrames= 786876,  
Sampling Interval 5 second  
  InPkts / s    =                11,    OutPkts / s    =                11,  
  Inbits / s    =                111111,  Outbits / s    =                111111,
```

*output definitions*


---

<b>InOctets</b>	Number of octets received.
<b>OutOctets</b>	Number of octets transmitted.
<b>InUcastPkts</b>	Number of unicast packets received.
<b>OutUcastPkts</b>	Number of unicast packets transmitted.
<b>InMcastPkts</b>	Number of multicast packets received.
<b>OutMcastPkts</b>	Number of unicast packets transmitted.
<b>InBcastPkts</b>	Number of broadcast packets received.
<b>OutBcastPkts</b>	Number of unicast packets transmitted.
<b>InPauseFrames</b>	Number of MAC control frames received.
<b>OutPauseFrames</b>	Number of MAC control frames transmitted.
<b>Sampling Interval</b>	The sampling interval used to determine the average rate per second.
<b>InPkts / s</b>	The average number of packets received per second.
<b>OutPkts / s</b>	The average number of packets transmitted per second.
<b>Inbits / s</b>	The average number of bits received per second.
<b>Outbits / s</b>	The average number of bits transmitted per second.

---

**Release History**

Release 6.1; command was introduced.

Release 6.3.4; **Sampling Interval** fields (**InPkts**, **OutPkts**, **Inbits**, **Outbits**) were added.

**Related Commands**

**show interfaces counters errors** Displays interface error frame information (for example, CRC errors, transit errors, and receive errors).

**MIB Objects**

```
esmConfTable
  esmPortSlot
  esmPortIF
ifXTable
  IfHCInOctets
  IfHCOutOctets
  IfHCInUcastPkts
  IfHCOutUcastPkts
  IfHCInMulticastPkts
  IfHCOutMulticastPkts
  IfHCInBroadcastPkts
  IfHCOutBroadcastPkts
dot3PauseTable
  dot3InPauseFrame
  dot3OutPauseFrame
```

---

## show interfaces counters errors

Displays interface error frame information (for example, CRC errors, transit errors, and receive errors).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **counters errors**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.

### Examples

```
-> show interfaces 2/1 counters errors
```

```
02/01,  
  Alignments Errors = 6.45E13,  FCS Errors = 7.65E12  
  IfInErrors       = 6435346,  IfOutErrors= 5543,  
  Undersize pkts   = 867568,  Oversize pkts= 5.98E8
```

### output definitions

---

<b>Slot/Port</b>	Interface slot and port number.
<b>Alignments Errors</b>	Number of Alignments errors.
<b>FCS Errors</b>	Number of Frame Check Sequence errors.
<b>IfInErrors</b>	Number of received error frames.
<b>IfOutErrors</b>	Number of transmitted error frames.
<b>Undersize pkts</b>	Number of undersized packets.
<b>Oversize pkts</b>	Number of oversized packets (more than 1518 octets).

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### [show interfaces counters](#)

Displays interface counters information (for example, unicast, broadcast, and multi-cast packets received/transmitted).

## MIB Objects

esmConfTable

    esmPortSlot

    esmPortIF

ifTable

    ifInErrors

    ifOutErrors

alcetherStatsTable

    alcetherStatsRxUndersizePkts

dot3StatsTable

    dot3StatsAlignmentErrors

    dot3StatsFCSErrors

    dot3StatsFrameTooLong

---



## show interfaces collisions

Displays interface collision information (for example, number of collisions and number of retries).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **collisions**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.

### Examples

```
-> show interfaces 2/1 collisions
```

```
02/01,  
  Rx Collisions = 6.56E18,  Rx Single Collision = 345464364,  
  Rx Multiple Collisions = 6325235326,  Rx Excessive Collisions = 5.65E19
```

### output definitions

---

<b>Slot/Port</b>	Interface slot and port number.
<b>Tx Collisions</b>	Number of transmit collisions.
<b>Tx Single Collision</b>	Number of successfully transmitted frames for which transmission was inhibited by one collision.
<b>Tx Multiple Collisions</b>	Number of successfully transmitted frames for which transmission was inhibited by multiple collisions.
<b>Tx Excessive Retries</b>	Number of frames for which transmission fails due to excessive collisions.
<b>Rx Collisions</b>	Number of receive collisions.
<b>Rx Single Collision</b>	Number of successfully received frames for which reception was inhibited by one collision.

*output definitions (continued)*

---

<b>Rx Multiple Collisions</b>	Number of successfully received frames for which reception was inhibited by multiple collisions.
<b>Rx Excessive Retries</b>	Number of frames for which reception fails due to excessive collisions.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show interfaces](#) Displays general interface information (for example, hardware, MAC address, input errors, and output errors).

**MIB Objects**

esmConfTable

    esmPortSlot

    esmPortIF

alcetherStatsTable

    alcetherStatsRxCollisions

dot3StatsTable

    dot3StatsSingleCollisionFrames

    dot3StatsMultipleCollisionFrames

    dot3StatsExcessiveCollisions

---

## show interfaces status

Displays interface line settings (for example, speed and mode).

**show interfaces** [*slot* | *slot/port*[-*port2*]] **status**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, line settings are displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

The following is an example for a non combo port:

```
-> show interfaces 1/2 status
                DETECTED                CONFIGURED
Slot/ AutoNego  Speed Duplex Hybrid  Speed Duplex Hybrid  Trap
Port          (Mbps)                Type  (Mbps)                Mode  LinkUpDown
-----+-----+-----+-----+-----+-----+-----+-----+-----+
  1/2   Enable   1000   Full   NA       Auto   Auto   NA       -
```

The following is an example for a combo port:

```
-> show interfaces 1/47 status
                DETECTED                CONFIGURED
Slot/ AutoNego  Speed Duplex Hybrid  Speed Duplex Hybrid  Trap
Port          (Mbps)                Type  (Mbps)                Mode  LinkUpDown
-----+-----+-----+-----+-----+-----+-----+-----+
  1/47   Enable   -      -      -       1000  Full   PF       -
  1/47   Enable   -      -      -        Auto   Auto   PF       -
```

FF - ForcedFiber PF - PreferredFiber F - Fiber  
 FC - ForcedCopper PC - PreferredCopper C - Copper

*output definitions*


---

<b>Slot/Port</b>	Interface slot/port number.
<b>AutoNego</b>	Autonegotiation status (Enable/Disable).
<b>Detected Speed</b>	Detected line speed (10/100/Auto/1000/10000 Mbps).
<b>Detected Duplex</b>	Detected line duplex (Half duplex/Full duplex/Auto).
<b>Detected Hybrid Type</b>	The detected combo port type, which can be <b>F</b> (fiber) or <b>C</b> (copper). (This field is only relevant for OmniSwitch 6800 Series switches.)
<b>Configured Speed</b>	Configured line speed (10/100/Auto/1000/10000 Mbps).
<b>Configured Duplex</b>	Configured line duplex (Half duplex/Full duplex/Auto).
<b>Configured Hybrid Type</b>	The configured combo port type, which can be <b>FF</b> (Forced Fiber), <b>PF</b> (Preferred Fiber), <b>FC</b> (Forced Copper), or <b>PC</b> (Preferred Copper).
<b>Trap Link Up/Down</b>	Trap Link status (up/down).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">trap port link</a>	Enables/disables Trap LinkUpDown.
<a href="#">interfaces speed</a>	Configures interface line speed, sets speed, and duplex mode to auto-sensing.
<a href="#">interfaces duplex</a>	Configures interface duplex mode.
<a href="#">interfaces hybrid preferred-fiber</a>	Configures one or more combo ports to use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s) when both ports are enabled and have a valid link.
<a href="#">interfaces hybrid autoneg</a>	Configures one or more combo ports to use the copper 10/100/1000 RJ-45 port(s) instead of the fiber SFP port(s) when both ports are enabled and have a valid link.

**MIB Objects**

```
ifTable
  ifLinkUpDownTrapEnable
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortAutoSpeed
  esmPortAutoDuplexMode
  esmPortCfgSpeed
  esmPortCfgDuplexMode
esmHybridConfTable
  esmPortCfgHybridMode
  esmPortCfgHybridType
```

---

## show interfaces port

Displays the administrative status, link status, violations, recovery time, maximum recovery attempts and the value of the wait-to-restore timer for the specified port or ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **port**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.
- On a combo port with SFP fiber ports, the status of the SFP ports will be displayed. See the **show interfaces hybrid port** command for more information.
- The hash symbol (#) is displayed before the wait-to-restore value if the link state is WAIT (i.e., the wait-to-restore timer is running).

### Examples

```
-> show interfaces 1/1 port
Legends: WTR - Wait To Restore
          # - WTR Timer is Running & Port is in wait-to-restore state
          * - Permanent Shutdown
```

Slot/ Port	Admin Status	Link Status	Violations	Recovery Time	Recovery Max	WTR (sec)	Alias
1/1	enable	down	none	300	1	0	" "

```
-> show interfaces 1 port
```

```
Legends: WTR - Wait To Restore
```

```
# - WTR Timer is Running & Port is in wait-to-restore state
```

```
* - Permanent Shutdown
```

Slot/ Port	Admin Status	Link Status	Violations	Recovery Time	Recovery Max	WTR (sec)	Alias
1/1	enable	down	none	300	10	0	" "
1/2	enable	down	none	300	10	0	" "
1/3	enable	down	none	300	10	0	" "
1/4	enable	down	none	300	10	0	" "
1/5	enable	down	none	300	10	0	" "
1/6	enable	down	none	300	10	0	" "
1/7	enable	down	none	300	10	0	" "
1/8	enable	down	none	300	10	0	" "
1/9*	enable	down	LinkMon	30	2	0	" "
.							
.							
1/26	enable	down	none	0	0	0	" "

### output definitions

<b>Slot/Port</b>	Interface slot and port number. An asterisk (*) with slot/port indicates that the port is permanently shutdown.
<b>Admin Status</b>	Port status - <b>enable</b> , <b>disable</b> . Configured through the <b>interfaces admin</b> command.
<b>Link Status</b>	Operational status - <b>up</b> , <b>down</b> .
<b>Violations</b>	Applications that have blocked the port due to a specific violation.
<b>Recovery Time</b>	The recovery time for the port. Configured through the <b>interfaces violation-recovery-time</b> command.
<b>Recovery Max</b>	The maximum recovery attempts for the port Configured through the <b>interfaces violation-recovery-maximum</b> command.
<b>WTR (sec)</b>	The wait-to-restore timer value, in seconds, for the port. The value of 0 indicates the timer is disabled. Configured through the <b>interfaces wait-to-restore</b> command.
<b>Alias</b>	Interface alias. Configured through the <b>interfaces alias</b> command.

### Release History

Release 6.1; command was introduced.

Release 6.3.1; **Violations** field was added.

Release 6.4.4; **Recovery Time**, **Recovery Max**, **WTR (sec)** fields were added.

## Related Commands

[show interfaces hybrid port](#)

Displays interface port status (up or down) for combo ports.

[show interfaces violation-recovery](#)

Displays the globally configured recovery time, SNMP recovery trap enable/disable status and maximum recovery attempts.

## MIB Objects

esmConfTable

    esmPortSlot

    esmPortIF

    esmPortViolationBitMap

    esmWaitToRestoreTimer

ifXTable

    ifAdminStatus

    ifOperStatus

    ifAlias

alaPortViolationRecoveryTable

    alaPortViolationRecoveryTime

    alaPortViolationRecoveryMaximum

---

## show interfaces violation-recovery

Displays the globally configured recovery time, SNMP recovery trap enable/disable status and maximum recovery attempts.

**show interfaces violation-recovery**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show interfaces violation-recovery
UserPorts Shutdown Recovery Time: 200
UserPorts Shutdown Recovery Trap: Enable
UserPorts Shutdown Maximum Recovery: 2
```

### *output definitions*

---

<b>UserPorts Shutdown Recovery Time</b>	The recovery time configured for the port.
<b>UserPorts Shutdown Recovery Trap</b>	SNMP recovery trap status - <b>enable, disable</b> .
<b>UserPorts Shutdown Maximum Recovery</b>	The maximum recovery attempts configured for the port before a port is permanently shut down.

---

### Release History

Release 6.4.4; command was introduced.



## Related Commands

[interfaces violation-recovery-time](#)

Configures the time interval after which the port is automatically re-activated if the port was shut down for any violation.

[interfaces violation-recovery-maximum](#)

Configures the maximum number of recovery attempts before a port is permanently shut down.

[show interfaces port](#)

Displays the administrative, operational, violation, and recovery status and configuration for the specified port.

## MIB Objects

```
esmViolationRecovery  
  esmViolationRecoveryTime  
  esmViolationRecoveryTrap  
  esmViolationRecoveryMaximum
```

---

## show interfaces ifg

Displays interface inter-frame gap values.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **ifg**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on that slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces ifg
```

```
Slot/Port   ifg(Bytes)
-----+-----
02/01           12
02/02           12
02/03           12
02/04           12
02/05           12
02/06           12
02/07           12
02/08           12
02/09           12
02/10           12
02/11           12
02/12           12
02/13           12
02/14           12
02/15           12
02/16           12
02/17           12
02/18           12
```

*output definitions*

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>ifg</b>	Inter-frame gap value (Gigabit Ethernet interface).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[interfaces ifg](#) Configures the inter-frame gap value.

**MIB Objects**

esmConfTable  
  esmPortSlot  
  esmPortIF  
  esmPortCfgIFG

---

## show interfaces flood rate

Displays interface peak flood rate settings.

**show interfaces** [*slot* | *slot/port* [-*port2*]] **flood rate**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces flood rate
```

Slot/ Port	Bcast Value	Bcast Type	Bcast Status	Ucast Value	Ucast Type	Ucast Status	Mcast Value	Mcast Type	Mcast Status
1/1	500	pps	enable	496	mbps	enable	496	mbps	enable
1/2	33	mbps	enable	496	mbps	enable	35	%	enable
1/3	496	mbps	enable	5	mbps	enable	496	mbps	enable
1/4	496	mbps	enable	496	mbps	enable	496	mbps	enable
1/5	496	mbps	enable	496	mbps	enable	496	mbps	enable

```
-> show interfaces 1/2 flood rate
```

Slot/ Port	Bcast Value	Bcast Type	Bcast Status	Ucast Value	Ucast Type	Ucast Status	Mcast Value	Mcast Type	Mcast Status
1/2	33	mbps	enable	496	mbps	enable	35	%	enable

### output definitions

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>Bcast Value</b>	The broadcast storm value based on the type.
<b>Bcast Type</b>	The type of broadcast ( <b>mbps</b> , <b>pps</b> , <b>percentage</b> ).

*output definitions (continued)*

---

<b>Bcast Status</b>	The status of broadcast, <b>enable</b> or <b>disable</b> .
<b>Ucast Value</b>	The unknown-unicast storm value based on the type.
<b>Ucast Type</b>	The type of unknown-unicast ( <b>mbps, pps, percentage</b> )
<b>Ucast Status</b>	The status of unicast, <b>enable</b> or <b>disable</b> .
<b>Mcast Value</b>	The multicast storm value based on the type.
<b>Mcast Type</b>	The type of multicast ( <b>mbps, pps, percentage</b> )
<b>Mcast Status</b>	The status of multicast, <b>enable</b> or <b>disable</b> .

---

**Release History**

Release 6.1; command was introduced.

Release 6.4.3; **peak rate, flood-only, Multicast** parameters deprecated.

**Related Commands**

<a href="#">interfaces flood</a>	Enables traffic storm control on the specified interface.
<a href="#">interfaces flood rate</a>	Configures the peak flood rate for an interface.

**MIB Objects**

```
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortMaxFloodRate
  esmPortFloodMcastEnable
```

---

## show interfaces traffic

Displays interface traffic statistics.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **traffic**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces traffic
```

Slot/Port	Input packets	Input bytes	Output packets	Output bytes
02/01	0	0	0	0
02/02	0	0	0	0
02/03	0	0	0	0
03/01	0	0	0	0
03/02	0	0	0	0

#### *output definitions*

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>Input packets</b>	Input packets detected.
<b>Input bytes</b>	Input bytes detected.
<b>Output packets</b>	Output packets detected.
<b>Output bytes</b>	Output bytes detected.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [show interfaces](#)

Displays general interface information (for example, hardware, MAC address, and input/output errors).

### [show interfaces counters](#)

Displays interface counter information (for example, unicast packets received/transmitted).

## MIB Objects

esmConfTable

    esmPortSlot

    esmPortIF

ifXTable

    ifHCInOctets

    ifHCInUcastPkts

    ifHCInMulticastPkts

    ifHCInBroadcastPkts

    ifHCOctets

    ifHCOUcastPkts

    ifHCOmulticastPkts

    ifHCObroadcastPkts

---

## show interfaces transceiver

Displays the DDM information for the specified transceivers.

**show interfaces** [*slot* | *slot/port[-port2]*] **transceiver** [**ddm** | **w-low** | **w-high** | **a-low** | **a-high** | **actual**]

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>ddm</b>	Displays the administrative and trap status of the DDM feature.
<b>w-low</b>	Displays the Warning Low threshold for temperature, voltage, current, RX power and TX power.
<b>w-high</b>	Displays the Warning High threshold for temperature, voltage, current RX power and TX power.
<b>a-low</b>	Displays the Alarm Low threshold for temperature, voltage, current RX power and TX power.
<b>a-high</b>	Displays the Alarm High threshold for temperature, voltage, current RX power and TX power.
<b>actual</b>	Displays the Actual values for temperature, voltage, current RX power and TX power.

### Defaults

By default, information is displayed for all ports on all modules and for all DDM parameter options.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Transceiver DDM capability will vary based on the transceiver manufacturer.
- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces transceiver w-low
Slot/Port Temp C Voltage(V) Current (mA) Output (dBm) Input (dBm)
-----+-----+-----+-----+-----+-----+
1/1          48      5.15      50      2.50      2.50
1/2          47      5.35      49      2.43      2.43
1/3          NA       NA       NA       NA       NA
```



```
-> show interfaces transceiver a-high
```

```
Slot/Port Temp C Voltage(V) Current(mA) Output(dBm) Input(dBm)
-----+-----+-----+-----+-----+-----+
1/1          50      5.75         75          3.22         3.22
1/2          50      5.95         65          3.22         3.22
1/3          NA       NA           NA           NA           NA
```

```
-> show interfaces 1/1 transceiver
```

```
Threshold      Temp C Voltage(V) Current(mA) Output(dBm) Input(dBm)
-----+-----+-----+-----+-----+-----+
Actual         50    1.95(WL)    75          4.92(AH)    3.22
Alarm High     120    5.75       100         4.91         4.91
Warning High   90     3.00       90          4.77         4.77
Warning Low    10     2.00       60          0.00         0.00
Alarm Low      -5     1.75       20          -3.01        -10
```

```
-> show interfaces transceiver ddm
```

```
DDM Status      : enable
DDM Trap Status : disable
```

### *output definitions*

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>Temp C</b>	The transceiver temperature, in degrees centigrade.
<b>Voltage (V)</b>	The transceiver supply voltage, in volts.
<b>Current (mA)</b>	The transceiver transmit bias current, in milliamps.
<b>Output (dBm)</b>	The transceiver output power, in decibels.
<b>Input (dBm)</b>	The transceiver received optical power, in decibels.
<b>DDM Status</b>	The administrative status of DDM.
<b>DDM Trap Status</b>	The administrative status of DDM traps.
<b>Actual</b>	The real-time values indicated by the transceiver. Values displayed in parentheses indicate the Warning or Alarm value that has been reached.
<b>Alarm High (AH)</b>	Indicates the value at which the transceiver's functionality may be affected.
<b>Warning High (WH)</b>	Indicates the transceiver is approaching the High Alarm value.
<b>Warning Low (WL)</b>	Indicates the transceiver is approaching the Low Alarm value.
<b>Alarm Low (AL)</b>	Indicates the value at which the transceiver's functionality may be affected.
<b>N/A</b>	Indicates the transceiver does support DDM.

---

### **Release History**

Release 6.4.2; command was introduced.

## Related Commands

**interfaces transceiver ddm** Configures the DDM administrative status or trap capability.

## MIB Objects

```
ddmNotifications
  ddmTemperature
  ddmTempLowWarning
  ddmTempLowAlarm
  ddmTempHiWarning
  ddmTempHiAlarm
  ddmSupplyVoltage
  ddmSupplyVoltageLowWarning
  ddmSupplyVoltageLowAlarm
  ddmSupplyVoltageHiWarning
  ddmSupplyVoltageHiAlarm
  ddmTxBiasCurrent
  ddmTxBiasCurrentLowWarning
  ddmTxBiasCurrentLowAlarm
  ddmTxBiasCurrentHiWarning
  ddmTxBiasCurrentHiAlarm
  ddmTxOutputPower
  ddmTxOutputPowerLowWarning
  ddmTxOutputPowerLowAlarm
  ddmTxOutputPowerHiWarning
  ddmTxOutputPowerHiAlarm
  ddmRxOpticalPower
  ddmRxOpticalPowerLowWarning
  ddmRxOpticalPowerLowAlarm
  ddmRxOpticalPowerHiWarning
  ddmRxOpticalPowerHiAlarm
```

---

## show interfaces hybrid

Displays general interface information (for example, hardware, MAC address, input errors, output errors) for combo ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** | **copper**}

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the status of the SFP port(s) will be displayed.
<b>copper</b>	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces 1/47 hybrid fiber
Slot/Port 1/47 :
Operational Status      : down,
Last Time Link Changed  : FRI DEC 27 15:10:23 ,
Number of Status Change: 0,
Type                    : Ethernet,
MAC address             : 00:d0:95:b2:39:b2,
BandWidth (Megabits)   : 1000,           Duplex           : -,
Autonegotiation        : 1 [ 1000-F           ],
Long Accept            : Enable,           Runt Accept      : Disable,
Long Frame Size(Bytes) : 9216,           Runt Size(Bytes) : 64,
Rx                    :
Bytes Received         :                   0, Unicast Frames :                   0,
Broadcast Frames      :                   0, M-cast Frames   :                   0,
UnderSize Frames      :                   0, OverSize Frames:                   0,
Lost Frames           :                   0, Error Frames   :                   0,
CRC Error Frames      :                   0, Alignments Err :                   0,
Tx                    :
Bytes Xmitted         :                   0, Unicast Frames :                   0,
```

```

Broadcast Frames:           0, M-cast Frames      :           0,
UnderSize Frames:          0, OverSize Frames:      0,
Lost Frames      :         0, Collided Frames:      0,
Error Frames      :         0

```

*output definitions*


---

<b>Slot/Port</b>	Interface slot and port.
<b>Operational Status</b>	Interface status (up/down).
<b>Last Time Link Changed</b>	The last time the configuration for this interface was changed.
<b>Number of Status Change</b>	The total number of times that the configuration of this interface has changed.
<b>Type</b>	Interface type (Ethernet/Fast Ethernet/Gigabit Ethernet).
<b>MAC address</b>	Interface MAC address.
<b>Bandwidth</b>	Bandwidth (in megabits).
<b>Duplex</b>	Duplex mode (Half/Full/Auto).
<b>Autonegotiation</b>	The auto negotiation settings for this interface.
<b>Long Accept</b>	Long Frames status (enable/disable).
<b>Runt Accept</b>	Runt Frames status (enable/disable).
<b>Long Frame Size</b>	Long Frame Size (in Bytes).
<b>Runt Size</b>	Runt Frame Size (in Bytes).
<b>Bytes Received</b>	Number of Bytes received.
<b>Rx Unicast Frames</b>	Number of unicast frames received.
<b>Rx Broadcast Frames</b>	Number of broadcast frames received.
<b>Rx M-cast Frames</b>	Number of multicast frames received.
<b>Rx Undersize Frames</b>	Number of undersized frames received.
<b>Rx Oversize Frames</b>	Number of r oversized frames received.
<b>Rx Lost Frames</b>	Number of Lost Frames received.
<b>Rx Error Frames</b>	Number of error frames received.
<b>Rx CRC Error Frames</b>	Number of CRC error frames received.
<b>Rx Alignments Err</b>	Number of Alignments Error frames received.
<b>Bytes Xmitted</b>	Number of Bytes transmitted.
<b>Tx Unicast Frames</b>	Number of unicast frames transmitted.
<b>Tx Broadcast Frames</b>	Number of broadcast frames transmitted.
<b>Tx M-cast Frames</b>	Number of multicast frames r transmitted.
<b>Tx Undersize Frames</b>	Number of undersized frames transmitted.
<b>Tx Oversize Frames</b>	Number of oversized frames transmitted.
<b>Tx Lost Frames</b>	Number of Lost Frames transmitted.
<b>Tx Collided Frames</b>	Number of collision frames received or transmitted.
<b>Tx Error Frames</b>	Number of error frames transmitted.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>show interfaces hybrid accounting</b>	Displays interface accounting information (for example, packets received/transmitted) for combo ports.
<b>show interfaces hybrid counters</b>	Displays interface counter information (for example, unicast packets received/transmitted) for combo ports.
<b>show interfaces hybrid counters errors</b>	Displays interface error frame information (for example, CRC errors, transit errors, receive errors) for combo ports.
<b>show interfaces hybrid collisions</b>	Displays interface collision information (for example, number of collisions, number of retries) for combo ports.
<b>show interfaces hybrid status</b>	Displays the interface line settings (for example, speed, mode) for combo ports.
<b>show interfaces hybrid traffic</b>	Displays interface traffic statistics (input/output bytes and packets) for combo ports.

**MIB Objects**

## ifTable

- ifOperStatus
- ifType
- ifPhysAddress
- ifSpeed
- ifInDiscards
- IfOutDiscards

## esmConfTable

- esmPortSlot
- esmPortIF
- esmPortCfgLongEnable
- esmPortCfgRuntEnable
- esmPortCfgMaxFrameSize
- esmPortCfgRuntSize

## ifXTable

- ifHCInOctets
- ifHCInUcastPkts
- ifHCInBroadcastPkts
- ifHCInMulticastPkts
- IfHCOutOctets
- IfHCOutUcastPkts
- IfHCOutBroadcastPkts
- IfHCOutMulticastPkts

## alcetherStatsTable

- alcetherStatsRxUndersizePkts
- alcetherStatsCRCAlignErrors
- alcetherStatsTxUndersizePkts
- alcetherStatsTxOversizePkts
- alcetherStatsTxCollisions

## dot3StatsTable

- dot3StatsFrameTooLong
- dot3StatsFCSErrors
- dot3StatsLateCollisions

---

## show interfaces hybrid status

Displays interface line settings (for example, speed, mode) for combo ports only.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** | **copper**} **status**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the status of the SFP port(s) will be displayed.
<b>copper</b>	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces hybrid fiber status
```

Slot/ Port	AutoNego	DETECTED			CONFIGURED			Trap LinkUpDown
		Speed (Mbps)	Duplex	Hybrid Type	Speed (Mbps)	Duplex	Hybrid Mode	
1/45	Enable	-	-	-	1000	Full	PF	-
1/46	Enable	-	-	-	1000	Full	PF	-
1/47	Enable	-	-	-	1000	Full	PF	-
1/48	Enable	-	-	-	1000	Full	PF	-
2/45	Enable	-	-	-	1000	Full	PF	-
2/46	Enable	-	-	-	1000	Full	PF	-
2/47	Enable	-	-	-	1000	Full	PF	-
2/48	Enable	-	-	-	1000	Full	PF	-

FF - ForcedFiber PF - PreferredFiber F - Fiber  
 FC - ForcedCopper PC - PreferredCopper C - Copper

*output definitions*


---

<b>Slot/Port</b>	Interface slot/port number.
<b>AutoNego</b>	Autonegotiation status (Enable/Disable).
<b>Detected Speed</b>	Detected line speed (10/100/Auto/1000/10000 Mbps).
<b>Detected Duplex</b>	Detected line duplex (Half duplex/Full duplex/Auto).
<b>Detected Hybrid Type</b>	The detected combo port type, which can be <b>F</b> (fiber) or <b>C</b> (copper).
<b>Configured Speed</b>	Configured line speed (10/100/Auto/1000/10000 Mbps).
<b>Configured Duplex</b>	Configured line duplex (Half duplex/Full duplex/Auto).
<b>Configured Hybrid Type</b>	The configured combo port type, which can be <b>FF</b> (Forced Fiber), <b>PF</b> (Preferred Fiber), <b>FC</b> (Forced Copper), or <b>PC</b> (Preferred Copper).
<b>Trap Link Up/Down</b>	Trap Link status (up/down).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">trap port link</a>	Enables/disables Trap LinkUpDown.
<a href="#">interfaces hybrid speed</a>	Configures interface line speed on combo ports.
<a href="#">interfaces hybrid duplex</a>	Configures duplex mode on combo ports.
<a href="#">interfaces hybrid preferred-fiber</a>	Configures one or more combo ports to use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s) when both ports are enabled and have a valid link.
<a href="#">interfaces hybrid autoneg</a>	Configures one or more combo ports to use the copper 10/100/1000 RJ-45 port(s) instead of the fiber SFP port(s) when both ports are enabled and have a valid link.

**MIB Objects**

```
ifTable
  ifLinkUpDownTrapEnable
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortAutoSpeed
  esmPortAutoDuplexMode
esmHybridConfTable
  esmPortCfgHybridMode
  esmPortCfgHybridType
  esmHybridPortCfgSpeed
  esmHybridPortCfgDuplexMode
```

---



## show interfaces hybrid pause

Displays the flow control pause configuration for combo ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** |**copper**} **pause**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the configuration of the SFP port(s) will be displayed.
<b>copper</b>	Specifies that the configuration of the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.
- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces hybrid fiber pause
Slot/Port  Active  Wait time(usec)  Cfg-Pause  Cfg-Cross Hybrid Type
-----+-----+-----+-----+-----+-----+-----
  1/21      -        0                DIS        MDI        -
  1/22      -        0                DIS        MDI        -
  1/23      -        0                DIS        MDI        -
  1/24      -        0                Tx         MDI        -
```

```
-> show interfaces hybrid copper pause
Slot/Port  Active  Wait time(usec)  Cfg-Pause  Cfg-Cross Hybrid Type
-----+-----+-----+-----+-----+-----+-----
  1/21      -        0                DIS        Auto       -
  1/22      -        0                DIS        Auto       -
  1/23      -        0                DIS        Auto       -
  1/24      Active  65535           Tx-N-Rx    Auto       C
```

*output definitions*


---

<b>Slot/Port</b>	Interface slot and port number
<b>Active</b>	Interface status.
<b>Wait time</b>	The amount of time, in microseconds, the neighbor interface will wait after receiving a PAUSE frame from the local interface.
<b>Cfg-Pause</b>	The flow control setting ( <b>Tx</b> = transmit, <b>Rx</b> = receive, <b>Tx-N-Rx</b> = transmit and receive). Configured through the <a href="#">interfaces hybrid pause</a> command.
<b>Cfg-Cross</b>	The user-configured cross-over setting ( <b>Auto</b> , <b>MDI</b> , or <b>MDIX</b> ). Configured through the <a href="#">interfaces hybrid crossover</a> command.
<b>Hybrid Type</b>	The configured active media type for the hybrid port ( <b>F</b> = fiber, <b>C</b> = copper, <b>NA</b> = not applicable).

---

**Release History**

Release 6.3.2; command was introduced.

**Related Commands**

[show interfaces pause](#) Displays the interface flow control pause settings.

**MIB Objects**

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIF
  esmPortPauseSlotTime
  esmPortActiveHybridType
esmHybridConfTable
  esmHybridPortCfgFlow
  esmHybridPortCfgCrossover
dot3PauseTable
  dot3PauseSlotTime
```

---

## show interfaces hybrid capability

Displays default auto negotiation, speed, duplex, flow, and cross-over settings for a single combo port, a range of combo ports, or all combo ports on a switch.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** |**copper**} **capability**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the configuration of the SFP port(s) will be displayed.
<b>copper</b>	Specifies that the configuration of the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, displays information for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- This command displays default settings in two rows of data for each combo port. The first row of data, identified by the label **CAP**, displays the valid user-defined configuration settings available for the combo port. The second row, identified by the label **DEF**, displays the default settings for the combo port.
- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces 1/47 hybrid copper capability
  Slot/Port  AutoNeg      Flow  Crossover      Speed  Duplex
-----+-----+-----+-----+-----+-----
  1/47 CAP    EN/DIS      EN/DIS  MDI/X/Auto  10/100/1G  Full/Half
  1/47 DEF          EN          EN          Auto        Auto        Auto
```

### output definitions

---

<b>Slot</b>	The slot number.
<b>Port</b>	The port number

*output definitions (continued)*


---

<b>AutoNeg</b>	In the row labeled <b>CAP</b> this field displays the valid auto negotiation configurations for the port. In the row label <b>DEF</b> this field displays the default auto negotiation settings for the port. The possible values are <b>EN</b> (enabled) or <b>DIS</b> (disabled).
<b>Flow</b>	In the row labeled <b>CAP</b> this field displays the valid flow configurations for the port. In the row label <b>DEF</b> this field displays the default flow settings for the port. The possible values are <b>EN</b> (enabled) or <b>DIS</b> (disabled).
<b>Crossover</b>	In the row labeled <b>CAP</b> this field displays the valid cross over configurations for the port. In the row label <b>DEF</b> this field displays the default cross over settings for the port. The possible values are <b>Auto</b> , <b>MDI/X/Auto</b> (MDI/MDIX/Auto), or <b>--</b> (not configurable and/or not applicable).
<b>Speed</b>	In the row labeled <b>CAP</b> this field displays the valid line speed configurations for the port. In the row label <b>DEF</b> this field displays the default line speed settings for the port. The possible values are <b>10/100</b> , <b>100</b> , <b>1G</b> , <b>10/100/1G</b> , or <b>Auto</b> .
<b>Duplex</b>	In the row labeled <b>CAP</b> this field displays the valid duplex configurations for the port. In the row label <b>DEF</b> this field displays the default duplex settings for the port. The possible values are <b>Full</b> , <b>Full/Half</b> , or <b>Auto</b> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">interfaces hybrid autoneg</a>	Enables and disables auto negotiation for combo ports.
<a href="#">interfaces hybrid crossover</a>	Configures crossover port settings for combo ports.
<a href="#">interfaces hybrid speed</a>	Configures interface speed for combo ports.
<a href="#">interfaces hybrid duplex</a>	Configures duplex settings for combo ports.
<a href="#">show interfaces hybrid status</a>	Displays interface line settings for combo ports.

**MIB Objects**

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIfIndex
esmHybridConfTable
  esmHybridPortCfgAutoNegotiation
  esmHybridPortCfgFlow
  esmHybridPortCfgCrossover
  esmHybridPortCfgSpeed
  esmHybridPortCfgDuplex
```

---

## show interfaces hybrid accounting

Displays interface accounting information (for example, packets received/transmitted, deferred frames received) for combo ports.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** |**copper**} **accounting**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.

### Examples

```
-> show interfaces 1/47 hybrid copper accounting
1/47 ,
  Rx undersize packets          =                0,
  Tx undersize packets          =                0,
  Rx oversize packets          =                0,
  Tx oversize packets          =                0,
  Rx packets 64 Octets         =            3073753,
  Rx packets 65To127 Octets    =            678698,
  Rx packets 128To255 Octets   =             21616,
  Rx packets 256To511 Octets   =             21062,
  Rx packets 512To1023 Octets  =                2,
  Rx packets 1024To1518 Octets =             84,
  Rx packets 1519to4095 Octets =                0,
  Rx packets 4096ToMax Octets  =                0,
  Rx Jabber frames             =                0
```

*output definitions*


---

<b>Rx undersize packets</b>	Number of undersized packets received.
<b>Tx undersize packets</b>	Number of undersized packets transmitted.
<b>Rx oversize packets</b>	Number of oversized packets received.
<b>Tx oversize packets</b>	Number of oversized packets transmitted.
<b>Rx packets Octets</b>	Number of packets received in each listed octet range.
<b>Rx Jabber frames</b>	Number of jabber packets received (longer than 1518 octets).
<b>Tx deferred frames</b>	Number of packets for which transmission was delayed (Ethernet only).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

- show interfaces hybrid** Displays general interface information (for example, hardware, MAC address, input/output errors) for combo ports.
- show interfaces hybrid counters** Displays interface counter information (for example, unicast packets received/transmitted) for combo ports.

**MIB Objects**

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIfIndex
alcetherStatsTable
  alcetherStatRxsUndersizePkts
  alcetherStatTxUndersizePkts
  alcetherStatsTxOversizePkts
  alcetherStatsPkts64Octets
  alcetherStatsPkts65to127Octets
  alcetherStatsPkts128to255Octets
  alcetherStatsPkts256to511Octets
  alcetherStatsPkts512to1023Octets
  alcetherStatsPkts1024to1518Octets
  gigaEtherStatsPkts1519to4095Octets
  gigaEtherStatsPkts4096to9215Octets
  alcetherStatsRxJabber
dot3StatsTable
  dot3StatsFrameTooLong
  dot3StatsDeferredTransmissions
```

---

## show interfaces hybrid counters

Displays interface counters information (for example, unicast, broadcast, multi-cast packets received/transmitted) for combo ports.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** |**copper**} **counters**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.

### Examples

```
-> show interfaces 1/47 hybrid copper counters
```

```
InOctets      = 54367578586897979,  OutOctets      = 5.78E19,  
InUcastPkts  = 55654265276,      OutUcastPkts   = 5.78E20,  
InMcastPkts  = 58767867868768777, OutMcastPkts   = 5465758756856,  
InBcastPkts  = 576567567567567576, OutBcastPkts   = 786876,  
InPauseFrames = 567798768768767,  OutPauseFrames = 786876,
```

### output definitions

---

<b>InOctets</b>	Number of octets received.
<b>OutOctets</b>	Number of octets transmitted.
<b>InUcastPkts</b>	Number of unicast packets received.
<b>OutUcastPkts</b>	Number of unicast packets transmitted.
<b>InMcastPkts</b>	Number of multicast packets received.

*output definitions (continued)*


---

<b>OutMcastPkts</b>	Number of unicast packets transmitted.
<b>InBcastPkts</b>	Number of broadcast packets received.
<b>OutBcastPkts</b>	Number of unicast packets transmitted.
<b>InPauseFrames</b>	Number of MAC control frames received.
<b>OutPauseFrames</b>	Number of MAC control frames transmitted.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show interfaces hybrid counters errors** Displays interface error frame information (for example, CRC errors, transit errors, receive errors).

**MIB Objects**

esmConfTable

  esmPortCfgSlot  
  esmPortCfgIfIndex

ifXTable

  IfHCInOctets  
  IfHCOctets  
  IfHCInUcastPkts  
  IfHCOUcastPkts  
  IfHCInMulticastPkts  
  IfHCOmulticastPkts  
  IfHCInBroadcastPkts  
  IfHCOBroadcastPkts

dot3PauseTable

  dot3InPauseFrame  
  dot3OutPauseFrame

---



## show interfaces hybrid counters errors

Displays interface error frame information (for example, CRC errors, transit errors, receive errors) for combo ports.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** | **copper**} **counters errors**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.

### Examples

```
-> show interfaces 1/47 hybrid copper counters errors
```

```
01/47,  
Alignments Errors = 6.45E13, FCS Errors = 7.65E12  
IfInErrors        = 6435346, IfOutErrors= 5543,  
Undersize pkts    = 867568, Oversize pkts= 5.98E8
```

### output definitions

---

<b>Slot/Port</b>	Interface slot and port number.
<b>Alignments Errors</b>	Number of Alignments errors.
<b>FCS Errors</b>	Number of Frame Check Sequence errors.
<b>IfInErrors</b>	Number of received error frames.
<b>IfOutErrors</b>	Number of transmitted error frames.

*output definitions (continued)*

---

<b>Undersize pkts</b>	Number of undersized packets.
<b>Oversize pkts</b>	Number of oversized packets (more than 1518 octets).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show interfaces hybrid counters** Displays interface counters information (for example, unicast, broadcast, multi-cast packets received/transmitted).

**MIB Objects**

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIfIndex
ifTable
  ifInErrors
  ifOutErrors
alcetherStatsTable
  alcetherStatsRxUndersizePkts
dot3StatsTable
  dot3StatsAlignmentErrors
  dot3StatsFCSErrors
  dot3StatsFrameTooLong
```

---

## show interfaces hybrid collisions

Displays interface collision information (for example, number of collisions, number of retries) for combo ports.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** |**copper**} **collisions**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.
- These counters do not apply to Gigabit Ethernet traffic.

### Examples

```
-> show interfaces 1/47 hybrid copper collisions
```

```
02/01,  
Rx Collisions = 6.56E18, Rx Single Collision = 345464364,  
Rx Multiple Collisions = 6325235326, Rx Excessive Collisions = 5.65E19
```

*output definitions*


---

<b>Slot/Port</b>	Interface slot and port number.
<b>Tx Collisions</b>	Number of transmit collisions.
<b>Tx Single Collision</b>	Number of successfully transmitted frames for which transmission was inhibited by one collision.
<b>Tx Multiple Collisions</b>	Number of successfully transmitted frames for which transmission was inhibited by multiple collisions.
<b>Tx Excessive Retries</b>	Number of frames for which transmission fails due to excessive collisions.
<b>Rx Collisions</b>	Number of receive collisions.
<b>Rx Single Collision</b>	Number of successfully received frames for which reception was inhibited by one collision.
<b>Rx Multiple Collisions</b>	Number of successfully received frames for which reception was inhibited by multiple collisions.
<b>Rx Excessive Retries</b>	Number of frames for which reception fails due to excessive collisions.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands****[show interfaces hybrid](#)**

Displays general interface information (for example, hardware, MAC address, input errors, output errors) for combo ports.

**MIB Objects**

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIfIndex
alcetherStatsTable
  alcetherStatsRxCollisions
dot3StatsTable
  dot3StatsSingleCollisionFrames
  dot3StatsMultipleCollisionFrames
  dot3StatsExcessiveCollisions
```

---

## show interfaces hybrid traffic

Displays interface traffic statistics for combo ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** |**copper**} **traffic**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.

### Examples

```
-> show interfaces hybrid fiber traffic
```

Slot/Port	Input packets	Input bytes	Output packets	Output bytes
01/45	0		0	0
01/46	0		0	0
01/47	0		0	0
01/48	0		0	0

#### *output definitions*

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>Input packets</b>	Input packets detected.
<b>Input bytes</b>	Input bytes detected.
<b>Output packets</b>	Output packets detected.
<b>Output bytes</b>	Output bytes detected.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### **show interfaces hybrid**

Displays general interface information (for example, hardware, MAC address, input/output errors) for combo ports.

### **show interfaces hybrid counters**

Displays interface counter information (for example, unicast packets received/transmitted) for combo ports.

## MIB Objects

esmConfTable

- esmPortCfgSlot
- esmPortCfgIfIndex

ifXTable

- ifHCInOctets
- ifHCInUcastPkts
- ifHCInMulticastPkts
- ifHCInBroadcastPkts
- ifHCOctets
- ifHCOctetUcastPkts
- ifHCOctetMulticastPkts
- ifHCOctetBroadcastPkts

---

## show interfaces hybrid port

Displays interface port status (up or down) for combo ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** |**copper**} **port**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the status of the SFP combo port(s) will be displayed.
<b>copper</b>	Specifies that the status of the copper combo 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all hybrid ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all hybrid interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific hybrid interface or a range of hybrid interfaces.

### Examples

```
-> show interfaces hybrid fiber port
Legends: WTR - Wait To Restore
          # - WTR Timer is Running & Port is in wait-to-restore state
          * - Permanent Shutdown
```

Slot/ Port	Admin Status	Link Status	Violations	Recovery Time	Recovery Max	WTR (sec)	Alias
1/21	enable	up	none	300	10	0	" "
1/22#	enable	down	none	300	10	0	" "
1/23	enable	down	none	300	10	0	" "
1/24*	enable	down	none	300	10	0	" "

### output definitions

---

<b>Slot/Port</b>	Interface slot and port number.
<b>Admin Status</b>	Port status - <b>enable</b> , <b>disable</b> . Configured through the <a href="#">interfaces admin</a> command.
<b>Link Status</b>	Operational status - <b>up</b> , <b>down</b> .

*output definitions (continued)*


---

<b>Violations</b>	Applications that have blocked the port due to a specific violation.
<b>Recovery Time</b>	The recovery time for the port. Configured through the <b>interfaces violation-recovery-time</b> command.
<b>Recovery Max</b>	The maximum recovery attempts for the port Configured through the <b>interfaces violation-recovery-maximum</b> command.
<b>WTR (sec)</b>	The wait-to-restore timer value, in seconds, for the port. The value of 0 indicates the timer is disabled. Configured through the <b>interfaces wait-to-restore</b> command.
<b>Alias</b>	Interface alias. Configured through the <b>interfaces alias</b> command.

---

**Release History**

Release 6.1; command was introduced.

Release 6.4.4; **Recovery Time**, **Recovery Max**, **WTR (sec)** fields were added.

**Related Commands**

<b>show interfaces port</b>	Displays interface port status (up or down) for non-combo ports.
<b>show interfaces violation-recovery</b>	Displays the globally configured recovery time, SNMP recovery trap enable/disable status and maximum recovery attempts.

**MIB Objects**

```
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortViolationBitMap
  esmWaitToRestoreTimer

ifXTable
  ifAdminStatus
  ifOperStatus
  ifAlias

alaPortViolationRecoveryTable
  alaPortViolationRecoveryTime
  alaPortViolationRecoveryMaximum
```

---



## show interfaces hybrid flood rate

Displays interface peak flood rate settings for combo ports.

**show interfaces** [*slot* | *slot/port[-port2]*] **hybrid** {**fiber** |**copper**} **flood rate**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that the status of the SFP port(s) will be displayed.
<b>copper</b>	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific port.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces flood rate
```

```
Slot/Port   peak rate(Mb/second)   Enable
-----+-----+-----
02/01           12                   Flood only
02/02           47                   Flood only
02/03           16                   Flood only
02/04           47                   Flood only
02/05           47                   Flood only
02/06           47                   Flood only
02/07           47                   Flood only
02/08           47                   Flood only
02/09           47                   Flood only
02/10           47                   Flood only
02/11           47                   Flood only
02/12           47                   Flood only
02/13           47                   Flood only
02/14           47                   Flood only
02/15           47                   Flood only
02/16           47                   Flood only
```

02/17	47	Flood only
02/18	47	Flood only
02/19	47	Flood only

**output definitions**


---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>Peak Rate (Mbps)</b>	Configured peak flood rate.
<b>Enable</b>	Configuration enabled (Flood only/Flood Multicast/Multicast).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[interfaces violation-recovery-trap](#) Configures the peak flood rate for an interface.

[interfaces flood multicast](#) Enables/disables flood multicasting on an interface.

**MIB Objects**

```
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortMaxFloodRate
  esmPortFloodMcastEnable
```

---

## show interfaces hybrid ifg

Displays interface inter-frame gap values for combo ports.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **hybrid** {**fiber** |**copper**} **ifg**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).
<b>fiber</b>	Specifies that statistics for the SFP port(s) will be displayed.
<b>copper</b>	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

### Defaults

By default, information is displayed for all ports on all modules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific port.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Examples

```
-> show interfaces hybrid fiber ifg
Slot/Port   ifg(Bytes)
-----+-----
 1/45         12
 1/46         12
 1/47         12
 1/48         12
 2/45         12
 2/46         12
 2/47         12
 2/48         12
```

### *output definitions*

---

<b>Slot/Port</b>	Interface slot and port numbers.
<b>ifg</b>	Inter-frame gap value (Gigabit Ethernet interface).

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[interfaces ifg](#) Configures the inter-frame gap value.

## MIB Objects

```
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortCfIFG
```

---

## show interfaces link-monitoring config

Displays configuration information for the Link Monitoring feature. This includes the link monitoring status on a specific slot, port or a range of specified ports, time window, link flap threshold, and link error threshold.

**show interfaces** {*slot* | *slot/port*[-*port2*]} **link-monitoring config**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific port.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Example

```
-> show interfaces 1 link-monitoring config
```

Slot/ Port	Status	Time Window (sec)	Link-flap Threshold	Link-error Threshold
1/1	enabled	10	5	10
1/2	disabled	10	5	10
1/3	disabled	200	8	20
.				
1/24	disabled	150	2	99

```
-> show interfaces 1/1-3 link-monitoring config
```

Slot/ Port	Status	Time Window (sec)	Link-flap Threshold	Link-error Threshold
1/1	enabled	10	5	10
1/2	disabled	10	5	10
1/3	disabled	200	7	99

```
-> show interfaces 1/1 link-monitoring config
```

Slot/ Port	Status	Time Window (sec)	Link-flap Threshold	Link-error Threshold
1/1	enabled	10	5	10

```
-> show interfaces 1/2 link-monitoring config
```

Slot/ Port	Status	Time Window (sec)	Link-flap Threshold	Link-error Threshold
1/2	disabled	10	5	10

## Release History

### *output definitions*

<b>Slot/Port</b>	Interface slot and port number.
<b>Status</b>	Link monitoring status (enable/disable).
<b>Time Window</b>	Time interval, in seconds, for which the link is monitored.
<b>Link-flap threshold</b>	Number of link flaps allowed on a specific slot, port, or a range of specified ports in the time interval before the port is shutdown.
<b>Link-error threshold</b>	Number of MAC errors allowed on a specific slot, port, or a range of specified ports in the time interval before the port is shutdown.

Release 6.4.4; command introduced.

## Related Commands

<a href="#">show interfaces port</a>	Displays information of the interface port status.
<a href="#">show interfaces link-monitoring statistics</a>	Displays the Link Monitoring statistics.
<a href="#">interfaces link-monitoring admin-status</a>	Enables or disables link monitoring.
<a href="#">interfaces link-monitoring time-window</a>	Configures the monitoring of the time-window of the link.
<a href="#">interfaces link-monitoring link-flap-threshold</a>	Configures the number of link flaps that are allowed before the port is shutdown.
<a href="#">interfaces link-monitoring link-error-threshold</a>	Configures the number of MAC errors that are allowed before the port is shutdown.

## MIB Objects

```
alaLinkMonStatsTable
  alaLinkMonStatus
  alaLinkMonTimeWindow
  alaLinkMonLinkFlapThreshold
```

`alaLinkMonLinkErrorThreshold`

---

## show interfaces link-monitoring statistics

Displays the Link Monitoring statistics for a specific slot, port, or a range of specified ports.

**show interfaces** {*slot* | *slot/port*[-*port2*]} **link-monitoring statistics**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific port.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or a range of interfaces.

### Example

```
-> show interfaces 1 link-monitoring statistics
Slot/   State      Current  Current  Current  Current  Current  Total  Total
Port    State      Flap     Error    CRC      Lost     Align    Flap   Error
-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/1     shutdown   6        3        2        0        0        15    6
1/2     down       3        2        1        0        0        12    3
.
.
1/24    up         3        2        1        0        0        12    3

-> show interfaces 1/1-2 link-monitoring statistics
Slot/   State      Current  Current  Current  Current  Current  Total  Total
Port    State      Flap     Error    CRC      Lost     Align    Flap   Error
-----+-----+-----+-----+-----+-----+-----+-----+
1/1     shutdown   6        3        2        0        0        15    6
1/2     down       3        2        1        0        0        12    3

-> show interfaces 1/1 link-monitoring statistics
Slot/   State      Current  Current  Current  Current  Current  Total  Total
Port    State      Flap     Error    CRC      Lost     Align    Flap   Error
-----+-----+-----+-----+-----+-----+-----+-----+
1/1     shutdown   6        3        2        0        0        15    6
```



## Release History

Release 6.4.4; command introduced.

## Related Commands

- |                                                        |                                                                                                                    |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>show interfaces port</b>                            | Displays the administrative, operational, violation, and recovery status and configuration for the specified port. |
| <b>show interfaces link-monitoring config</b>          | Displays configuration information of the Link Monitoring.                                                         |
| <b>interfaces link-monitoring admin-status</b>         | Enables or disables link monitoring.                                                                               |
| <b>interfaces clear-link-monitoring-stats</b>          | Clears the Link Monitoring statistics.                                                                             |
| <b>interfaces link-monitoring link-error-threshold</b> | Configures the number of MAC errors that are allowed before the port is shutdown.                                  |

## MIB Objects

```
alaLinkMonStatsTable
  alaLinkMonStatsPortStatus
  alaLinkMonStatsCurrentLinkFlaps
  alaLinkMonStatsCurrentErrorFrames
  alaLinkMonStatsCurrentCRCErrors
  alaLinkMonStatsCurrentLostFrames
  alaLinkMonStatsCurrentAlignErrors
  alaLinkMonStatsCurrentLinkErrors
  alaLinkMonStatsTotalLinkFlaps
  alaLinkMonStatsTotalLinkErrors
```

---

---

## debug interfaces set backpressure

Enables and disables fabric back pressure on a Network Interface (NI) or an entire chassis.

**debug interfaces set** [*slot*] **backpressure** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot</i>	The slot number to enable or disable fabric back pressure.
<b>enable</b>	Enables fabric backpressure.
<b>disable</b>	Disables fabric backpressure.

### Defaults

By default, the fabric backpressure is disabled.

### Platforms Supported

OmniSwitch 6400

### Usage Guidelines

If the slot number is not specified, then the switch back pressure feature will be enabled or disabled on the entire chassis.

### Examples

```
-> debug interfaces set backpressure enable
-> debug interfaces set backpressure disable
-> debug interfaces set 3 backpressure enable
-> debug interfaces set 3 backpressure disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[debug interfaces backpressure](#) Displays whether fabric back pressure is enabled or disabled on an NI or an entire chassis.

### MIB Objects

N/A

---



**Related Commands**

**debug interfaces backpressure** Enables and disables fabric back pressure on an NI or on the entire chassis.

**MIB Objects**

N/A

---

## link-fault-propagation group

Configures a Link Fault Propagation (LFP) group to associate with source and destination ports.

**link-fault-propagation group** *group\_id* [admin-state {enable | disable}]

**no link-fault-propagation group** {*group\_id*[-*group\_id2*]}

---

### Syntax Definitions

<i>group_id</i>	A group ID number. The valid range is 1–8.
<i>group_id</i> [- <i>group_id2</i> ]	A group ID number to remove. Use a hyphen to specify a range of existing group ID numbers (5-8). Specifying a range is only used to remove group IDs, not to create them.
<b>enable</b>	Enables LFP for the specified group.
<b>disable</b>	Disables LFP for the specified group.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a LFP group or a range of groups.
- Up to eight LFP groups per switch are allowed.
- Once a LFP group is created, assign source and destination ports to that group.

### Example

```
-> link-fault-propagation group 1
-> no link-fault-propagation group 4
-> no link-fault-propagation group 4-7
```

### Release History

Release 6.4.4; command introduced.

## Related Commands

<b>link-fault-propagation group source</b>	Configures the source port assignments for the LFP group.
<b>link-fault-propagation group destination</b>	Configures the destination port assignments for the LFP group.
<b>link-fault-propagation group wait-to-shutdown</b>	Configures the amount of time LFP waits before shutting down the destination ports..
<b>show link-fault-propagation group</b>	Displays the LFP group configuration for the switch.

## MIB Objects

```
alaLFPGroupTable  
  alaLFPGroupId  
  alaLFPGroupRowStatus
```

---

## link-fault-propagation group source

Configures the source port assignments for a Link Fault Propagation (LFP) group.

**link-fault-propagation group** *group\_id* **source** {**port** *slot/port[-port2]* | **linkagg** *agg\_id[-agg\_id2]*}

**no link-fault-propagation group** *group\_id* **source** {**port** *slot/port[-port2]* | **linkagg** *agg\_id[-agg\_id2]*}

---

### Syntax Definitions

<i>group_id</i>	An existing LFP group ID number. The valid range is 1–8.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports and/or a space to specify multiple port entries (3/1-10 4/1 4/5 5/10).
<i>agg_id[-agg_id2]</i>	The link aggregate ID number. Use a hyphen to specify a range of IDs and/or a space to specify multiple ID entries (1-5 10 12).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a source port association with the specified LFP group.
- Make sure the LFP group specified with this command already exists in the switch configuration.
- Configuring the source ports and destinations ports for the specified LFP group is allowed within the same command (see the examples on this command page).
- A group can have a maximum of 48 source ports and 48 destination ports.
- A maximum of 48 link aggregates is supported, regardless of the number of ports in each aggregate in a group.
- A port/linkagg added as a source/destination port for a particular group cannot be added as a destination/source port for this group or for any other group.
- If a port is recovered due to the Interface Recovery Timer, then the port will revert to the shutdown state if the error persists.

### Example

```
-> link-fault-propagation group 1 source port 1/2
-> link-fault-propagation group 1 source port 1/2-5 2/3
-> link-fault-propagation group 1 source linkagg 1
-> link-fault-propagation group 1 source linkagg 1-3
-> link-fault-propagation group 1 source port 2/3 destination port 1/6
-> link-fault-propagation group 1 source port 3/1-5 destination linkagg 6
-> no link-fault-propagation group 1 destination port 1/10
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

<b>link-fault-propagation group</b>	Configures an LFP group, including the administrative status.
<b>link-fault-propagation group destination</b>	Configures the destination port assignments for the LFP group.
<b>link-fault-propagation group wait-to-shutdown</b>	Configures the amount of time LFP waits before shutting down the destination ports..
<b>show link-fault-propagation group</b>	Displays the LFP group configuration for the switch.

## MIB Objects

```
alaLFPGroupTable
  alaLFPGroupId
  alaLFPGroupRowStatus
  alaLFPConfigTable
    alaLFPConfigPort
    alaLFPConfigPortType
    alaLFPConfigRowStatus
```

---



## link-fault-propagation group destination

Configures the destination port assignments for a Link Fault Propagation (LFP) group.

```
link-fault-propagation group group_id destination {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
```

```
no link-fault-propagation group group_id destination {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
```

---

### Syntax Definitions

<i>group_id</i>	An existing LFP group ID number. The valid range is 1–8.
<i>slot/port[-port2]</i>	The slot and port number (3/1). Use a hyphen to specify a range of ports and/or a space to specify multiple port entries (3/1-10 4/1 4/5 5/10).
<i>agg_id[-agg_id2]</i>	The link aggregate ID number. Use a hyphen to specify a range of IDs and/or a space to specify multiple ID entries (1-5 10 12).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a destination port association with the specified LFP group.
- Make sure the LFP group specified with this command already exists in the switch configuration.
- Configuring the source ports and destinations ports for the specified LFP group is allowed within the same command (see the examples on this command page).
- A group can have a maximum of 48 source ports and 48 destination ports.
- A maximum of 48 link aggregates is supported regardless of the number of ports in each aggregate in a group.
- A port or link aggregate that is configured as a source port cannot be configured as a destination port for any group. However, a source port can be associated with multiple LFP groups.
- A port or link aggregate that is configured as a destination port cannot be configured as a source port for any group. However, a destination port can be associated with multiple LFP groups.
- If port is recovered due to the Interface Recovery Timer, then the port will revert to the shutdown state if the error persists.

## Example

```
-> link-fault-propagation group 1 destination port 1/4
-> link-fault-propagation group 1 destination port 1/5-8 2/3
-> link-fault-propagation group 1 destination linkagg 6
-> link-fault-propagation group 1 destination linkagg 6-10
-> link-fault-propagation group 1 source port 1/2 2/3 destination port 1/6
-> link-fault-propagation group 1 source port 1/2 2/3 destination linkagg 6
-> link-fault-propagation group 1 source linkagg 3 destination port 1/6 1/9
-> link-fault-propagation group 1 source linkagg 3 destination linkagg 1

-> no link-fault-propagation group 1 source port 1/9
-> no link-fault-propagation group 1 destination port 1/10
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

<b>link-fault-propagation group</b>	Configures an LFP group, including the administrative status.
<b>link-fault-propagation group source</b>	Configures the source port assignments for the LFP group.
<b>link-fault-propagation group wait-to-shutdown</b>	Configures the amount of time LFP waits before shutting down the destination ports.
<b>show link-fault-propagation group</b>	Displays the LFP group configuration for the switch.

## MIB Objects

```
alaLFPGroupTable
  alaLFPGroupId
  alaLFPGroupRowStatus
  alaLFPConfigTable
    alaLFPConfigPort
    alaLFPConfigPortType
    alaLFPConfigRowStatus
```

## link-fault-propagation group wait-to-shutdown

Configures the wait-to-shutdown timer value for the Link Fault Propagation (LFP) group. This is the amount of time after all the source ports go down that LFP waits before shutting down the destination ports.

**link-fault-propagation group** *group\_id* **wait-to-shutdown** *seconds*

---

### Syntax Definitions

<i>group_id</i>	An existing LFP group ID number. The valid range is 1–8.
<i>seconds</i>	The number of seconds LFP waits before shutting down the destination ports. The valid range is 0-300 in multiples of 5.

### Defaults

By default, the timer is set to zero (disabled).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Set the wait-to-shutdown timer value to 0 to disable the timer.
- Make sure the LFP group specified with this command already exists in the switch configuration.

### Example

```
-> link-fault-propagation group 1 wait-to-shutdown 40
-> link-fault-propagation group 3 wait-to-shutdown 70
-> link-fault-propagation group 5 wait-to-shutdown 0
```

### Release History

Release 6.4.4; command introduced.

### Related Commands

<a href="#">link-fault-propagation group</a>	Configures an LFP group, including the administrative status.
<a href="#">show link-fault-propagation group</a>	Displays the LFP group configuration for the switch.

### MIB Objects

```
alaLFPGroupTable
  alaLFPGroupId
  alaLFPGroupWaitToShutdown
  alaLFPGroupRowStatus
```

---



```
-> show link-fault-propagation group 6
Group Id : 6
Source Port(s)      : 1/2 1/6 1/9,
Destination Port(s) : 1/10-11 1/13,
Group-Src-Ports Status : down,
Admin Status        : enable,
Wait To Shutdown    : 5
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

<a href="#">link-fault-propagation group</a>	Configures a LFP group, including the administrative status.
<a href="#">link-fault-propagation group wait-to-shutdown</a>	Configures the amount of time LFP waits before shutting down the destination ports..

## MIB Objects

```
alaLFPConfigTable
  alaLFPConfigPort
  alaLFPConfigPortType
alaLFPGroupTable
  alaLFPGroupId
  alaLFPGroupAdminStatus
  alaLFPGroupOperStatus
  alaLFPGroupWaitToShutdown
```

---

## interfaces tdr-test-start

Initiates a Time Domain Reflectometry (TDR) cable diagnostics test on the specified port. The TDR feature sends a signal down a cable to determine the distance to a break or other discontinuity in the cable path. The length of time it takes for the signal to reach the break and return is used to estimate the distance to the discontinuity.

**interfaces** *slot/port* **tdr-test-start**

---

### Syntax Definitions

*slot/port*                      The slot and port number (3/1).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- TDR is an on-demand, out-of-service test. The test is not automatically triggered; data and protocol traffic is interrupted.
- Only one TDR test can be run at any given time.
- TDR is not supported on link aggregate ports, fiber ports, or stacking ports.
- TDR results are automatically cleared when a new test is started on the port or when the module for the port is reset.

### Examples

```
-> interfaces 1/1 tdr-test-start
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

- [interfaces no tdr-statistics](#)      Clears the statistics of the last test performed on the port
- [show interfaces tdr-statistics](#)    Displays the results of the last TDR test performed on a port.

### MIB Objects

```
esmTdrPortTable  
    esmTdrPortTest
```

---

## interfaces no tdr-statistics

Clears the statistics of the last TDR test performed on the port.

**interfaces** {*slot* | *slot/port*[-*port2*]} **no tdr-statistics**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

There is no global command to clear TDR statistics for all ports on all slots; statistics are cleared at the slot or the slot/port level.

### Examples

```
-> interfaces 2/1 no tdr-statistics
-> interfaces 2 no tdr-statistics
-> interfaces 2/1-7 no tdr-statistics
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<a href="#">interfaces tdr-test-start</a>	Initiates the cable diagnostics on a port.
<a href="#">show interfaces tdr-statistics</a>	Displays the results of the last TDR test performed on a port.

### MIB Objects

```
esmTdrPortTable
  esmTdrPortClearResults
```

---

## show interfaces tdr-statistics

Displays the results of the last TDR test performed on a port.

**show interfaces** [*slot* | *slot/port*[-*port2*]] **tdr-statistics**

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i> [- <i>port2</i> ]	The slot and port number (3/1). Use a hyphen to specify a range of ports (3/1-3/10).

### Defaults

By default, TDR statistics are shown for all ports on all modules

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot number to display information for all interfaces on a specific slot.
- Enter a slot and port number or a range of port numbers to display information for a specific interface or range of interfaces.

### Examples

```
-> show interfaces 1/3 tdr-statistics
```

```
Legend: Pair 1 - orange and white
        Pair 2 - green and white
        Pair 3 - blue and white
        Pair 4 - brown and white
```

```
Slot/ No of Cable Fuzzy  Pair1 Pair1  Pair2 Pair2  Pair3 Pair3  Pair4 Pair4  Test
port  pairs  State Length State Length State Length State Length State Length State Length Result
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
1/3   4    ok    0    ok    3    ok    3    ok    3    ok    3    success
```

### output definitions

<b>Legend</b>	Eight-conductor data cable contains 4 pairs of twisted Pair Copper Cable wires. Each pair consists of a solid (or predominantly) colored wire and a white wire with a strip of the same color. The pairs are twisted together.
<b>Slot/Port</b>	The interface slot and port number.
<b>No of pairs</b>	The number of pairs in the cable for which the test results are valid.



*output definitions (continued)*

---

<b>Cable State</b>	State of a cable as returned by the TDR test. The state of the cable wire. (a) <b>OK</b> - Wire is working properly (b) <b>Open</b> - Wire is broken (c) <b>Short</b> - Pairs of wire are in contact with each other (d) <b>Crosstalk</b> - Signal transmitted on one pair of wire creates an undesired effect in another wire. (e) <b>Unknown</b> - Cable diagnostic test unable to find the state of a cable.
<b>Fuzzy Length</b>	The error in the estimated length of the cable.
<b>Pair1 State</b>	The state of the Pair 1 cable wire ( <b>OK, Open, Short, Crosstalk, or Unknown</b> )
<b>Pair1 Length</b>	The length of the Pair 1 cable at which the fault is detected, if the pair is faulty. Else, specifies the complete length of the cable.
<b>Pair2 State</b>	The state of the Pair 2 cable wire ( <b>OK, Open, Short, Crosstalk, or Unknown</b> )
<b>Pair2 Length</b>	The length of the Pair 2 cable at which the fault is detected, if the pair is faulty. Else, specifies the complete length of the cable.
<b>Pair3 State</b>	The state of the Pair 3 cable wire ( <b>OK, Open, Short, Crosstalk, or Unknown</b> )
<b>Pair3 Length</b>	The length of the Pair 3 cable at which the fault is detected, if the pair is faulty. Else, specifies the complete length of the cable.
<b>Pair4 State</b>	The state of the Pair 4 cable wire ( <b>OK, Open, Short, Crosstalk, or Unknown</b> )
<b>Pair4 Length</b>	The length of the Pair 4 cable at which the fault is detected, if the pair is faulty. Else, specifies the complete length of the cable.
<b>Test Result</b>	The status of the TDR test performed, success or fail.

---

**Release History**

Release 6.4.4; command was introduced.

**Related Commands**

- [interfaces tdr-test-start](#) Initiates the cable diagnostics on a port.  
[interfaces no tdr-statistics](#) Clears the statistics of the last test performed on the port.

**MIB Objects**

```
esmTdrPortTable  
  esmTdrPortCableState  
  esmTdrPortValidPairs  
  esmTdrPortPair1State  
  esmTdrPortPair1Length  
  esmTdrPortPair2State  
  esmTdrPortPair2Length  
  esmTdrPortPair3State  
  esmTdrPortPair3Length  
  esmTdrPortPair4State  
  esmTdrPortPair4Length  
  esmTdrPortFuzzLength
```

---



# 2 UDLD Commands

This chapter describes the CLI commands used to configure the UDLD (UniDirectional Link Detection) protocol. UDLD operates at Layer 2 in conjunction with IEEE 802.3 Layer 1 fault detection mechanism. It is a protocol used for detecting and disabling unidirectional Ethernet fiber or copper connections to avoid interface malfunctions, Spanning Tree loops, media faults, etc. It operates in two main modes normal and aggressive.

The two basic mechanisms that UDLD follows are:

- Advertises port's identity and learns about its neighbors. This information is maintained in a cache table.
- It sends continuous echo messages when fast notifications are required.

MIB information for the UDLD commands is as follows:

*Filename:* AlcatelIND1UDLD.mib  
*Module:* ALCATEL-IND1-UDLD-MIB

A summary of available commands is listed here:

---

**udld**  
**udld port**  
**udld mode**  
**udld probe-timer**  
**udld echo-wait-timer**  
**clear udld statistics port**  
**interfaces clear-violation-all**  
**show udld configuration**  
**show udld configuration port**  
**show udld statistics port**  
**show udld neighbor port**  
**show udld status port**

---

Configuration procedures for UDLD are explained in the “Configuring UDLD” chapter of the *OmniSwitch AOS Release 6 Network Configuration Guide*.

## udld

Globally enables or disables UDLD protocol on the switch.

**udld** {enable | disable}

---

### Syntax Definitions

<b>enable</b>	Globally enables UDLD on the switch.
<b>disable</b>	Globally disables UDLD on the switch.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The port that was shutdown by this command can be reset by using the **interfaces admin** command.

### Examples

```
-> udld enable
-> udld disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">udld port</a>	Enables or disables UDLD status on a specific port or a range of ports.
<a href="#">show udld configuration</a>	Displays the global status of UDLD configuration.
<a href="#">show udld configuration port</a>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

### MIB Objects

alaUdldGlobalStatus

---

## udld port

Enables or disables UDLD status on a specific port or a range of ports.

**udld port** *slot/port*[-*port2*] {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<b>enable</b>	Enables UDLD status on a port.
<b>disable</b>	Disables UDLD status on a port.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The UDLD protocol must be enabled before using this command.

### Examples

```
-> udld port 1/3 enable
-> udld port 1/6-10 enable
-> udld port 2/4 disable
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<code>udld</code>	Globally enables or disables UDLD protocol on the switch.
<code>show udld configuration port</code>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

## MIB Objects

alaUdldPortConfigTable  
  alaUdldConfigUdldStatus

---

## udld mode

Configures the operational mode of UDLD on a specific port, a range of ports, or all the ports.

```
udld port [slot/port[-port2]] mode {normal | aggressive}
```

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<b>normal</b>	Specifies UDLD operation in the normal mode.
<b>aggressive</b>	Specifies UDLD operation in the aggressive mode.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>normal   aggressive</b>	<b>normal</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The UDLD protocol must be enabled before using this command.
- The UDLD protocol is not supported on aggregate ports.
- When two UDLD enabled ports that are configured in aggressive mode of operation gets the link-up asynchronously, then the UDLD port which gets the link-up indication first is considered to be in the shutdown state. In such case, the link should be configured manually after both the links are up to start UDLD detection.
- In case of faulty cable connection, the port which is configured in normal mode of operation is determined to be in the shutdown state.

### Examples

```
-> udld mode aggressive
-> udld mode normal
-> udld port 1/3 mode aggressive
-> udld port 2/4 mode normal
-> udld port 2/9-18 mode aggressive
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<code>udld</code>	Globally enables or disables UDLD protocol on the switch.
<code>show udld configuration port</code>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

## MIB Objects

alaUdldPortConfigTable  
  alaUdldPortConfigUdldMode

---



## udld probe-timer

Configures the probe-message advertisement timer on a specific port, a range of ports, or all the ports. Probe-messages are transmitted periodically after this timer expires.

**udld port** [*slot/port*[-*port2*]] **probe-timer** *seconds*

**no udld port** [*slot/port*[-*port2*]] **probe-timer**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>seconds</i>	The probe-message transmission interval, in seconds (7-90).

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>seconds</i>	15

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to reset the probe-message timer to the default value. Note that it is not necessary to specify the probe-message interval to reset it.
- The UDLD protocol must be enabled before using this command.
- Configure probe-advertisement timer with values varying in a range of 12-18 seconds for better convergence time and to avoid burst of probe advertisements.

### Examples

```
-> udld probe-timer 20
-> udld port 1/3 probe-timer 16
-> udld port 1/8-21 probe-timer 18
-> no udld probe-timer
-> no udld port 1/3 probe-timer
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>udld</b>	Globally enables or disables UDLD protocol on the switch.
<b>show udld configuration port</b>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

## MIB Objects

alaUdldPortConfigTable  
alaUdldPortConfigUdldProbeIntervalTimer

---

## udld echo-wait-timer

Configures the echo based detection timer on a specific port, a range of ports, or all the ports. This is known as link detection period.

**udld port** [*slot/port*[-*port2*]] **echo-wait-timer** *seconds*

**no udld port** [*slot/port*[-*port2*]] **echo-wait-timer**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>seconds</i>	The echo based detection period, in seconds (4-15).

### Defaults

parameter	default
<i>seconds</i>	8

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to reset the echo based detection timer to the default value. Note that it is not necessary to specify the echo based timer to reset it.
- The UDLD protocol must be enabled before using this command.
- An echo message is expected in reply from the neighbor within this time duration, otherwise, the port is considered as faulty.

### Examples

```
-> udld echo-wait-timer 9
-> udld port 1/5 echo-wait-timer 12
-> udld port 1/7-16 echo-wait-timer 12
-> no udld echo-wait-timer
-> no udld port 1/3 echo-wait-timer
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>udld</b>	Globally enables or disables UDLD protocol on the switch.
<b>show udld configuration port</b>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

## MIB Objects

alaUdldPortConfigTable  
  alaUdldPortConfigUdldDetectionPeriodTimer

---

## clear udd statistics port

Clears the UDLD statistics for a specific port or for all the ports.

**clear udd statistics** [**port** *slot/port*]

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the slot/port option is not specified, UDLD statistics for the switch is cleared.

### Examples

```
-> clear udd statistics port 1/4
-> clear udd statistics
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**udd**

Globally enables or disables UDLD protocol on the switch.

**show udd statistics port**

Displays the UDLD statistics for a specific port.

### MIB Objects

alaUddGlobalClearStats

---

## interfaces clear-violation-all

Brings the port out of shutdown state.

**interfaces** *slot/port*[-*port2*] **clear-violation-all**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If any interface is in the admin down state because of UDLD, then the status of the interface can be confirmed using the **show interfaces port** command. The violation field indicates the reason of violation.
- The port may again go into shutdown state if the UDLD operation determine that UDLD violation is still not cleared.

### Examples

```
-> interfaces 1/8 clear-violation-all
-> interfaces 1/10-14 clear-violation-all
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show interfaces port](#) Displays interface port status (up or down).

### MIB Objects

```
alaUdldPortStatsTable
  alaUdldPortStatsClear
```

---

## show udld configuration

Displays the global status of UDLD configuration.

**show udld configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show udld configuration
Global UDLD Status : Disabled
```

#### *output definitions*

---

<b>Global UDLD Status</b>	Indicates the UDLD status on the switch. Options include <b>enabled</b> or <b>disabled</b> .
---------------------------	----------------------------------------------------------------------------------------------

---

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<b>udld</b>	Globally enables or disables UDLD protocol on the switch.
<b>show udld configuration port</b>	Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

### MIB Objects

alaUdldGlobalStatus

---

## show udld configuration port

Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch.

**show udld configuration port** [*slot/port*]

---

### Syntax Definitions

*slot/port*                                      The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

By default, a list of all UDLD ports is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show udld configuration port
Slot/Port      Admin State   Oper Mode     Probe-Timer    Echo-Wait-Timer
-----+-----+-----+-----+-----
1/1            disabled     normal        15             10
1/2            disabled     normal        45             10
1/17           disabled     normal        33             8
1/18           disabled     normal        33             8
1/19           disabled     normal        33             8
1/20           disabled     aggressive    55             8
1/21           disabled     aggressive    55             8
1/22           disabled     aggressive    55             8
1/41           disabled     aggressive    77             8
1/42           enabled      aggressive    77             8
1/43           enabled      aggressive    77             8
1/44           enabled      aggressive    77             8
1/45           enabled      aggressive    77             8
```

```
-> show udld configuration port 1/44
Global UDLD Status      : enabled,
Port UDLD Status        : enabled,
Port UDLD State         : bidirectional,
UDLD Op-Mode            : aggressive,
Probe Timer (Sec)       : 77,
Echo-Wait Timer (sec)   : 8
```



*output definitions*

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>UDLD-State</b>	Indicates the state of interface determined by UDLD operation, which can be <b>notapplicable</b> , <b>shutdown</b> , <b>undetermined</b> or <b>bidirectional</b> .
<b>Oper-Mode</b>	Indicates the operational mode of UDLD protocol. Options include <b>normal</b> or <b>aggressive</b> .
<b>Global UDLD Status</b>	Indicates the UDLD status on the switch. Options include <b>enabled</b> or <b>disabled</b> .
<b>Port UDLD Status</b>	Indicates the UDLD status on a port. Options include <b>enable</b> or <b>disable</b> .
<b>Probe Timer</b>	The probe-message expected after this time period.
<b>Echo-Wait Timer</b>	The detection of neighbor is expected with in this time period.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

<a href="#">udld mode</a>	Configures the operational mode of UDLD on a specific port, a range of ports, or all the ports.
<a href="#">udld probe-timer</a>	Configures the probe-message advertisement timer on a specific port, a range of ports, or all the ports.
<a href="#">udld echo-wait-timer</a>	Configures the echo based detection timer on a specific port, a range of ports, or all the ports.

**MIB Objects**

```
alaUdldGlobalStatus
alaUdldPortConfigTable
  alaUdldPortConfigUdldOperationalStatus
  alaUdldPortConfigUdldMode
  alaUdldPortConfigUdldStatus
  alaUdldPortConfigUdldProbeintervalTimer
  alaUdldPortConfigUdldDetectionPeriodTimer
alaUdldPortNeighborStatsTable
  alaUdldNeighborName
```

---

## show udld statistics port

Displays the UDLD statistics for a specific port.

**show udld statistics port** *slot/port*

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show udld statistics port 1/42
UDLD Port Statistics
  Hello Packet Send      :8,
  Echo Packet Send       :8,
  Flush Packet Recvd     :0
UDLD Neighbor Statistics
  Neighbor ID    Hello Pkts Recv      Echo Pkts Recv
-----+-----+-----
      1             8                 15
      2             8                 15
      3             8                 21
      4             8                 14
      5             8                 15
      6             8                 20
```

#### *output definitions*

---

<b>Hello Packet Send</b>	The number of hello messages sent by a port.
<b>Echo Packet Send</b>	The number of echo messages sent by a port.
<b>Flush Packet Recvd</b>	The number of UDLD-Flush message received by a port.
<b>Neighbor ID</b>	The name of the neighbor.
<b>Hello Pkts Recv</b>	The number of hello messages received from the neighbor.
<b>Echo Pkts Recv</b>	The number of echo messages received from the neighbor.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **udld probe-timer**

Configures the probe-message advertisement timer on a specific port, a range of ports, or all the ports.

### **udld echo-wait-timer**

Configures the echo based detection timer on a specific port, a range of ports, or all the ports.

## MIB Objects

alaUdldPortNeighborStatsTable

alaUdldNeighborName  
alaUdldNumHelloSent  
alaUdldNumHelloRcvd  
alaUdldNumEchoSent  
alaUdldNumEchoRcvd  
alaUdldNumFlushRcvd

---

## show udld neighbor port

Displays the UDLD neighbor ports.

**show udld neighbor port** *slot/port*

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show udld neighbor port 1/42
Neighbor ID          Device Id           Port Id
-----+-----+-----
1                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:78
2                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:79
3                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:74
4                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:75
5                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:76
6                   00:d0:95:ea:b2:48  00:d0:95:ea:b2:77
```

#### *output definitions*

---

<b>Neighbor ID</b>	The name of the neighbor.
<b>Device ID</b>	The device ID.
<b>Port ID</b>	The port ID.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

- udld echo-wait-timer** Configures the echo based detection timer on a specific port, a range of ports, or all the ports. This is known as link detection period.
- show udld statistics port** Displays the UDLD statistics for a specific port.

## MIB Objects

alaUdldPortNeighborStatsTable  
alaUdldNeighborName

---



## Release History

Release 6.3.1; command was introduced.

## Related Commands

- |                                              |                                                                                                        |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <a href="#">udld port</a>                    | Enables or disables UDLD status on a specific port or a range of ports.                                |
| <a href="#">show udld configuration port</a> | Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch. |

## MIB Objects

alaUdldGlobalStatus  
alaUdldPortConfigTable  
alaUdldPortConfigUdldOperationalStatus

---





# 3 Power over Ethernet (PoE) Commands

The Power over Ethernet (PoE) feature is supported on OmniSwitch chassis-based switches using PoE-capable Ethernet modules and a peripheral power shelf as well as on OmniSwitch PoE capable switches. Refer to the *OmniSwitch Hardware Users Guide* for further details.

---

**Note on Terminology.** There are several general terms used to describe this feature. The terms *Power over Ethernet (PoE)*, *Power over LAN (PoL)*, *Power on LAN (PoL)*, and *Inline Power* are synonymous terms used to describe the powering of attached devices via Ethernet ports. For consistency, this chapter and the *OmniSwitch CLI Reference Guide* refer to the feature as *Power over Ethernet (PoE)*.

Additional terms, such as *Powered Device (PD)* and *Power Source Equipment (PSE)* are terms that are not synonymous, but are directly related to PoE.

- *PD* refers to any attached device that uses a PoE data cable as its only source of power. Examples include access points such as IP telephones, Ethernet hubs, wireless LAN stations, etc.
- *PSE* refers to the actual hardware source of the electrical current for PoE such as OmniSwitch chassis-based switches with PoE modules or OmniSwitch PoE capable switches.

---

PoE commands documented in this section comply with IEEE 802.3, 802.af, and pre-802.3at.

MIB information for the PoE commands is as follows:

*Filename:* AlcatelIND1InLinePowerEthernet\_mib  
*Module:* ALCATEL-IND1-INLINE-POWER-MIB

*Filename:* AaIETF\_HUBMIB\_POWER\_ETHERNET\_DRAFT\_mib  
*Module:* POWER-ETHERNET-MIB

A summary of the available commands is listed here:

---

- lanpower start**
- lanpower stop**
- lanpower power**
- lanpower maxpower**
- lanpower priority**
- lanpower priority-disconnect**
- lanpower slot-priority**
- lanpower redundant-power**
- lanpower capacitor-detection**
- show lanpower**
- show lanpower capacitor-detection**
- show lanpower priority-disconnect**
- show lanpower slot-priority**

---

## lanpower start

Activates Power over Ethernet on a single specified PoE port *or* on all PoE ports in a specified slot.

**lanpower start** {*slot/port*[-*port2*] | *slot*}

---

**Important.** Inline power is *not activated* until the **lanpower start** *slot* syntax is issued for the applicable PoE slot(s).

---

---

### Syntax Definitions

<i>slot/port</i>	Activates inline power on the specified PoE port only. This syntax is used to re-enable power to an <i>individual port</i> that has been manually turned off via the <b>lanpower stop</b> command.
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>slot</i>	Activates inline power on all PoE ports in the corresponding slot.

### Defaults

Power over Ethernet operational status is globally disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *slot/port* syntax to activate power on a particular port. When all ports in a slot are manually turned off, use only the *slot* syntax in the command line. This activates power on all ports in the specified slot. As noted above, inline power is *not active* until the **lanpower start** *slot* syntax is issued for the applicable PoE slot(s).

### Examples

```
-> lanpower start 5/11
-> lanpower start 5
-> lanpower start 5/11-14
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [lanpower stop](#)

Manually disconnects power on a single specified PoE port or on all PoE ports in a specified slot.

### [show lanpower](#)

Displays current inline power status and related statistics for all PoE ports in a specified slot.

## MIB Objects

```
alaPethMainPseGroup
  alaPethMainPseAdminStatus
pethPsePortTable
  pethPsePortAdminEnable
```

---

## lanpower stop

Manually disables power on a single specified PoE port *or* on all PoE ports in a specified slot.

**lanpower stop** {*slot/port[-port2]* | *slot*}

---

### Syntax Definitions

<i>slot/port</i>	Disables inline power on the specified PoE port only.
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>slot</i>	Disables inline power on all PoE ports in the corresponding slot.

### Defaults

Power over Ethernet operational status is globally disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> lanpower stop 5/22
-> lanpower stop 5
-> lanpower stop 5/22-27
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lanpower start</a>	Activates inline power on a single specified PoE port <i>or</i> on all PoE ports in a specified slot.
<a href="#">show lanpower</a>	Displays current inline power status and related statistics for all PoE ports in a specified slot.

### MIB Objects

```
alaPethMainPseGroup
  alaPethMainPseAdminStatus
pethPsePortTable
  pethPsePortAdminEnable
```

---

## lanpower power

Specifies the maximum amount of inline power, in milliwatts, available to *a specific PoE port*. The value specified is used to supply inline power to devices such as IP telephones and wireless LAN devices.

**lanpower** {*slot/port* | *slot*} **power** *milliwatts*

---

### Syntax Definitions

*slot/port* A PoE port on which the maximum amount of inline power is being configured.

*milliwatts* The maximum amount of inline power, in milliwatts, being made available to the corresponding port. Refer to the *OmniSwitch Hardware Users Guide* PoE specifications.

### Defaults

parameter	default	Range
<i>milliwatts</i> (OS6400)	15400	3000-18000
<i>milliwatts</i> (OS6850 )	15400	3000-18000
<i>milliwatts</i> (OS6855)	15400	3000-20000
<i>milliwatts</i> (OS6850E/OS9000E)	30000	3000-30000

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Using this command does not immediately allocate the power to the slot or port. Any unused power is still available and remains a part of the overall PoE budget.
- To globally specify the amount of inline power available to *all ports in a slot*, refer to the [lanpower maxpower](#) command on page 3-8.
- Be sure that the value specified complies with specific power requirements for all attached IP telephones and wireless LAN devices.
- Note that the power value for the [lanpower power](#) command is specified in milliwatts (mW); the related command, [lanpower maxpower](#), is specified in watts (W).

### Examples

```
-> lanpower 3/1 power 3025
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lanpower maxpower](#)

Specifies the maximum amount of inline power, in watts, available to all PoE ports in a specified slot.

[show lanpower](#)

Displays current inline power status and related statistics for all PoE ports in a specified slot.

## MIB Objects

alaPethPsePortTable

    alaPethPsePortPowerMaximum

---

## lanpower maxpower

Specifies the maximum amount of inline power, in watts, available to *all PoE ports in a specified slot*.

**lanpower slot maxpower watts**

---

### Syntax Definitions

<i>slot</i>	The slot containing PoE ports on which the maximum amount of inline power allowed is being configured.
<i>watts</i>	The maximum amount of inline power, in watts, available to all PoE ports in the corresponding slot. Refer to the <i>OmniSwitch Hardware Users Guide</i> for additional PoE specifications.

### Defaults

parameter	default
900W Power Supply	780W
510W Power Supply	390W
360W Power Supply	240W
OS6855-14	66W
OS6855-24	80W
OS9000E	720W

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To specify the maximum amount of inline power available to a *single port*, refer to the [lanpower power command on page 3-6](#).
- Note that the power value for the **lanpower maxpower** command is specified in watts (W); the related command, **lanpower power**, is specified in milliwatts (mW).

### Examples

```
-> lanpower 3 maxpower 200
```

### Release History

Release 6.1; command was introduced.



## Related Commands

**lanpower power**

Specifies the maximum amount of inline power, in milliwatts, available to a specific PoE port.

**show lanpower**

Displays current inline power status and related statistics for all PoE ports in a specified slot.

## MIB Objects

alaPethMainPseGroup

alaPethMainPseMaxPower

---

## lanpower priority

Specifies an inline power priority level to a port. Levels include critical, high, and low.

**lanpower** *slot/port* **priority** {**critical** | **high** | **low**}

---

### Syntax Definitions

<i>slot/port</i>	The particular port on which a priority level is being configured.
<b>critical</b>	Intended for ports that have mission-critical devices attached, and therefore require top (i.e., critical) priority. In the event of a power management issue, inline power to critical ports is maintained as long as possible.
<b>high</b>	Intended for ports that have important, but <i>not</i> mission-critical, devices attached. If other ports in the chassis have been configured as critical, inline power to high-priority ports is given second priority.
<b>low</b>	Intended for ports that have low-priority devices attached. In the event of a power management issue, inline power to low-priority ports is interrupted first (i.e., before critical- and high-priority ports).

### Defaults

parameter	default
<b>low</b>   <b>high</b>   <b>critical</b>	low

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> lanpower 2/16 priority low
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show lanpower](#)

Displays current inline power status and related statistics for all PoE ports in a specified slot.

## MIB Objects

pethPsePortGroup

    pethPsePortPowerPriority

---

## lanpower priority-disconnect

Enables or disables the priority disconnect function on all ports in a specified slot. Priority disconnect is used by the system software in determining whether an incoming PD will be granted or denied power when there are too few watts remaining in the PoE power budget for an additional device. For detailed information on this function, refer to the “Managing Power over Ethernet (PoE)” chapter in the *OmniSwitch Hardware Users Guide*.

**lanpower slot priority-disconnect {enable | disable}**

---

### Syntax Definitions

<i>slot</i>	The particular slot on which the priority disconnect function is being enabled or disabled.
<b>enable</b>	Enables priority disconnect on a specified port. When this function is enabled <i>and</i> a power budget deficit occurs in which there is inadequate power for an incoming device, the system software uses priority disconnect rules to determine whether an incoming device will be granted or denied power. For information on priority disconnect rules, refer to the “Managing Power over Ethernet (PoE)” chapter in the <i>OmniSwitch Hardware Users Guide</i> .
<b>disable</b>	Disables priority disconnect on a specified port. When priority disconnect is disabled and there is inadequate power in the budget for an additional device, power will be denied to <i>any</i> incoming PD, regardless of its priority status.

### Defaults

parameter	default
<b>enable   disable</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> lanpower 2 priority-disconnect disable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**lanpower priority**

Specifies an inline power priority level to a port. Levels include critical, high, and low.

**show lanpower priority-disconnect**

Displays the priority disconnect function status on all ports in a specified slot.

## MIB Objects

alaPethMainPseTable

alaPethMainPsePriorityDisconnect

---

## lanpower slot-priority

Configures an inline power priority level for a slot. If the power supply of the power shelf goes down, the order of a particular daughter module will be disabled based on priority, thus affecting the power budget available to the whole chassis. Levels include critical, high, and low.

**lanpower slot slot-priority {critical | high | low}**

---

### Syntax Definitions

<i>slot</i>	The particular slot on which a priority level is being configured.
<b>critical</b>	Intended for slots that have mission-critical devices attached and therefore require top (i.e., critical) priority. In the event of a power management issue, inline power to critical ports is maintained as long as possible.
<b>high</b>	Intended for slots that have important, but <i>not</i> mission-critical devices attached. If other ports in the chassis have been configured as critical, inline power to high-priority ports is given second priority.
<b>low</b>	Intended for slots that have low-priority devices attached. In the event of a power management issue, inline power to low-priority ports is interrupted first (i.e., before critical- and high-priority ports).

### Defaults

parameter	default
low   high   critical	low

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Note that if all the POE NI modules are all configured with the same priority level, then priority is determined based on the slot number of the module; the lower the slot number the higher the priority. For example, if slots 1, 2, 7, and 8 are powered by two POE power supplies and one of the power supplies goes down, power is cut to slots 7 and 8 because they have a lower priority than slots 1 and 2.

### Examples

```
-> lanpower 1 slot-priority critical
-> lanpower 2 slot-priority high
-> lanpower 3 slot-priority low
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

[show lanpower slot-priority](#)

Displays the order in which a particular daughter module will be disabled if a power shelf power supply goes down, thus affecting the power budget available to the chassis.

## MIB Objects

alaPethMainPseTable

    alaPethMainPsePriority

---

## lanpower redundant-power

Enables or disables power supply redundancy for Power over Ethernet on the switch.

**lanpower redundant-power {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables redundant power on the switch.
<b>disable</b>	Disables redundant power on the switch.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	disable

---

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- In order to comply with 911 emergency requirements, PoE power redundancy status must be *enabled* at all times. For additional requirements, refer to the “Managing Power over Ethernet (PoE)” chapter in the *OmniSwitch Hardware Users Guide*.

### Examples

```
-> lanpower redundant-power enable
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

N/A

### MIB Objects

```
alaPethMainTable  
alaPethMainPowerRedundancy
```

---



## lanpower capacitor-detection

Enables or disables the capacitor detection method.

**lanpower slot capacitor-detection {enable | disable}**

---

### Syntax Definitions

**slot** The particular slot on which the capacitor detection method is being enabled or disabled.

**enable** Enables the capacitor detection method.

**disable** Disables the capacitor detection method.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The capacitor detection method should only be enabled if there are legacy IP phones attached to the corresponding slot—this feature is *not* compatible with IEEE specifications. Please contact your Alcatel-Lucent sales engineer or Customer Support representative to find out which Alcatel-Lucent IP phones models need capacitive detection enabled.

### Examples

```
-> lanpower 3 capacitor-detection enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show lanpower capacitor-detection](#) Displays capacitor detection method status.

### MIB Objects

alaPethMainTable  
alaPethMainPseCapacitorDetect

---

## show lanpower

Displays current inline power status and related statistics for all PoE ports in a specified slot.

**show lanpower** *slot*

---

### Syntax Definitions

*slot* The slot for which current inline power status and related statistics are to be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lanpower 1
Port Maximum(mW) Actual Used(mW) Status Priority On/Off Class
-----+-----+-----+-----+-----+-----+-----
 1      31000         7000    Powered On    Critical    ON         0
 2      31000        20000    Powered On    Critical    ON         4
 3      15400         7000    Powered On    Low         ON         3
.....
42      18000           0      Undefined    Low         OFF        -
43      18000           0      Undefined    Low         OFF        -
44      18000           0      Undefined    Low         OFF        -
45      18000           0      Undefined    Low         OFF        -
46      18000           0      Undefined    Low         OFF        -
47      18000           0      Undefined    Low         OFF        -
48      18000           0      Undefined    Low         OFF        -
```

```
Slot 1 Max Watts 380
380 Watts Total Power Budget Remaining
380 Watts Total Power Budget Available
1 Power Supplies Available
```

### output definitions

---

<b>Port</b>	A PoE port for which current status and related statistics are being displayed.
<b>Maximum (mW)</b>	The current maximum amount of power available to the corresponding PoE port, in milliwatts. The default value is 15400. To change this setting, use the <b>lanpower power</b> command.

*output definitions (continued)*

<b>Actual Used (mW)</b>	The actual amount of power being used by an attached device (if applicable), in milliwatts. If no device is attached to the corresponding port, this row displays a value of 0.
<b>Status</b>	Displays the current operational status. Options include <b>Powered On</b> , <b>Powered Off</b> , and <b>Undefined</b> .
<b>Priority</b>	<p>The current priority level for the corresponding PoE port. Options include <b>Critical</b>, <b>High</b>, and <b>Low</b>. <b>Critical</b> should be reserved for ports that have mission-critical devices attached, and therefore require top (i.e., critical) priority. In the event of a power management issue, inline power to critical ports is maintained as long as possible. <b>High</b> indicates ports that have important, but not mission-critical, devices attached. If other ports in the chassis have been configured as critical, inline power to high-priority ports is given second priority. <b>Low</b> priority is for ports that have low-priority devices attached. In the event of a power management issue, inline power to low-priority ports is interrupted first (i.e., before critical and high-priority ports).</p> <p>The default value is Low. Priority levels can be changed using the <b>lanpower priority</b> command.</p>
<b>On/Off</b>	Displays whether a port has been manually turned on or off by the user. <b>ON</b> indicates that the port has been turned on by the user via the <b>lanpower start</b> command. <b>OFF</b> indicates that the port has been turned off by the user via the <b>lanpower stop</b> command.
<b>Class</b>	PoE class detected on attached Powered Device.
<b>Max Watts</b>	The maximum watts available to the corresponding slot. The maximum watts value for a slot can be changed using the <b>lanpower maxpower</b> command.
<b>Total Power Budget Remaining</b>	The amount of power budget remaining for PoE modules. If the total power budget remaining is exceeded, a power error will occur and the switch's chassis management software will begin shutting down power to PoE ports according to their priority levels.
<b>Total Power Budget Available</b>	The total amount of power remaining, based upon the number of power supplies installed and operating in the power shelf.
<b>Power Shelf Power Supplies Available</b>	The number of power supplies currently installed and operating in the switch's power shelf. The power shelf is also referred to as Power Source Equipment (PSE).

**Release History**

Release 6.1; command was introduced.

Release 6.4.4; Class parameter was introduced.

**Related Commands**

N/A

**MIB Objects**

```
alaPethMainPseGroup
  alaPethMainPseAdminStatus
pethPsePortTable
  pethPsePortAdminEnable
alaPethPsePortTable
  alaPethPsePortPowerMaximum
alaPethMainPseGroup
  alaPethMainPseMaxPower
  pethMainPsePower
pethPsePortGroup
  pethPsePortPowerPriority
```

---

## show lanpower capacitor-detection

Displays the capacitor detection method status.

**show lanpower capacitor-detection** *slot*

---

### Syntax Definitions

*slot*                                      The particular slot on which the capacitor detection method status is being displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lanpower capacitor-detection 2
Capacitor Detection enabled on Slot 2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[lanpower capacitor-detection](#)                      Enables or disables the capacitor detection method.

### MIB Objects

```
alaPethMainTable
  alaPethMainPseCapacitorDetect
```

---

## show lanpower priority-disconnect

Displays the priority disconnect function status on all ports in a specified slot.

`show lanpower priority-disconnect slot`

---

### Syntax Definitions

*slot*                                      The particular slot on which the priority disconnect function status you want to display.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lanpower priority-disconnect 2
Slot 2 Priority Disconnect Enabled!
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[lanpower priority-disconnect](#)                      Enables or disables the priority disconnect function on all ports in a specified slot.

### MIB Objects

```
alaPethMainPseTable
  alaPethMainPsePriorityDisconnect
```

---







# 4 Source Learning Commands

Source Learning is responsible for creating, updating, and deleting source and destination MAC Address entries in the MAC Address Table. This chapter includes descriptions of Source Learning commands used to create or delete static MAC addresses, define the aging time value for static and dynamically learned MAC addresses, and display MAC Address Table entries and statistics.

MIB information for Source Learning commands is as follows:

*Filename:* AlcatelInd1MacAddress.mib  
*Module:* ALCATEL-IND1-MAC-ADDRESS-MIB

A summary of the available commands is listed here:

---

**mac-address-table**  
**mac-address-table vpls permanent sap**  
**mac-address-table vpls permanent mesh-sdp**  
**mac-address-table static-multicast**  
**mac-address-table aging-time**  
**source-learning chassis-distributed**  
**source-learning**  
**show mac-address-table**  
**show mac-address-table all**  
**show mac-address-table vpls**  
**show mac-address-table vpls sap**  
**show mac-address-table vpls mesh-sdp**  
**show mac-address-table static-multicast**  
**show mac-address-table count**  
**show mac-address-table vpls count**  
**show mac-address-table all count**  
**show mac-address-table aging-time**  
**show source-learning**  
**show source-learning chassis-distributed**

---

## mac-address-table

Configures a destination unicast MAC address. The configured (static) MAC address is assigned to a non-mobile switch port or link aggregate ID and VLAN. Packets received on ports associated with the specified VLAN that contain a destination MAC address that matches the static MAC address are forwarded to the specified port. Static destination MAC addresses are maintained in the Source Learning MAC address table.

**mac-address-table** [**permanent**] *mac\_address* {*slot/port* | **linkagg** *link\_agg*} *vid* [**bridging** | **filtering**]

**no mac-address-table** [**permanent** | **learned**] [*mac\_address* {*slot/port* | **linkagg** *link\_agg*} *vid*]

---

### Syntax Definitions

<b>permanent</b>	Defines a permanent static MAC Address that is not removed when the switch reboots.
<b>learned</b>	Specifies that the MAC address is a dynamically learned address.
<i>mac_address</i>	Enter the destination MAC Address to add to the MAC Address Table (e.g., 00:00:39:59:f1:0c).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>link_agg</i>	Enter a link aggregate ID number (0–31). See <a href="#">Chapter 8, “Link Aggregation Commands.”</a>
<i>vid</i>	VLAN ID number (1–4094).
<b>bridging</b>	Specifies that all packets to or from this MAC address are bridged.
<b>filtering</b>	Specifies that all packets to or from this MAC address are dropped.

### Defaults

parameter	default
<b>permanent</b>	permanent
<b>bridging</b>   <b>filtering</b>	bridging

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a MAC address from the Source Learning MAC Address Table.
- The specified slot/port or link aggregate ID must already belong to the specified VLAN. Use the **vlan port default** command to assign a port or link aggregate ID to a VLAN before you configure the static MAC address. Only traffic from other ports associated with the same VLAN is directed to the static MAC address slot/port.

- Select the **filtering** parameter to set up a denial of service to block potential hostile attacks. Traffic sent to or from a filtered MAC address is dropped. Select the **bridging** parameter for regular traffic flow to or from the MAC address.
- If a packet received on a port associated with the same VLAN contains a source address that matches a static MAC address, the packet is discarded.
- Static MACs are not supported on mobile ports.
- Only static MAC address entries with a **permanent** management status are captured when a snapshot of the switch's running configuration is taken.
- Use the **mac-address-table aging-time** command (see [page 4-10](#)) to set the aging time value for all static and dynamically learned MAC addresses. This is the value applied to static MAC addresses defined using the **mac-address-table timeout** form of this command.

## Examples

```
-> mac-address-table permanent 00:00:39:59:f1:0c 4/2 355
-> no mac-address-table
-> no mac-address-table 5/1 755
-> no mac-address-table permanent
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>mac-address-table aging-time</b>	Configures aging time, in seconds, for static and dynamically learned MAC addresses.
<b>show mac-address-table</b>	Displays Source Learning MAC Address Table information.
<b>show mac-address-table count</b>	Displays Source Learning MAC Address Table statistics.
<b>show mac-address-table aging-time</b>	Displays the current aging time value for the Source Learning MAC Address Table.

## MIB Objects

```
sLMacAddressTable
  sLMacAddress
  sLMacAddressManagement
  sLMacAddressDisposition
```

---

## mac-address-table vpls permanent sap

Configures a static MAC address and associates that address with the specified Service Access Point (SAP) ID for the specified Virtual Private LAN Service (VPLS).

**mac-address-table vpls** *service-id* **permanent** *mac-address* **sap** {*sap-id* | **linkagg** *sap-id*}

**no mac-address-table vpls** *service-id* **permanent** *mac-address*

**no mac-address-table vpls** *service-id* **learned** [**sap** *sap-id* | **linkagg** *sap-id*] *mac-address*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.
<i>sap-id</i>	The access slot and port number or link aggregate ID (0–31) and encapsulation value for an existing SAP (e.g., 1/10:0, 1/12:all, 20:150, 10:all).
<b>learned</b>	Specifies that the MAC address is a dynamically learned address. This option is only available with the <b>no</b> form of this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the configured static MAC from the source learning FDB.
- The specified VPLS ID and SAP ID must already exist in the VPLS configuration for the switch. See the “VPLS Commands” chapter in this guide for information about how to configure a VPLS and SAP.
- A SAP ID is comprised of an access (customer-facing) port or link aggregate and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.
- Static MACs associated with a SAP are classified as local MACs. A local MAC is used by the associated VPLS so that MAC addresses are not learned on the edge device.
- A MAC address can participate in only one static MAC address entry (local or remote) for a specific VPLS.
- Static MAC addresses configured on one edge device are not propagated to other edge devices associated with the same VPLS instance. Each edge device has an independent forwarding database for the associated VPLS.

### Examples

```
-> mac-address-table vpls 10 permanent 00:00:da:3e:44:01 sap 1/2:100
-> mac-address-table vpls 10 permanent 00:00:da:3e:44:01 sap linkagg 10:100
```

```
-> no mac-address-table vpls 10 00:00:da:3e:44:01
-> no mac-address-table vpls 10 permanent 00:00:da:3e:44:01
-> no mac-address-table vpls 20 learned 00:2a:3e:11:22:10
-> no mac-address-table vpls 30 learned 1/10:all 00:2a:3e:11:22:09
-> no mac-address-table vpls 40 learned linkagg 10:all 00:2a:3e:11:22:08
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                                 |                                                                                                              |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <a href="#">show mac-address-table all</a>      | Displays Source Learning MAC Address Table contents for the VLAN and VPLS domain.                            |
| <a href="#">show mac-address-table vpls sap</a> | Displays the Source Learning MAC Address Table contents for the specified VPLS Service Access Point binding. |

## MIB Objects

```
s1MacAddressGlobalTable
  s1MacDomain
  s1LocalType
  s1OriginId
  s1ServiceId
  s1MacAddressGbl
```

---

## mac-address-table vpls permanent mesh-sdp

Configures a static MAC address and associates that address with the specified Service Distribution Point (SDP) ID binding with the specified Virtual Private LAN Service (VPLS).

**mac-address-table vpls** *service-id* **permanent** *mac-address* **mesh-sdp** *sdp-id[:vc-id]*

**no mac-address-table vpls** *service-id* **permanent** *mac-address*

**no mac-address-table vpls** *service-id* **learned** [**mesh-sdp** *sdp-id[:vc-id]*] *mac-address*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.
<i>sdp-id</i>	An existing SDP ID number that is bound to the specified service ID number.
<i>vc-id</i>	<i>Optional.</i> The VC ID number appended to the specified SDP ID number.
<b>learned</b>	Specifies that the MAC address is a dynamically learned address. This option is only available with the <b>no</b> form of this command.

### Defaults

parameter	default
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the configured static MAC from the source learning FDB.
- The specified VPLS ID and SDP ID must already exist in the VPLS configuration for the switch. See the “VPLS Commands” chapter in this guide for information about how to configure a VPLS and SDP.
- Static MACs associated with SDPs are classified as remote MACs. A remote MAC is used by the associated VPLS so that MAC addresses are not learned on the edge device.
- A MAC address can participate in only one static MAC address entry (local or remote) for a specific VPLS.
- Static MAC addresses configured on one edge device are not propagated to other edge devices associated with the same VPLS instance. Each edge device has an independent forwarding database for the associated VPLS.

## Examples

```
-> mac-address-table vpls 10 permanent 00:00:da:3e:44:01 mesh-sdp 10
-> no mac-address-table vpls 10 learned 00:00:da:3e:44:01
-> no mac-address-table vpls 20 learned mesh-sdp 20 00:2a:d5:11:2a:31
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">show mac-address-table</a>	Displays Source Learning MAC Address Table information.
<a href="#">show mac-address-table vpls mesh-sdp</a>	Displays Source Learning MAC Address Table information for the specified VPLS mesh-SDP binding.

## MIB Objects

```
s1MacAddressGlobalTable
  s1MacDomain
  s1LocalType
  s1OriginId
  s1ServiceId
  s1MacAddressGbl
```

---

## mac-address-table static-multicast

Configures a static multicast MAC address and assigns the address to one or more egress ports. Packets received on ports associated with the specified VLAN that contain a destination MAC address that matches the static multicast address are forwarded to the specified egress ports. Static multicast MAC addresses are maintained in the Source Learning MAC address table.

**mac-address-table static-multicast** *multicast\_address* {*slot1/port1*[-*port1a*] [*slot2/port2*[-*port2a*]...]} / **linkagg** *link\_agg* } *vid*

**no mac-address-table static-multicast** [*multicast\_address* {*slot1/port1*[-*port1a*] [*slot2/port2*[-*port2a*]...]} / **linkagg** *link\_agg* } *vid*]

---

### Syntax Definitions

<i>multicast_address</i>	Enter the destination multicast MAC Address to add to the MAC Address Table (e.g., 01:00:39:59:f1:0c).
<i>slot1/port1</i> [- <i>port1a</i> ]	The egress slot and port combination that is assigned to the static multicast MAC address. You may enter multiple ports and port ranges.
<i>slot2/port2</i> [- <i>port2a</i> ]	Additional egress slot and port combinations may be assigned to the static multicast MAC address. You may enter multiple ports and port ranges.
<i>link_agg</i>	Enter a link aggregate ID number (0–29). See <a href="#">Chapter 8, “Link Aggregation Commands.”</a>
<i>vid</i>	VLAN ID number (1–4094).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static multicast MAC address from the Source Learning MAC Address Table. Note that if no parameters are specified with this form of the command, then all static multicast addresses are removed.
- Note that a MAC address is considered a multicast MAC address if the least significant bit of the most significant octet of the address is enabled. For example, MAC addresses with a prefix of 01, 03, 05, 13, etc., are multicast MAC addresses.
- If a multicast prefix value is not present, then the address is treated as a regular MAC address and not allowed when using the **mac-address-table static-multicast** command. Also note that multicast addresses within the following ranges are not supported:

```
01:00:5E:00:00:00 to 01:00:5E:7F:FF:FF
01:80:C2:XX.XX.XX
33:33:XX:XX:XX:XX
```



- The configured (static) multicast MAC address is assigned to a non-mobile switch port or link aggregate ID and VLAN. Static multicast MACs are not supported on mobile ports.
- In addition to configuring the same static multicast address for multiple ports within a given VLAN, it is also possible to use the same multicast address across multiple VLANs.
- The specified slot/port or link aggregate ID must already belong to the specified VLAN. Use the **vlan port default** command to assign a port or link aggregate ID to a VLAN before you configure the static MAC address. Only traffic from other ports associated with the same VLAN is directed to the static multicast MAC address slot/port.
- If the **configuration snapshot** or **write memory** command is entered after a static multicast MAC address is configured, the resulting ASCII file or **boot.cfg** file will include the following additional syntax for the **mac-address-table static-multicast** command:

**group** *num*

This syntax indicates the number of the multicast group that the switch has assigned to the multicast MAC address for the given VLAN association. Each multicast address – VLAN association is treated as a unique instance and assigned a group number specific to that instance. Up to 1022 such instances are supported per switch.

- Note that if the port assigned to a multicast MAC address is down or administratively disabled when the **configuration snapshot** or **write memory** command is used, the multicast MAC address is not saved to the resulting ASCII file or **boot.cfg** file.

## Examples

```
-> mac-address-table static-multicast 02:00:39:59:f1:0c 4/2 355
-> mac-address-table static-multicast 01:00:00:3a:44:11 1/12-24 255
-> mac-address-table static-multicast 03:00:00:3a:44:12 1/10 2/1-6 3/1-8 1500
-> mac-address-table static-multicast 04:00:00:3a:44:13 linkagg 10 455
-> no mac-address-table static-multicast 03:00:00:3a:44:12 1/10 1500
-> no mac-address-table static-multicast 04:00:00:3a:44:13 linkagg 10 455
-> no mac-address-table static-multicast
```

## Release History

Release 6.1.2; command was introduced.

## Related Commands

- |                                                |                                                                                                                 |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>show mac-address-table</b>                  | Displays Source Learning MAC Address Table information.                                                         |
| <b>show mac-address-table static-multicast</b> | Displays a list of static multicast MAC addresses that are configured in the Source Learning MAC Address Table. |
| <b>show mac-address-table count</b>            | Displays Source Learning MAC Address Table statistics.                                                          |

## MIB Objects

```
sLMacAddressTable
  sLMacAddress
  sLMacAddressManagement
  sLMacAddressDisposition
```

---

## mac-address-table aging-time

Configures aging time, in seconds, for static and dynamically learned MAC addresses. When a MAC address has aged beyond the aging-time value, the MAC address is discarded.

**mac-address-table aging-time** *seconds*

**no mac-address-table aging-time**

---

### Syntax Definitions

*seconds* Aging time value (in seconds). Do not use commas in value. The range is 60—1000000.

### Defaults

By default, the aging time is set to 300 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the aging-time back to the default value of 300 seconds.
- The aging time value is a global value that applies to all VLANs. Configuring this value on a per VLAN basis is not supported on this platform.
- Note that an inactive MAC address may take up to twice as long as the aging time value specified to age out of the MAC address table. For example, if an aging time of 60 seconds is specified, the MAC will age out any time between 60 and 120 seconds of inactivity.
- If the **timeout** parameter is not specified when using the **mac-address-table** command (see [page 4-2](#)) to configure a static MAC address, then the aging time value is not applied to the static MAC address.

### Examples

```
-> mac-address-table aging-time 1200  
-> no mac-address-table aging-time
```

### Release History

Release 6.1; command was introduced.

Release 6.1.1; **vlan** parameter not supported.

## Related Commands

- |                                          |                                                                                  |
|------------------------------------------|----------------------------------------------------------------------------------|
| <b>mac-address-table</b>                 | Configures a static destination Unicast MAC address for a VLAN bridge.           |
| <b>show mac-address-table</b>            | Displays Source Learning MAC Address Table information.                          |
| <b>show mac-address-table count</b>      | Displays Source Learning MAC Address Table statistics.                           |
| <b>show mac-address-table aging-time</b> | Displays the current aging time value for the Source Learning MAC Address Table. |

## MIB Objects

s1MacAddressAgingTable  
    s1MacAgingValue

---

## source-learning

Configures the status of source MAC address learning on a single port, a range of ports, or on a link aggregate of ports.

**source-learning** {port *slot/port1*[-*port2*] / linkagg *linkagg\_num*} {enable | disable}

---

### Syntax Definitions

<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>linkagg_num</i>	Specifies the link aggregate port ID.
<b>enable</b>	Enables source learning.
<b>disable</b>	Disables source learning.

### Defaults

By default, source learning is enabled on all ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring source learning is not supported on mobile ports, Learned Port Security ports, individual ports which are members of a link aggregate, or Access Guardian (802.1x) ports.
- When port-based source learning is configured for a link aggregate ID, it affects all the ports that are members of the link aggregate.
- When source-learning is disabled on a port or link aggregate, all dynamically learned MAC addresses are removed from the MAC address table.
- Static MAC addresses associated with a port or link aggregate are *not* cleared when source learning is disabled. Also, new static MAC address configurations are allowed on ports or link aggregates even when source learning is disabled on them.
- Disabling source learning on a port or link aggregate is useful on a ring configuration where switch A does not have to learn MAC addresses from switch B or for a Transparent LAN Service, where service provider does not require the MAC addresses of the Customer network.

### Examples

```
-> source-learning port 1/2 disable
-> source-learning port 1/3-9 disable
-> source-learning linkagg 10 disable
```

## Release History

Release 6.4.2; command added.

## Related Commands

### [show source-learning](#)

Displays Source Learning status of each port or linkagg ports on a switch.

## Related MIB Objects

```
s1MacAddressTable  
s1MacLearningControlTable  
  s1MacLearningControlEntry  
  s1MacLearningControlStatus
```

---

---

## source-learning chassis-distributed

Enables or disables the distributed MAC source learning mode for the chassis. Enabling this mode increases the number of learned MAC addresses supported to 16K per module and up to 64K per chassis.

**source-learning chassis-distributed {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables distributed MAC source learning mode.
<b>disable</b>	Disables distributed MAC source learning mode.

### Defaults

By default distributed MAC source learning mode is disabled for the chassis.

### Platforms Supported

OmniSwitch 6850E, 9000E

### Usage Guidelines

- After the distributed MAC mode is either enabled or disabled using this command, immediately save the switch configuration using the **write memory** command and then reboot the switch.
- Distributed MAC source learning is not supported on an OmniSwitch stackable switches.
- When the distributed MAC source learning mode is disabled (the default), the maximum number of learned MAC addresses allowed per OmniSwitch chassis-based switch is 16K.

### Examples

```
-> source-learning chassis-distributed enable
-> source-learning chassis-distributed disable
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

**show source-learning chassis-distributed** Displays the current status of the distributed MAC source learning mode.

### MIB Objects

```
sLMacAddressTable
  sLDistributedMacMode
```

---

## show mac-address-table

Displays Source Learning MAC Address Table information.

**show mac-address-table** [**permanent** | **learned** | **quarantined**] [*mac\_address*] [**slot** *slot* | *slot/port*] [**link-agg** *link\_agg*] [*vid* | *vid1-vid2*]

---

### Syntax Definitions

<b>permanent</b>	Display static MAC addresses with a permanent status.
<b>learned</b>	Display dynamically learned MAC addresses.
<b>quarantined</b>	Display MAC addresses quarantined by the Quarantine Manager and Remediation (QMR) application.
<i>mac_address</i>	Enter a MAC Address (e.g., 00:00:39:59:f1:0c).
<i>slot</i>	Enter the slot number for a module to specify that the command should include all ports on that module (e.g., 6 specifies all ports on the module found in slot 6 of the switch chassis).
<i>slot/port</i>	Enter the slot number and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>link_agg</i>	Enter a link aggregate ID number (0–31). See <a href="#">Chapter 8, “Link Aggregation Commands.”</a>
<i>vid</i>	A single VLAN ID number (1–4094).
<i>vid1-vid2</i>	A range of VLAN IDs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, information is displayed for all MAC addresses contained in the table.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.
- If a static MAC address is configured on a port link that is down or disabled, an asterisk appears to the right of the MAC address in the **show mac-address-table** command display. The asterisk indicates that this is an invalid MAC address. When the port link comes up, however, the MAC address is then considered valid and the asterisk no longer appears next to the address in the display.

## Examples

```
-> show mac-address-table
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VLAN	1	00:00:00:00:00:01	learned	0800	bridging	8/1
VLAN	1	00:d0:95:6a:73:9a	learned	aaaa0003	bridging	10/23

```
Total number of Valid MAC addresses above = 2
```

```
-> show mac-address-table 10-15
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VLAN	10	00:00:00:00:00:01	learned	0800	bridging	1/2
VLAN	10	00:d0:95:6a:73:9a	learned	aaaa0003	bridging	1/2
VLAN	11	00:d0:95:a3:e0:0d	learned	---	bridging	1/3
VLAN	11	00:d0:95:a3:e5:09	learned	---	bridging	1/3
VLAN	11	00:d0:95:a3:e7:75	learned	---	bridging	1/4
VLAN	12	00:d0:95:a3:ed:f7	learned	---	bridging	2/1
VLAN	12	00:d0:95:a8:2a:b6	learned	---	bridging	2/1
VLAN	12	00:d0:95:ad:e3:cc	learned	---	bridging	2/1
VLAN	13	00:d0:95:ae:3b:f6	learned	---	bridging	2/8
VLAN	13	00:d0:95:b2:3d:fa	learned	---	bridging	2/8
VLAN	14	00:00:0a:00:00:00	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:01	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:02	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:03	quarantined	---	filtered	5/1

```
Total number of Valid MAC addresses above = 14
```

```
-> show mac-address-table quarantined
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VLAN	14	00:00:0a:00:00:00	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:01	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:02	quarantined	---	filtered	5/1
VLAN	14	00:00:0a:00:00:03	quarantined	---	filtered	5/1

```
Total number of Valid MAC addresses above = 14
```

### output definitions

<b>Domain</b>	The domain to which the MAC address belongs ( <b>VLAN</b> or <b>VPLS</b> ).
<b>VLAN/SrvId</b>	Vlan ID number or VPLS ID number associated with the MAC address.
<b>Mac Address</b>	MAC address that is currently learned or statically assigned.
<b>Type</b>	MAC address management status: <b>learned</b> , <b>permanent</b> , or <b>quarantined</b> . Configured through the <b>mac-address-table</b> command.
<b>Protocol</b>	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.



*output definitions*

---

<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default) or <b>filtering</b> . Configured through the <b>mac-address-table</b> command.
<b>Interface</b>	The slot number for the module and the physical port number on that module that is associated with the static or dynamically learned MAC address. If the interface is a link aggregate ID, zero is displayed as the slot number (e.g., 0/29).

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.3; *vid* parameter modified to support a range of VLAN IDs.

Release 6.3.1; **quarantined** type added.

Release 6.4.2; **Domain** field added and **SrvId** added to **Vlan** field.

**Related Commands**

**show mac-address-table all** Displays MAC addresses associated with both VLANs and Virtual Private LAN Service (VPLS) services.

**show mac-address-table count** Displays Source Learning MAC Address Table statistics.

**show mac-address-table aging-time** Displays the current aging time value for the Source Learning MAC Address Table.

**MIB Objects**

```
s1MacAddressTable
  s1MacAddress
  s1MacAddressManagement
  s1MacAddressDisposition
  s1MacAddressProtocol
```

---

## show mac-address-table all

Displays MAC addresses associated with both VLANs and Virtual Private LAN Service (VPLS) services.

**show mac-address-table all** [**permanent** | **learned**]

---

### Syntax Definitions

**permanent**                      Displays static MAC addresses with a permanent status.

**learned**                         Displays dynamically learned MAC addresses.

### Defaults

By default, information is displayed for all MAC addresses contained in the table.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

If a static MAC address is configured on a port link that is down or disabled, an asterisk appears to the right of the MAC address in the **show mac-address-table** command display. The asterisk indicates that this is an invalid MAC address. When the port link comes up, however, the MAC address is then considered valid and the asterisk no longer appears next to the address in the display.

### Examples

```
SW-D-> show mac-address-table all
```

Legend: Mac Address: \* = address not valid

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VLAN	13	00:d0:95:e9:cf:86	learned	---	bridging	16/1
VLAN	13	00:e0:b1:9c:8a:3c	learned	---	bridging	16/1
VLAN	15	00:e0:b1:87:8d:68	learned	---	bridging	16/12
VLAN	15	00:e0:b1:9c:87:2f	learned	---	bridging	16/12
VPLS	1000	00:01:bd:01:01:01	learned	---	servicing	sdp:222:1000
VPLS	1000	00:01:bd:01:01:02	learned	---	servicing	sdp:222:1000
VPLS	1000	00:01:bd:01:01:03	learned	---	servicing	sdp:222:1000
VPLS	1000	00:01:bd:01:01:04	learned	---	servicing	sdp:222:1000
VPLS	1000	00:01:bd:01:01:05	learned	---	servicing	sdp:222:1000

Total number of Valid MAC addresses above = 14

### output definitions

---

<b>Domain</b>	The domain to which the MAC address belongs ( <b>VLAN</b> or <b>VPLS</b> ).
<b>VLAN/SrvId</b>	Vlan ID number or VPLS ID number associated with the MAC address.
<b>Mac Address</b>	MAC address that is currently learned or statically assigned.

<b>Type</b>	MAC address management status: <b>learned, permanent, or quarantined</b> .
<b>Protocol</b>	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default), <b>filtering</b> , or <b>servicing</b> .
<b>Interface</b>	The slot/port number that is associated with the MAC address. If the interface is a link aggregate ID, zero is displayed as the slot number (e.g., 0/29). If the MAC is associated with a VPLS service, this field contains the mesh-SDP or SAP binding information.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">mac-address-table</a>	Configures a static destination Unicast MAC address for a VLAN bridge.
<a href="#">mac-address-table vpls permanent sap</a>	Configures a static MAC address for a VPLS SAP.
<a href="#">mac-address-table vpls permanent mesh-sdp</a>	Configures a static MAC address for a VPLS mesh-SDP binding.

## MIB Objects

```
s1MacAddressGlobalTable
  s1MacAddressGbl
  s1MacAddressGblmanagement
  s1MacAddressGblDisposition
```

---

## show mac-address-table vpls

Displays Source Learning MAC Address Table contents for VPLS services.

**show mac-address-table vpls** [*service-id*] [**permanent** | **learned**] [*mac-address*]

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<b>permanent</b>	Display static MAC addresses.
<b>learned</b>	Display dynamically learned MAC addresses.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

By default, all MAC addresses for all services are displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the optional parameters with this command to display information for specific services and MAC address types.

### Example

```
-> show mac-address-table vpls 1002 00:01:db:07:03:02
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvcId	Mac Address	Type	Protocol	Operation	Interface
VPLS	1002	00:01:db:07:03:02	learned	---	servicing	sap:0/16:1006

```
-> show mac-address-table vpls 1002 permanent
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvcId	Mac Address	Type	Protocol	Operation	Interface
VPLS	1002	00:00:00:00:00:05	permanent	---	servicing	sap:0/16:1005

Total number of Valid MAC addresses above = 1

```
-> show mac-address-table vpls 1002 learned
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvcId	Mac Address	Type	Protocol	Operation	Interface
VPLS	1002	00:01:bd:01:02:01	learned	---	servicing	sdp:222:1002

---

```

VPLS 1002      00:01:bd:01:02:02  learned  ---  servicing sdp:222:1002
VPLS 1002      00:01:bd:01:02:03  learned  ---  servicing sdp:222:1002
VPLS 1002      00:01:bd:01:02:04  learned  ---  servicing sdp:222:1002
VPLS 1002      00:01:bd:01:02:05  learned  ---  servicing sdp:222:1002
VPLS 1002      00:01:bd:01:02:06  learned  ---  servicing sdp:222:1002
VPLS 1002      00:01:db:07:03:01  learned  ---  servicing sap:0/16:1005
VPLS 1002      00:01:db:07:03:02  learned  ---  servicing sap:0/16:1006
VPLS 1002      00:01:db:07:03:03  learned  ---  servicing sap:0/16:1007
VPLS 1002      00:01:db:07:03:04  learned  ---  servicing sap:0/16:1008
VPLS 1002      00:01:db:07:03:05  learned  ---  servicing sap:0/16:1009
VPLS 1002      00:01:db:07:03:06  learned  ---  servicing sap:0/16:1010
VPLS 1002      00:d0:95:e5:30:f2  learned  ---  servicing sap:0/16:1005

```

Total number of Valid MAC addresses above = 13

### *output definitions*

---

<b>Domain</b>	The domain to which the MAC address belongs: <b>VLAN</b> or <b>VPLS</b> .
<b>VLAN/SrvId</b>	VLAN ID number or VPLS ID number associated with the MAC address.
<b>Mac Address</b>	MAC address that is currently learned or statically assigned.
<b>Type</b>	MAC address management status: <b>learned</b> or <b>permanent</b> .
<b>Protocol</b>	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default), <b>filtering</b> , or <b>servicing</b> .
<b>Interface</b>	The VPLS mesh-SDP or SAP binding information.

---

### **Release History**

Release 6.4.2; command introduced

### **Related Commands**

[mac-address-table vpls permanent sap](#) Configures a static MAC address for a VPLS Service Access Point binding.

[mac-address-table vpls permanent mesh-sdp](#) Configures a static MAC address for a VPLS mesh-Service Distribution Point binding.

### **Related MIB Objects**

```

s1MacAddressGlobalTable
  s1ServiceId
  s1MacAddressGbl
  s1MacAddressGblmanagement

```

---

## show mac-address-table vpls sap

Displays Source Learning MAC Address Table information for the specified VPLS Service Access Point (SAP) binding.

```
show mac-address-table vpls service-id sap {sap-id | linkagg sap-id} mac-address
```

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sap-id</i>	The access slot and port number or link aggregate ID (0–31) and encapsulation value for an existing SAP (e.g., 1/10:0, 1/12:all, 20:150, 10:all).
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The specified VPLS ID and SAP ID must already exist in the VPLS configuration for the switch. See the “VPLS Commands” chapter in this guide for information about how to configure a VPLS and SAP.
- A SAP ID is comprised of an access (customer-facing) port or link aggregate and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

### Example

```
-> show mac-address-table vpls 1002 sap linkagg 16:1006
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VPLS	1002	00:01:db:07:03:02	learned	---	servicing	sap:0/16:1006

```
Total number of Valid MAC addresses above = 1
```

#### output definitions

---

<b>Domain</b>	The domain to which the MAC address belongs: <b>VLAN</b> or <b>VPLS</b> .
<b>VLAN/SrvId</b>	The VPLS ID number associated with the MAC address.
<b>Mac Address</b>	MAC address that is currently learned or statically assigned.
<b>Type</b>	MAC address management status: <b>learned</b> or <b>permanent</b> .
<b>Protocol</b>	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.

*output definitions*

---

<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default), <b>filtering</b> , or <b>servicing</b> .
<b>Interface</b>	The VPLS SAP binding to which the MAC address is associated.

---

**Release History**

Release 6.4.2; command introduced

**Related Commands**

[mac-address-table vpls permanent sap](#) Configures a static MAC address for a VPLS SAP binding.

[show source-learning chassis-distributed](#) Displays the Source Learning MAC Address Table contents for VPLS service MAC addresses.

**Related MIB Objects**

```
s1MacAddressGlobalTable  
  s1ServiceId  
  s1ServiceId  
  s1MacAddressGbl  
  s1MacAddressGblmanagement  
  s1OriginId  
  s1SubId:
```

---

## show mac-address-table vpls mesh-sdp

Displays Source Learning MAC Address Table information for the specified VPLS mesh-SDP binding.

**show mac-address-table vpls** *service-id* **mesh-sdp** *sdp-id[:vc-id]* *mac-address*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number that is bound to the specified service ID number.
<i>vc-id</i>	<i>Optional.</i> The VC ID number appended to the specified SDP ID number.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

parameter	default
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The specified VPLS ID and SDP ID must already exist in the VPLS configuration for the switch. See the “VPLS Commands” chapter in this guide for information about how to configure a VPLS and SAP.

### Example

```
SW-D-> show mac-address-table vpls 1002 mesh-sdp 222
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VPLS	1002	00:01:bd:01:02:01	learned	---	servicing	sdp:222:1002
VPLS	1002	00:01:bd:01:02:02	learned	---	servicing	sdp:222:1002
VPLS	1002	00:01:bd:01:02:03	learned	---	servicing	sdp:222:1002
VPLS	1002	00:01:bd:01:02:04	learned	---	servicing	sdp:222:1002
VPLS	1002	00:01:bd:01:02:05	learned	---	servicing	sdp:222:1002
VPLS	1002	00:01:bd:01:02:06	learned	---	servicing	sdp:222:1002

Total number of Valid MAC addresses above = 6

### output definitions

---

<b>Domain</b>	The domain to which the MAC address belongs: <b>VLAN</b> or <b>VPLS</b> .
<b>VLAN/SrvId</b>	The VPLS ID number associated with the MAC address.



*output definitions (continued)*

---

<b>Mac Address</b>	MAC address that is currently learned or statically assigned.
<b>Type</b>	MAC address management status: <b>learned</b> or <b>permanent</b> .
<b>Protocol</b>	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default), <b>filtering</b> , or <b>servicing</b> .
<b>Interface</b>	The VPLS mesh-SDP binding to which the MAC address is associated.

---

**Release History**

Release 6.4.2; command introduced

**Related Commands**

<a href="#">mac-address-table vpls permanent mesh-sdp</a>	Configures a static MAC for a VPLS mesh-SDP binding.
<a href="#">show source-learning chassis-distributed</a>	Displays Source Learning MAC Address Table information for VPLS service MAC addresses.

**Related MIB Objects**

```
s1MacAddressTable
  s1MacAddress
  s1MacAddressManagement
  s1MacAddressDisposition
  s1MacAddressProtocol
```

---

## show mac-address-table static-multicast

Displays the static multicast MAC address configuration for the switch.

**show mac-address-table static-multicast** [*multicast\_address*] [**slot** *slot* | *slot/port*] [**linkagg** *link\_agg*] [*vid* | *vid1-vid2*]

---

### Syntax Definitions

<i>multicast_address</i>	Enter a multicast MAC Address (e.g., 01:00:39:59:f1:0c).
<i>slot</i>	Enter the slot number for a module to specify that the command should include all ports on that module (e.g., 6 specifies all ports on the module found in slot 6 of the switch chassis).
<i>slot/port</i>	Enter the slot number and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>link_agg</i>	Enter a link aggregate ID number (0–29). See Chapter 12, “Link Aggregation Commands.”
<i>vid</i>	VLAN ID number (1–4094).
<i>vid1-vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, information is displayed for all static multicast MAC addresses contained in the MAC address table.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.
- Note that if a static multicast MAC address is configured on a port link that is down or disabled, the configured multicast address does not appear in the **show mac-address-table static-multicast** command display.
- The **show mac-address-table** command display, however, includes all static multicast addresses regardless of whether or not the port assigned to the address is up or down. See the second example below.
- When the **show mac-address-table** command is used to display MAC addresses known to the switch, an asterisk appears to the left of all static MAC addresses that are configured on a port link that is down or disabled. The asterisk indicates that MAC address is invalid. When the port link comes up, however, the MAC address is then considered valid and the asterisk no longer appears next to the address in the display.

## Examples

In the example below, the static multicast address 01:00:00:00:00:01 is associated with port 1/1, which is down. As a result, this address does not appear in the **show mac-address-table static-multicast** display but is included in the **show mac-address-table** display with an asterisk.

```
-> show mac-address-table static-multicast
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
VLAN	1	01:00:00:00:00:02	static-mcast	---	bridging	2/6

```
Total number of Valid MAC addresses above = 1
```

```
-> show mac-address-table
```

```
Legend: Mac Address: * = address not valid
```

Domain	Vlan/SrvId	Mac Address	Type	Protocol	Operation	Interface
* VLAN	1	01:00:00:00:00:01	static-mcast	0	bridging	1/1
VLAN	24	00:d0:95:e4:cf:5a	learned	---	bridging	1/2
VLAN	24	00:d0:95:e5:af:52	learned	---	bridging	1/2
VLAN	24	00:e0:4c:bc:ce:a1	learned	---	bridging	1/2
VLAN	1	01:00:00:00:00:02	static-mcast	---	bridging	2/6
VLAN	1	00:d0:95:e2:77:38	learned	---	bridging	3/19

```
Total number of Valid MAC addresses above = 5
```

### output definitions

<b>Domain</b>	The domain to which the MAC address belongs: <b>VLAN</b> or <b>VPLS</b> .
<b>VLAN/SrvId</b>	The VPLS ID number associated with the MAC address.
<b>Mac Address</b>	The multicast MAC address that is statically assigned to the VLAN and slot/port.
<b>Type</b>	Indicates the MAC address is a static multicast ( <b>static-mcast</b> ) address. Configured through the <b>mac-address-table static-multicast</b> command.
<b>Protocol</b>	Protocol type for the MAC address entry.
<b>Operation</b>	The disposition of the MAC address: <b>bridging</b> (default) or <b>filtering</b> . Note that this value is always set to <b>bridging</b> for static multicast addresses.
<b>Interface</b>	The slot number for the module and the physical port number on that module that is associated with the static multicast MAC address. If the interface is a link aggregate ID, zero is displayed as the slot number (e.g., 0/29).

### Release History

Release 6.1.2; command was introduced.

Release 6.1.3; *vid* parameter modified to support a range of VLAN IDs.

## Related Commands

- show mac-address-table** Displays Source Learning MAC Address Table information.
- show mac-address-table count** Displays Source Learning MAC Address Table statistics.

## MIB Objects

```
slMacAddressTable
  slMacAddress
  slMacAddressManagement
  slMacAddressDisposition
  slMacAddressProtocol
```

---

## show mac-address-table count

Displays Source Learning MAC Address Table statistics for VLAN MAC addresses.

**show mac-address-table count** [*mac\_address*] [*slot slot | slot/port*] [*linkagg link\_agg*] [*vid | vid1-vid2*]

---

### Syntax Definitions

<i>mac_address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.
<i>slot   slot/port</i>	Slot number for the module or the slot number and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>link_agg</i>	Enter a link aggregate ID number (0–31). See <a href="#">Chapter 8, “Link Aggregation Commands.”</a>
<i>vid</i>	VLAN ID number (1–4094).

### Defaults

By default, the count statistics are displayed for all MAC addresses contained in the MAC address table.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To display statistics for all ports on one slot, specify only the slot number for the **slot** parameter value.
- Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.

### Examples

```
-> show mac-address-table count
Mac Address Table count:
  Permanent Address Count           = 1
  DeleteOnReset Address Count       = 0
  DeleteOnTimeout Address Count     = 0
  Dynamic Learned Address Count     = 6
  Static Multicast Address Count    = 0,
  Total MAC Address In Use         = 7
```

```
-> show mac-address-table count 10-20
Mac Address Table count:
  Permanent Address Count           = 0
  DeleteOnReset Address Count       = 0
  DeleteOnTimeout Address Count     = 0
  Dynamic Learned Address Count     = 28
  Static Multicast Address Count    = 0,
  Total MAC Address In Use         = 28
```

*output definitions*


---

<b>Permanent Address Count</b>	The number of static MAC addresses configured on the switch with a <b>permanent</b> management status (MAC address is never aged out).
<b>DeleteOnReset Address Count</b>	The number of static MAC addresses configured on the switch with a <b>reset</b> management status (MAC address is deleted on the next switch reboot).
<b>DeleteOnTimeout Address Count</b>	The number of static MAC addresses configured on the switch with a <b>timeout</b> management status (MAC address ages out according to the MAC address table aging timer value).
<b>Dynamic Learned Address Count</b>	The number of MAC addresses learned by the switch. These are MAC addresses that are not statically configured addresses.
<b>Total MAC Address In Use</b>	The total number of MAC addresses (learned and static) that are known to the switch.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.3; *vid* parameter modified to support a range of VLAN IDs.

**Related Commands**

<b>show mac-address-table</b>	Displays Source Learning MAC Address Table information.
<b>show mac-address-table aging-time</b>	Displays the current aging time value for the Source Learning MAC Address Table.
<b>show mac-address-table all count</b>	Displays the Source Learning MAC Address Table statistics for both VLAN and VPLS MAC addresses.
<b>show mac-address-table vpls count</b>	Displays the Source Learning MAC Address Table statistics for VPLS service MAC addresses.

---

## show mac-address-table vpls count

Displays Source Learning MAC address table statistics for VPLS service MAC addresses.

**show mac-address-table vpls *service-id* count** [*mac-address*]

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

By default, all VPLS addresses are counted.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Enter a MAC address to display statistics for a specific VPLS service MAC address.

### Example

```
SW-D-> show mac-address-table vpls 1002 count
Mac Address Table Count:
  Permanent VPLS Address Count      = 1,
  Dynamic Learned VPLS Address Count = 13,
  Total MAC Address In Use          = 14
```

### *output definitions*

---

<b>Permanent VPLS Address Count</b>	The number of static VPLS MAC addresses configured on the switch with a <b>permanent</b> management status (MAC address is never aged out).
<b>Dynamic Learned VPLS Address Count</b>	The number of VPLS MAC Addresses learned by the switch. These addresses are not user-configured permanent addresses.
<b>Total MAC Address In Use</b>	The total number of MAC addresses (learned and static) that are known to the switch.

---

### Release History

Release 6.4.2; command introduced

## Related Commands

- show mac-address-table all count** Displays Source Learning MAC Address Table statistics for both VLAN and VPLS service MAC addresses.
- show mac-address-table count** Displays Source Learning MAC Address Table statistics for VLAN MAC addresses.

## Related MIB Objects

```
slMacAddressGlobalTable  
  slServiceId  
  slMacAddressGbl  
  slMacAddressGblmanagement
```

---



## show mac-address-table all count

Displays Source Learning MAC Address Table statistics for both VLAN and VPLS MAC addresses.

**show mac-address-table all count**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- This command displays dynamically learned and permanent MAC address for both VLANs and VPLS services. For more information on VPLS, see the “VPLS Commands“ chapter in this guide.
- Use the **show mac-address-table count** command to display statistics for VLAN MAC addresses only.

### Examples

```
-> show mac-address-table all count
Mac Address Table Count:
  Permanent Address Count           = 0,
  DeleteOnReset Address Count      = 0,
  DeleteOnTimeout Address Count    = 0,
  Dynamic Learned Address Count    = 5,
  Static Multicast Address Count    = 0,
  Permanent VPLS Address Count     = 1,
  Dynamic Learned VPLS Address Count = 21038,
  Total MAC Address In Use         = 21044
```

### *output definitions*

---

<b>Permanent Address Count</b>	The number of static MAC addresses configured on the switch with a <b>permanent</b> management status (MAC address is never aged out).
<b>DeleteOnReset Address Count</b>	The number of static MAC addresses configured on the switch with a <b>reset</b> management status (MAC address is deleted on the next switch reboot).
<b>DeleteOnTimeout Address Count</b>	The number of static MAC addresses configured on the switch with a <b>timeout</b> management status (MAC address ages out according to the MAC address table aging timer value).
<b>Dynamic Learned Address Count</b>	The number of MAC addresses learned by the switch. These are MAC addresses that are not statically configured addresses.

---

*output definitions (continued)*

---

<b>Static Multicast Address Count</b>	The number of static multicast addresses configured on the switch.
<b>Permanent VPLS Address Count</b>	The number of static VPLS MAC addresses configured on the switch with a <b>permanent</b> management status (MAC address is never aged out).
<b>Dynamic Learned VPLS Address Count</b>	The number of VPLS MAC Addresses learned by the switch. These addresses are not user-configured permanent addresses.
<b>Total MAC Address In Use</b>	The total number of MAC addresses (learned and static) that are known to the switch.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<b>show mac-address-table count</b>	Displays Source Learning MAC Address Table statistics for VLAN MAC addresses.
<b>show mac-address-table vpls count</b>	Displays Source Learning MAC Address Table statistics for VPLS service MAC addresses.

---

## show mac-address-table aging-time

Displays the current aging time value.

**show mac-address-table aging-time**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The MAC Address Table aging time applies to static MAC addresses that were defined using the **time-out** parameter (see [page 4-2](#)) and to dynamically learned MAC addresses.
- Note that the aging time is the same for all VLANs and Virtual Private LAN Service (VPLS) services because it is not configurable on a per-VLAN or per-service basis. The aging time value on this platform is a global parameter that applies to all VLANs and VPLS services.

### Examples

```
-> show mac-address-table aging-time  
Mac Address Aging Time (seconds) = 300
```

### Release History

Release 6.1; command was introduced.

Release 6.1.1; **vlan** parameter not supported.

Release 6.4.2; aging time value applied to VPLS services.

### Related Commands

[show mac-address-table](#) Displays Source Learning MAC Address Table information.

[show mac-address-table count](#) Displays Source Learning MAC Address Table statistics.

### MIB Objects

sLMacAddressAgingTable

sLMacAgingValue

---

## show source-learning

Displays the source learning status of a port or link aggregate of ports.

**show source-learning** [**port** *slot/port*[-*port2*] | **linkagg** *linkagg\_num*]

---

### Syntax Definitions

<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g., 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>linkagg_num</i>	Specifies the link aggregate identifier.

### Defaults

By default, the source learning status for all switch ports and link aggregates is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **port** *slot/port* or **linkagg** *linkagg\_num* parameters to display the source learning status for a specific port or link aggregate ID.
- When the source learning status is configured for a link aggregate ID, it affects all the ports that are members of the link aggregate. However, source learning status cannot be configured on individual ports which are members of the link aggregate.

### Example

```
-> show source-learning
port source-learning
-----+-----
1/1    disabled
1/2    enabled
1/3    disabled

-> show source-learning port 1/2
port source-learning
-----+-----
1/2    disabled

-> show source-learning linkagg 10
port source-learning
-----+-----
0/10   disabled
```

*output definitions*

---

<b>port</b>	The slot/port number for a switch port or a link aggregate ID number. If the interface is a link aggregate ID, zero is displayed as the slot number (e.g., 0/29).
<b>source-learning</b>	The source learning status of the port or link aggregate ( <b>enabled</b> or <b>disabled</b> ). Configured through the <b>source-learning</b> command.

---

**Release History**

Release 6.4.2; command introduced

**Related Commands**

**source-learning** Configures the status of source MAC address learning on a single port, a range of ports or on a link aggregate of ports.

**Related MIB Objects**

```
s1MacAddressTable  
s1MacLearningControlTable  
  s1MacLearningControlEntry  
  s1MacLearningControlStatus
```

---

## show source-learning chassis-distributed

Displays the current status (enabled or disabled) of the distributed MAC source learning mode.

**show source-learning chassis-distributed**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- This command is not supported on OmniSwitch stackable switches.
- When the distributed MAC mode is enabled, the MAC address table size is increased to allow more learned MAC addresses (16K per module; up to 64K per chassis).
- When the distributed MAC mode is disabled (the default), the maximum number of learned MAC addresses defaults to 16K for all OmniSwitch chassis-based switches.

### Examples

```
-> show source-learning chassis-distributed
Distributed MAC Mode Configuration = disabled
```

```
-> show source-learning chassis-distributed
Distributed MAC Mode Configuration = enabled
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[source-learning chassis-distributed](#)

Enables or disables the distributed MAC source learning mode.

### MIB Objects

```
sLMacAddressTable
  sLDistributedMacMode
```

---

# 5 VLAN Management Commands

VLAN management software handles VLAN configuration and the reporting of VLAN configuration changes to other switch tasks. A VLAN defines a broadcast domain that contains physical ports and can span across multiple switches. All switches contain a default VLAN 1. Physical switch ports are initially assigned to VLAN 1 until they are statically or dynamically assigned to other VLANs.

This chapter includes descriptions of VLAN management commands used to create, modify or remove VLANs. These commands allow you to enable or disable Spanning Tree Protocol (STP) and Authentication on a VLAN, add or remove virtual router interfaces, statically assign physical switch ports to a default VLAN, and display VLAN configuration information.

The VLAN management commands comply with RFC 2674.

MIB information is as follows:

*Filename:* AlcatelIND1VlanManager.mib  
*Module:* ALCATEL-IND1-VLAN-MGR-MIB

A summary of the available commands is listed here:

---

**vlan**  
**vlan stp**  
**vlan mobile-tag**  
**vlan authentication**  
**vlan source-learning**  
**vlan mtu-ip**  
**vlan port default**  
**show vlan**  
**show vlan port**  
**show vlan router mac status**  
**show vlan gvrp**  
**show vlan ipmvlan**

---

## vlan

Creates a new VLAN with the specified VLAN ID (VID) and an optional description.

**vlan** *vid1*[-*vid2*] [**enable** | **disable**] [**name** *description*]

**no vlan** *vid1*[-*vid2*]

---

### Syntax Definitions

<i>vid1</i>	An existing VLAN ID number (1–4094).
- <i>vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<i>description</i>	Text string up to 32 characters. Use quotes around string if description contains multiple words with spaces between them (e.g. “Alcatel-Lucent Marketing VLAN”).
<b>enable</b>	Enable VLAN administrative status.
<b>disable</b>	Disable VLAN administrative status.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>enable</b>
<i>description</i>	VLAN ID

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a VLAN from the configuration. All VLAN ports and routers are detached before the VLAN is removed. Ports return to their default VLANs or VLAN 1, if the VLAN deleted is the port’s configured default VLAN.
- Note that specifying multiple VLAN IDs and/or a range of VLAN IDs on the same command line is allowed. Use a hyphen to indicate a contiguous range and a space to separate multiple VLAN ID entries (e.g., `vlan 10-15 500-510 850`).
- A VLAN is not operationally active until at least one active port is assigned to the VLAN.
- When a VLAN is administratively disabled, static port and dynamic mobile port assignments are retained but traffic on these ports is not forwarded. However, VLAN rules remain active and continue to classify mobile port traffic for VLAN membership.
- Ports are manually configured or dynamically assigned to VLANs.



## Examples

```
-> vlan 850 name "Marketing Admin"  
-> vlan 200  
-> vlan 720 disable  
-> no vlan 1020  
-> vlan 100-105 355 400-410 "Sales Admin"  
-> vlan 10 250-260  
-> vlan 250-260 disable  
-> no vlan 10-15  
-> no vlan 10 20 200-210
```

## Release History

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

## Related Commands

<a href="#">vlan port default</a>	Statically assigns ports to a VLAN.
<a href="#">show vlan</a>	Displays a list of existing VLANs.
<a href="#">show vlan port</a>	Displays VLAN port assignments.

## MIB Objects

```
vlanTable  
  vlanNumber  
  vlanDescription  
  vlanAdmStatus  
  vlanOperStatus  
  vlanStatus
```

---

## vlan stp

Enables or disables the Spanning Tree status for a VLAN.

```
vlan vid1[-vid2] [1x1 | flat] stp {enable | disable}
```

---

### Syntax Definitions

<i>vid1</i>	An existing VLAN ID number (1–4094).
<i>-vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<b>1x1</b>	Specifies that the Spanning Tree status for the VLAN applies when the switch is running in the 1x1 Spanning Tree mode.
<b>flat</b>	Specifies that the Spanning Tree status for the VLAN applies when the switch is running in the flat Spanning Tree mode.
<b>enable</b>	Enables Spanning Tree for the specified VLAN.
<b>disable</b>	Disables Spanning Tree for the specified VLAN.

### Defaults

By default, the Spanning Tree status is enabled in both the 1x1 and flat mode when the VLAN is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- STP is not active until at least one active port is assigned to the VLAN.
- If the *vid* specified is that of a VLAN that does not exist, the VLAN is automatically created.
- Note that specifying multiple VLAN ID entries and/or a range of VLAN IDs on the same command line is allowed. Use a hyphen to indicate a contiguous range and a space to separate multiple VLAN ID entries (e.g., `vlan 10-15 500-510 850 stp enable`).
- Use the optional **1x1** or **flat** parameter with this command to configure the Spanning Tree status only for the Spanning Tree mode specified by the parameter. For example, if the **flat** parameter is specified when disabling STP for VLAN 10, then the Spanning Tree status for VLAN 10 is disabled when the switch is running in the flat mode. However, the current Spanning Tree status for VLAN 10 in the 1x1 mode remains unchanged.
- If this command is used without specifying the **1x1** or **flat** parameter, then the Spanning Tree status for the specified VLAN is changed for both operating modes.
- Up to 252 Spanning Tree instances per switch are supported in the 1x1 Spanning Tree mode. Since each VLAN with Spanning Tree enabled uses one of these instances, only 252 VLANs can have an active Spanning Tree instance at any given time.
- To create more than 252 VLANs in the 1x1 Spanning Tree mode, use the **vlan stp disable**, **vlan 1x1 stp disable**, or **vlan flat stp disable** command to create a VLAN with Spanning Tree disabled.

- When STP is disabled on a VLAN, it remains disabled even if the switch Spanning Tree operating mode is set to **1x1** (one STP instance per VLAN). In addition, all active ports for the disabled VLAN remain in a forwarding state in both the 1x1 and flat Spanning Tree modes.
- If a switch is running in the flat Spanning Tree mode, disabling Spanning Tree on VLAN 1 disables the instance across all VLANs. Disabling STP on any other VLAN disables the instance only for that VLAN.

## Examples

```
-> vlan 850 stp enable
-> vlan 720 stp disable
-> vlan 500 1x1 stp disable
-> vlan 500 flat stp enable
-> vlan 100-110 stp disable
-> vlan 500-510 600 720-725 stp enable
-> vlan 250 350 400-410 stp 1x1 enable
-> vlan 10 20 stp flat disable
```

## Release History

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

## Related Commands

<a href="#">vlan</a>	Creates a VLAN.
<a href="#">bridge mode</a>	Selects a flat Spanning Tree or 1x1 Spanning Tree operating mode for a switch.
<a href="#">show vlan</a>	Displays a list of existing VLANs.
<a href="#">show vlan port</a>	Displays VLAN port assignments.

## MIB Objects

```
vlanTable
  vlanNumber
  vlanStpStatus
  vlan1x1StpStatus
  vlanflatStpStatus
```

---

## vlan mobile-tag

Enables or disables classification of tagged packets received on mobile ports. If a mobile port receives a tagged packet with a VLAN ID that matches the specified VLAN ID, the port and packet are dynamically assigned to that VLAN. If `vlan mobile-tag` is disabled, the packets tagged with a VLAN ID that does not match the mobile port's default VLAN or a rule VLAN that the traffic qualifies for, the packet is dropped.

**vlan** *vid1*[-*vid2*] **mobile-tag** {**enable** | **disable**}

---

### Syntax Definitions

<i>vid1</i>	An existing VLAN ID number (1–4094).
- <i>vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<b>enable</b>	Enables dynamic assignment of tagged mobile port packets to the specified VLAN.
<b>disable</b>	Disables dynamic assignment of tagged mobile port packets to the specified VLAN.

### Defaults

By default, mobile port tagging is disabled when a VLAN is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Note that specifying multiple VLAN ID entries and/or a range of VLAN IDs on the same command line is allowed. Use a hyphen to indicate a contiguous range and a space to separate multiple VLAN ID entries (e.g., `vlan 10-15 500-510 850 mobile-tag enable`).
- This command is VLAN based but only applies to tagged packets received on mobile ports.
- Packets received on mobile ports tagged with the VLAN ID are discarded.

### Examples

```
-> vlan 850 mobile-tag enable
-> vlan 720 mobile-tag enable
-> vlan 1020 mobile-tag disable
-> vlan 500 410-420 mobile-tag enable
-> vlan 201-210 301-310 mobile-tag enable
-> vlan 450 550 mobile-tag disable
```

### Release History

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

## Related Commands

<code>vlan</code>	Creates a VLAN.
<code>show vlan</code>	Displays a list of existing VLANs.
<code>show vlan port</code>	Displays VLAN port assignments.

## MIB Objects

```
vlanTable  
  vlanNumber  
  vlanTagMobilePortStatus
```

---

## vlan authentication

Enables or disables authentication for a VLAN.

**vlan *vid* authentication {enable | disable}**

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<b>enable</b>	Enables authentication for the specified VLAN.
<b>disable</b>	Disables authentication for the specified VLAN.

### Defaults

By default, authentication is disabled when a VLAN is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Note that specifying multiple VLAN ID entries and/or a range of VLAN IDs on the same command line is allowed. Use a hyphen to indicate a contiguous range and a space to separate multiple VLAN ID entries (e.g., `vlan 10-15 500-510 850 authentication`).
- A maximum of 128 authenticated VLANs per switch is supported. See [Chapter 36, “AAA Commands,”](#) for more information about configuring Layer 2 Authentication.

### Examples

```
-> vlan 850 authentication enable
-> vlan 720 authentication enable
-> vlan 1020 authentication disable
-> vlan 900-905 authentication enable
-> vlan 2 10-15 450-455 authentication enable
-> vlan 420 1500 authentication disable
```

### Release History

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

## Related Commands

<code>vlan</code>	Creates a VLAN.
<code>show vlan</code>	Displays list of existing VLANs.
<code>show vlan port</code>	Displays VLAN port assignments.

## MIB Objects

```
vlanTable  
  vlanNumber  
  vlanAuthentStatus
```

---

## vlan mtu-ip

Configures the maximum transmission unit (MTU) packet size allowed for all ports associated with a VLAN. This value is configured on a per VLAN basis, so all IP interfaces assigned to the VLAN apply the same MTU value to packets sent on VLAN ports.

**vlan** *vid* **mtu-ip** *size*

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>size</i>	Packet size value specified in bytes (1280–9198).

### Defaults

By default, the MTU size is set to 1500 bytes (the standard Ethernet MTU size).

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The MTU size applies to traffic sent on all switch ports that are associated with the specified VLAN regardless of the port speed (e.g. 10/100 Ethernet, gigabit Ethernet). Therefore, assign only ports that are capable of handling the MTU size restriction to the VLAN. For example, if the VLAN MTU size is greater than 1500, do not assign 10/100 Ethernet ports to the VLAN.
- By default, packets that exceed the MTU size are dropped. To enable MTU discovery and fragmentation, use the **icmp type** command to enable the “frag needed but DF bit set” control (for example, **icmp type 3 code 4 enable**).

### Examples

```
-> vlan 200 mtu-ip 1000
-> vlan 1503 mtu-ip 10222
```

### Release History

Release 6.4.1; command was introduced.

### Related Commands

**show vlan** Displays the VLAN configuration for the switch.

### MIB objects

```
vlanTable
  vlanMtu
```

---



## vlan port default

Configures a new default VLAN for a single port or an aggregate of ports. The VLAN specified with this command is referred to as the *configured default VLAN* for the port.

**vlan vid port default** {slot/port | link\_agg}

**vlan vid no port default** {slot/port | link\_agg}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094) of the VLAN to assign as the port’s configured default VLAN.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g. 3/1-16) and a space to specify multiple slots (e.g. 3/1-16 5/10-20 8/2-9).
<i>link_agg</i>	The link aggregate ID number (0–31) to assign to the specified VLAN. See <a href="#">Chapter 8, “Link Aggregation Commands.”</a>

### Defaults

VLAN 1 is the default VLAN for all ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a port or link aggregate from its configured default VLAN and restore VLAN 1 as the default VLAN.
- Every switch port or link aggregate has only one configured default VLAN. Mobile and 802.1Q tagged ports, however, may have additional VLAN assignments, which are often referred to as *secondary* VLANs.
- Mobile ports that are assigned to a default VLAN other than VLAN 1 are still eligible for dynamic assignment to other VLANs.

### Examples

```
-> vlan 10 port default 3/1
-> vlan 20 port default 4/1-24
-> vlan 30 port default 5/1-8 6/12-24
-> vlan 200 port default 29
-> vlan 10 no port default 3/1
-> vlan 20 no port default 4/1-24
-> vlan 30 no port default 5/1-8 6/12-24
-> vlan 200 no port default 29
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">vlan</a>	Creates a VLAN.
<a href="#">show vlan</a>	Displays list of existing VLANs.
<a href="#">show vlan port</a>	Displays VLAN port assignments.

## MIB Objects

vpaTable  
    vpaVlanNumber  
    vpaIfIndex  
    vpaType  
    vpaState  
    vpaStatus

---

## vlan source-learning

Configures the status of source learning on a VLAN, a range of VLANs, or on an IP Multicast VLAN (IMPVLAN).

```
vlan {vid1[-vid2] | ipvlan ipmvlan-id} source-learning {enable | disable}
```

---

### Syntax Definitions

<i>vid1</i>	The VLAN ID number (2–4094).
<i>-vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number. The valid range is 1–4094.
<b>enable</b>	Enables source MAC address learning.
<b>disable</b>	Disables source MAC address learning.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>enable</b>

---

### Platforms Supported

OmniSwitch 6400, 6855-U24X, 9000E

### Usage Guidelines

- The **vlan ipvlan source-learning** command does not accept multiple VLAN IDs.
- Disabling source learning on a VLAN or IMPVLAN clears all the dynamically learned MAC addresses associated with the VLAN or IMPVLAN from the MAC address table. It causes traffic to flood the VLAN.
- Static MAC addresses associated with a VLAN or IMPVLAN are *not* cleared when source learning is disabled for the VLAN or IMPVLAN.

### Examples

```
-> vlan 10-15 source-learning disable  
-> vlan ipvlan 10 source-learning disable
```

### Release History

Release 6.4.2; command introduced.

## Related Commands

**show vlan**

Displays the VLAN configuration for the switch.

**show vlan ipmvlan**

Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANs, or all the IPMVLANs.

## MIB Objects

vlanTable

    vlanEntry

    vlanNumber

    vlanStatus

    vlanMacLearningControlStatus

---

## show vlan

Displays a list of VLANs and their attributes configured on the switch.

**show vlan** [*vid1* [-*vid2*]]

---

### Syntax Definitions

<i>vid1</i>	The VLAN ID number (2–4094).
- <i>vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, a list of all VLANs and their attributes are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Specify a VLAN ID with this command to display information about a specific VLAN.
- Note that specifying a range of VLAN IDs is also allowed. Use a hyphen to indicate a contiguous range (e.g., show vlan 10-15). Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.

### Examples

```
-> show vlan
```

vlan	type	admin	oper	1x1	stree	flat	auth	ip	ipx	mble	src	name
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	std	on	on	on	on	off	off	off	NA	off	on	VLAN 1
100	vstk	on	off	off	on	off	off	off	NA	off	off	VLAN 100

```
-> show vlan 1
```

```
Name           : VLAN 1,
Administrative State: enabled,
Operational State  : enabled,
1x1 Spanning Tree State : enabled,
Flat Spanning Tree State : enabled,
Authentication     : disabled,
IP Router Port     : off,
IPX Router Port    : none,
Mobile Tag         : off,
Source Learning    : enabled
```

```
-> show vlan 100
```

```
Name           : VLAN 100,
Administrative State: enabled,
Operational State  : disabled,
1x1 Spanning Tree State : disabled,
Flat Spanning Tree State : enabled,
Authentication     : disabled,
IP Router Port     : off,
IP MTU             : 1500,
IPX Router Port    : none,
Mobile Tag         : off,
Source Learning    : disabled,
Traffic-Type: ethernet-service Customer SVLAN,
Priority-Map: x->0
```

### *output definitions*

<b>vlan</b>	The numerical VLAN ID. Use the <b>vlan</b> command to create or remove VLANs.
<b>type</b>	The type of VLAN ( <b>std</b> , <b>vstk</b> , <b>gvrp</b> , or <b>ipmv</b> ).
<b>admin</b>	VLAN administrative status: <b>on</b> enables VLAN functions to operate; <b>off</b> disables VLAN functions without deleting the VLAN. Use the <b>vlan</b> command to change the VLAN administrative status.
<b>oper</b>	VLAN operational status: <b>on</b> (enabled) or <b>off</b> (disabled). The operational status remains disabled until an active port is assigned to the VLAN. When the operational status is enabled, then VLAN properties (e.g. router interfaces, Spanning Tree) are applied to ports and traffic flow. A VLAN must have an enabled administrative status before it can become operationally enabled.
<b>stree 1x1</b>	VLAN Spanning Tree status for the VLAN in the 1x1 mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.
<b>stree flat</b>	VLAN Spanning Tree status for the VLAN in the flat mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.
<b>auth</b>	VLAN Authentication status: <b>on</b> (enabled) or <b>off</b> (disabled). Use the <b>vlan authentication</b> command to change the VLAN Authentication status.
<b>ip</b>	IP router interface status: <b>on</b> (IP interface exists for the VLAN) or <b>off</b> (no IP router interface exists for the VLAN). Use the <b>ip interface</b> command to define an IP router interface for a VLAN.
<b>mble tag</b>	Mobile tagging status: <b>on</b> (enabled); <b>off</b> (disabled). Configured through the <b>vlan mobile-tag</b> command.
<b>src lrn</b>	Source learning status: <b>on</b> (enabled) ; <b>off</b> (disabled). Configured through the <b>vlan source-learning</b> command. Note that disabling source learning is not supported on the OmniSwitch 6850 and 6850E.

*output definitions (continued)*

---

<b>name</b>	The user-defined text description for the VLAN. By default, the VLAN ID is specified for the VLAN description.
<b>Traffic-Type</b>	Type of traffic passing through the VLAN port.
<b>Priority-Map</b>	Priority map value set for the VLAN.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

Release 6.2.1; **type** field added.

Release 6.4.2; **src lrn** field added.

**Related Commands**

<a href="#">show vlan port</a>	Displays VLAN port assignments.
<a href="#">show vlan router mac status</a>	Displays the current MAC router operating mode (single or multiple) and VLAN router interface statistics.
<a href="#">show vlan gvrp</a>	Displays a list of VLANs learned through GVRP and their details.
<a href="#">show vlan ipmvlan</a>	Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANs, or all the IPMVLANs.
<a href="#">show ip interface</a>	Displays IP router information.

**MIB Objects**

vlanMgrVlan

vlanTable

- vlanNumber
- vlanDescription
- vlanAdmStatus
- vlanOperStatus
- vlanStatus
- vlanStpStatus
- vlanAuthentStatus
- vlanIpAddress
- vlanIpMask
- vlanIpEnacp
- vlanIpForward
- vlanIpStatus
- vlanIpxEncap
- vlanIpxRipSapMode
- vlanIpxDelayTicks
- vlanIpxStatus
- vlanMacLearningControlStatus
- vlanTagMobilePortStatus

---

## show vlan port

Displays VLAN port associations (VPAs) for all VLANs, a specific VLAN, or for a specific port. Information is also included that shows the VPA type (configured default VLAN, 802.1Q tagged VLAN, dynamically assigned secondary VLAN, or mirrored port VLAN assignment) and the status of that association (inactive, blocking, forwarding, or filtering).

**show vlan** [*vid1*[-*vid2*]] **port** [*slot/port* | *link\_agg*]

---

### Syntax Definitions

<i>vid1</i>	VLAN ID number (1–4094).
- <i>vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>link_agg</i>	Enter the link aggregate ID number (0–31) to assign to the specified VLAN.

### Defaults

If no parameters are specified with this command, a list of all VLANs and their assigned ports is displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the *vid* is specified without a *slot/port* or *link\_agg*, then all port assignments for that VLAN are displayed.
- If the *slot/port* or *link\_agg* is specified without a *vid*, then all VLAN assignments for that port are displayed.
- If both the *vid* and *slot/port* or *link\_agg* are specified, then information only for that VLAN and slot/port or link aggregate ID is displayed.
- Note that specifying a range of VLAN IDs is also allowed. Use a hyphen to indicate a contiguous range (e.g., show vlan 10-15 port). Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.

### Examples

```
-> show vlan port
vlan   port      type      status
-----+-----+-----+-----+
  1     1/1     default   inactive
  2     1/2     default   blocking
        1/3     mobile    forwarding
        11/4    qtagged   forwarding
```



```

3      1/2    qtagged  blocking
      11/4   default  forwarding
      2/5    dynamic  forwarding
-> show vlan 10 port
  port  type      status
+-----+-----+-----+
  1/1   default   forwarding
  1/2   qtagged   forwarding
  1/3   mobile    forwarding

-> show vlan port 3/2
vlan   type      status
+-----+-----+-----+
  1     default   forwarding
  2     qtagged   forwarding
  5     dynamic   blocking
  3     qtagged   blocking

-> show vlan 500 port 8/16
type      :default
status     :blocking
vlan admin :on
vlan oper  :off
port admin :on
port oper  :off

```

### *output definitions*

<b>vlan</b>	Numerical VLAN ID. Identifies the port's VLAN assignment.
<b>port</b>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<b>type</b>	The type of VPA: <b>default</b> (configured default VLAN assignment for the port), <b>qtagged</b> (802.1Q tagged secondary VLAN assignment for the port), <b>mobile</b> (dynamic secondary VLAN assignment for the port), <b>mirror</b> (port is mirroring the VLAN assignment of another port), or <b>dynamic</b> (VPAs that are learnt through GVRP).
<b>status</b>	The VPA status: <b>inactive</b> (port is not active), <b>forwarding</b> (traffic is forwarding on this VPA), <b>blocking</b> (traffic is not forwarding on this VPA), or <b>filtering</b> (a mobile port's VLAN is administratively off or the port's default VLAN status is disabled; does not apply to fixed ports).
<b>vlan admin</b>	VLAN administrative status: <b>on</b> enables VLAN functions to operate; <b>off</b> disables VLAN functions without deleting the VLAN. Use the <a href="#">vlan</a> command to change the VLAN administrative status.
<b>vlan oper</b>	VLAN operational status: <b>on</b> (enabled) or <b>off</b> (disabled). The operational status remains disabled until an active port is assigned to the VLAN. When the operational status is enabled, then VLAN properties (e.g. router interfaces, Spanning Tree) are applied to ports and traffic flow. A VLAN must have an enabled administrative status before it can become operationally enabled.

*output definitions*


---

<b>port admin</b>	Port administrative status: <b>on</b> (enabled) allows the port to send and receive data when it is active; <b>off</b> (disabled) prevents the port from sending and receiving traffic even if it has an active connection.
<b>port oper</b>	Port operational status: <b>on</b> (enabled) or <b>off</b> (disabled). If a port is currently in use, then the operational status is enabled. A port must have an enabled administrative status before it can become operationally enabled.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

**Related Commands**

<b>show vlan</b>	Displays list of VLANs configured on the switch.
<b>show vlan router mac status</b>	Displays the current MAC router operating mode (single or multiple) and VLAN router interface statistics.
<b>show vlan gvrp</b>	Displays a list of VLANs learned through GVRP and their details.
<b>show vlan ipmvlan</b>	Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANs, or all the IPMVLANs.
<b>show ip interface</b>	Displays IP router information.

**MIB Objects**

```

vlanMgrVpa
vpaTable
    vpaVlanNumber
    vpaIfIndex
    vpaType
    vpaState
    vpaStatus
vlanMgrVlan
vlanTable
    vlanAdmStatus
    vlanOperStatus

```

---

## show vlan router mac status

Displays current status of multiple MAC router mode, the number of VLANs configured on the switch, the number of VLANs with router interfaces and the number of IP router interfaces configured.

**show vlan router mac status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Only single MAC router mode is supported at this time, so multiple MAC router mode always displays as disabled.
- In single MAC router mode, a maximum of 4094 VLANs can have IP router interfaces defined. Note that these limits are subject to the availability of switch resources.

### Examples

```
-> show vlan router mac status
  router-mac-multiple  total vlans  router vlans  ip vlans  ipx vlans
-----+-----+-----+-----+-----
                disabled                7                6                4                NA
```

#### *output definitions*

---

<b>router-mac-multiple</b>	Multiple MAC router mode status: <b>enabled</b> or <b>disabled</b> . If this mode is disabled, the switch is running in single MAC router mode.
<b>total vlans</b>	The total number of VLANs configured on the switch. Use the <a href="#">vlan</a> command to create or remove VLANs.
<b>router vlans</b>	The total number of VLANs configured on the switch that have at least one router interface defined. Use the <a href="#">ip interface</a> command to define an IP router interface for a VLAN.
<b>ip vlans</b>	The total number of VLANs configured on the switch that have an IP router interface defined. Use the <a href="#">ip interface</a> command to define an IP router for a VLAN.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays list of VLANs configured on the switch.
<a href="#">show vlan port</a>	Displays VLAN port assignments.
<a href="#">show ip interface</a>	Displays VLAN IP router interface information.

## MIB Objects

```
vlanMgrVlanSet
  vlanSetMultiRtrMacStatus
  vlanSetVlanCount
  vlanSetVlanRouterCount
  vlanSetIpRouterCount
  vlanSetIpxRouterCount
```

---

## show vlan gvrp

Displays a list of VLANs learned through GVRP.

**show vlan gvrp** [*vid1*[-*vid2*]]

---

### Syntax Definitions

<i>vid1</i>	The VLAN ID number (2–4094).
- <i>vid2</i>	The last VLAN ID number in a range of VLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, all VLANs learned through GVRP are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *vid* parameter with this command to display information for a specific VLAN or for a specific range of VLANs.

### Examples

-> show vlan gvrp

```

vlan  type  admin oper  lxl  flat  auth  ip  ipx  tag  name
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
5  gvrp  on   on   on   on   off  NA  off  off  GVRP1
6  gvrp  on   on   off  off  off  NA  off  off  GVRP12

```

### output definitions

---

<b>vlan</b>	The VLAN ID. Use the <b>vlan</b> command to create or remove VLANs.
<b>type</b>	The type of VLAN ( <b>std</b> , <b>vstk</b> , <b>gvrp</b> , or <b>ipmv</b> )
<b>admin</b>	VLAN administrative status: <b>on</b> enables VLAN functions to operate; <b>off</b> disables VLAN functions without deleting the VLAN. Use the <b>vlan</b> command to change the VLAN administrative status.
<b>oper</b>	VLAN operational status: <b>on</b> (enabled) or <b>off</b> (disabled). The operational status remains disabled until an active port is assigned to the VLAN. When the operational status is enabled, then VLAN properties (e.g. router interfaces, Spanning Tree) are applied to ports and traffic flow. A VLAN must have an enabled administrative status before it can become operationally enabled.

*output definitions (continued)*


---

<b>stree 1x1</b>	VLAN Spanning Tree status for the VLAN in the 1x1 mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.
<b>stree flat</b>	VLAN Spanning Tree status for the VLAN in the flat mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.
<b>auth</b>	VLAN Authentication status: <b>on</b> (enabled) or <b>off</b> (disabled). Use the <b>vlan authentication</b> command to change the VLAN Authentication status.
<b>ip</b>	IP router interface status: <b>on</b> (IP interface exists for the VLAN) or <b>off</b> (no IP router interface exists for the VLAN). Use the <b>ip interface</b> command to define an IP router interface for a VLAN.
<b>mble tag</b>	Mobile tagging status: <b>on</b> (enabled); <b>off</b> (disabled). Configured through the <b>vlan mobile-tag</b> command.
<b>name</b>	The user-defined text description for the VLAN. By default, the VLAN ID is specified for the VLAN description.

---

**Release History**

Release 6.2.1; command was introduced.

**Related Commands**

<b>show vlan</b>	Displays a list of VLANs configured on the switch.
<b>show vlan port</b>	Displays VLAN port assignments.

## **MIB Objects**

vlanMgrVlan

vlanTable

    vlanNumber

    vlanDescription

    vlanAdmStatus

    vlanOperStatus

    vlanStatus

    vlanStpStatus

    vlanAuthentStatus

    vlanIpAddress

    vlanIpMask

    vlanIpEnacp

    vlanIpForward

    vlanIpStatus

    vlanIpxEncap

    vlanIpxRipSapMode

    vlanIpxDelayTicks

    vlanIpxStatus

    vlanTagMobilePortStatus

---

## show vlan ipmvlan

Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANs, or all the IPMVLANs.

**show vlan ipmvlan** [*ipmvlan-id1*[-*ipmvlan-id2*]]

---

### Syntax Definitions

<i>ipmvlan-id1</i>	The IPMVLAN ID number (1–4094).
<i>-ipmvlan-id2</i>	The last IPMVLAN ID number in a range of IPMVLANs that you want to display (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, the configuration for all IPMVLANs is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipmvlan-id* parameter with this command to display information for a specific IPMVLAN or a range of IPMVLANs.

### Examples

```
-> show vlan ipmvlan
```

vlan	type	admin	oper	stree		name
				1x1	flat	
1201	Vstk ipmtv	on	on	on	on	VLAN 1201
1202	Vstk ipmtv	on	on	off	off	VLAN 1202
1203	Entp ipmtv	on	on	off	off	VLAN 1203
1204	Vstk ipmtv	on	on	on	on	VLAN 1204
1205	Entp ipmtv	on	off	on	off	VLAN 1205

```
-> show vlan ipmvlan 1201-1203
```

vlan	type	admin	oper	stree		name
				1x1	flat	
1201	Vstk ipmtv	on	on	on	on	VLAN 1201
1202	Vstk ipmtv	on	on	off	off	VLAN 1202
1203	Entp ipmtv	on	on	off	off	VLAN 1203

```
-> show vlan ipmvlan 50
```

```
Name           : VLAN 50,
IPMV Mode      : Enterprise IPMVLAN
Administrative State: enabled,
Operational State  : disabled,
1x1 Spanning Tree State : disabled,
Flat Spanning Tree State: disabled,
```



```
-> show vlan ipmvlan 51
```

```
Name                : VLAN 51,  
IPMV Mode           : Vlan Stacking IPMVLAN  
Administrative State : enabled,  
Operational State   : disabled,  
1x1 Spanning Tree State : enabled,  
Flat Spanning Tree State: enabled,
```

### *output definitions*

---

<b>vlan</b>	The IPMVLAN ID.
<b>type</b>	Indicates if the IPMVLAN is in Enterprise mode ( <b>Entp ipmtv</b> ) or VLAN Stacking mode ( <b>Vstk ipmtv</b> ).
<b>admin</b>	Indicates IPMVLAN administrative status: <b>on</b> (enables IPMVLAN functions to operate) or <b>off</b> (disables IPMVLAN functions without deleting the IPMVLAN).
<b>oper</b>	IPMVLAN operational status: <b>on</b> (enabled) or <b>off</b> (disabled). Operational status remains disabled until an active port is assigned to the IPMVLAN. When operational status is enabled, IPMVLAN properties (e.g. router interfaces, Spanning Tree) are applied to ports and traffic flow. An IPMVLAN must have an enabled administrative status before it can become operationally enabled.
<b>Name</b>	The user-defined text description for the IPMVLAN. By default, the IPMVLAN ID is specified for the IPMVLAN description.
<b>IPMV mode</b>	Indicates the mode ( <b>Enterprise IPMVLAN</b> or <b>Vlan Stacking IPMVLAN</b> ) of the IPMVLAN.
<b>Administrative State</b>	Indicates the administrative status of the IPMVLAN, which can be <b>enabled</b> or <b>disabled</b> .
<b>Operational State</b>	Indicates the operational status of the IPMVLAN, which can be <b>enabled</b> or <b>disabled</b> .
<b>stree 1x1</b>	VLAN Spanning Tree status for the VLAN in the 1x1 mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.
<b>stree flat</b>	VLAN Spanning Tree status for the VLAN in the flat mode: <b>on</b> (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); <b>off</b> (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the <b>vlan stp</b> command.

---

## **Release History**

Release 6.2.1; command was introduced.

## Related Commands

<code>vlan ipmvlan</code>	Creates an IP Multicast VLAN.
<code>show vlan</code>	Displays a list of VLANs configured on the switch.
<code>show vlan port</code>	Displays VLAN port assignments.

## MIB Objects

```
vlanTable  
  vlanNumber  
  vlanDescription  
  vlanTrafficType  
  alavlanOperStatus  
  alavlanAdmStatus  
  alavlanStpStatus  
  alavlanxl1StpStatus  
  alavlanflatStpStatus
```

---

# 6 802.1Q Commands

Alcatel-Lucent's 802.1Q is an IEEE standard for sending frames through the network tagged with VLAN identification. This chapter details configuring and monitoring 802.1Q tagging on a single port in a switch or an aggregate of ports on a switch.

Alcatel-Lucent's version of 802.1Q complies with the Draft Standard *P802.1Q/D11 IEEE Standards for Local And Metropolitan Area Network: Virtual Bridged Local Area Networks, July 30, 1998*.

MIB information for the 802.1Q commands is as follows:

*Filename:* alcatelIND1Dot1Q.mib  
*Module:* ALCATEL-IND1-DOT1Q-MIB

A summary of available commands is listed here:

---

[vlan 802.1q](#)  
[vlan 802.1q frame type](#)  
[show 802.1q](#)

---

---

**Note.** Before using 802.1Q, the VLAN for 802.1Q must be created using the commands described in [Chapter 5, "VLAN Management Commands."](#)

---

Configuration procedures for 802.1Q are explained in "Configuring 802.1Q," *OmniSwitch AOS Release 6 Network Configuration Guide*.

## vlan 802.1q

Creates, deletes, or modifies 802.1Q tagging on a single port or on an aggregate of ports.

```
vlan vid 802.1q {slot/port | aggregate_id} [description]
```

```
vlan vid no 802.1q {slot/port | aggregate_id}
```

---

### Syntax Definitions

<i>vid</i>	The VLAN identification number for a preconfigured VLAN that will handle the 802.1Q traffic for this port. The valid range is 1 to 4094.
<i>slot</i>	The slot number for the 802.1Q tagging.
<i>port</i>	The port number for the 802.1Q tagging.
<i>aggregate_id</i>	The link aggregation ID, which allows you to configure 802.1Q tagging on an aggregate of ports. The valid range is 1 to 31.
<i>description</i>	An optional textual description (up to 32 characters) for this 802.1Q tag. Spaces must be unclosed within quotation marks (e.g., "802.1Q tag 2").

### Defaults

The default description for 802.1Q tagging on a port is **TAG PORT** *slot/port* **VLAN** *vid* (where the *slot/port* and *vid* are as entered when inputting the command) when you configure 802.1Q tagging on a single port, and **TAG AGGREGATE** *aggregate\_id* **VLAN** *vid* (where the *slot/port* and *vid* are as entered when inputting the command) when you configure 802.1q tagging on an aggregate link.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete 802.1Q tagging on a port or an aggregate of ports.
- The VLAN specified for the port or aggregate link before 802.1Q tagging can be specified. See [Chapter 5, "VLAN Management Commands"](#) for information on how to create a VLAN.
- You *must* enable link aggregation before you can tag an aggregate of ports. See [Chapter 8, "Link Aggregation Commands"](#) for more information on link aggregation.
- The port's default VLAN can never be configured to accepted tagged frames.

### Examples

```
-> vlan 2 802.1q 3/1
-> vlan 10 802.1q 100
-> vlan 5 802.1q 4/2 "802.1q tag 2"
-> vlan 6 no 802.1q 3/1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[vlan 802.1q frame type](#)

Configures a port to accept only VLAN-tagged frames or all frames.

[show 802.1q](#)

Displays 802.1Q tagging status and configuration.

## MIB Objects

QPORTVLANTABLE

qPortVlanSlot

qPortVlanPort

qPortVlanStatus

qPortVlanTagValue

qPortVlanDescription

qAggregateVlanTagValue

qAggregateVlanAggregateId

qAggregateVlanStatus

qAggregateVlanDescription

---

## vlan 802.1q frame type

Configures a port to accept all frames or accept only VLAN-tagged frames.

**vlan 802.1q *slot/port* frame type {all | tagged}**

---

### Syntax Definitions

<i>slot</i>	The slot number to configure 802.1Q tagging.
<i>port</i>	The port number to configure 802.1Q tagging.
<b>all</b>	Configures this port to accept all frames.
<b>tagged</b>	Configures this port to accept only VLAN-tagged frames.

### Defaults

parameter	default
<b>all   tagged</b>	all

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you configure a port to accept only VLAN-tagged frames, then any frames received on this port that do not carry a VLAN ID (i.e., untagged frames or priority-tagged frames) will be discarded by the ingress rules for this port. Frames that are not discarded by this ingress rule are classified and processed according to the ingress rules for this port.

### Examples

```
-> vlan 802.1q 3/1 frame type all
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                    |                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------|
| <b>vlan 802.1q</b> | Creates, modifies, or deletes 802.1Q tagging on a single port or an aggregate of ports. |
| <b>show 802.1q</b> | Displays 802.1Q tagging status and configuration.                                       |

## MIB Objects

```
DOT1QPORTVLANTABLE  
  dot1dBasePort  
  dot1qPortAcceptableFrameTypes
```

---

## show 802.1q

Displays 802.1Q tagging information for a single port or an aggregate of ports.

```
show 802.1q {slot/port | aggregate_id}
```

---

### Syntax Definitions

<i>slot</i>	The slot number to display 802.1Q tagging.
<i>port</i>	The port number to display 802.1Q tagging.
<i>aggregate_id</i>	The link aggregation ID to display 802.1Q tagging. See <a href="#">Chapter 8, “Link Aggregation Commands”</a> for more information on link aggregation.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show 802.1q 3/4
```

```
Acceptable Frame Type : Any Frame Type
Force Tag Internal    : off
```

```
Tagged VLANs      Internal Description
-----+-----+
          2      TAG PORT 3/4 VLAN 2
```

```
-> show 802.1q 2
```

```
Tagged VLANs      Internal Description
-----+-----+
          3      TAG AGGREGATE 2 VLAN 3
```

Output fields are described here:

#### output definitions

---

<b>Acceptable Frame Type</b>	The acceptable frame type for this port, which can be <b>Any Frame Type</b> or <b>Tagged Only Frame Type</b> .
<b>Force Tag Internal</b>	This field displays if adding the default VLAN ID (VID) to tagged frames is turned <b>on</b> or <b>off</b> .



*output definitions (continued)*

---

<b>Tagged VLANs</b>	The 802.1Q tag number for this port.
<b>Internal Description</b>	The description of this 802.1Q tag. You can modify this description with the <a href="#">vlan 802.1q</a> command, which is described on <a href="#">page 6-2</a> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">vlan 802.1q</a>	Creates, modifies, or deletes 802.1Q tagging on a single port or an aggregate of ports.
<a href="#">vlan 802.1q frame type</a>	Configures a port to accept only VLAN-tagged frames or all frames.

**MIB Objects**

## QPORTVLANTABLE

```
qPortVlanSlot  
qPortVlanPort  
qPortVlanStatus  
qPortVlanTagValue  
qPortVlanDescription  
qAggregateVlanTagValue  
qAggregateVlanAggregateId  
qAggregateVlanStatus  
qAggregateVlanDescription
```

---



# 7 Distributed Spanning Tree Commands

The Spanning Tree Algorithm and Protocol (STP) is a self-configuring algorithm that maintains a loop-free topology while providing data path redundancy and network scalability. Based on the IEEE 802.1D standard, the Alcatel-Lucent STP implementation distributes the Spanning Tree load between the primary management module and the network interface modules. In the case of a stack of switches, the STP load is distributed between the primary management switch and other switches in the stack. This functionality improves network robustness by providing a Spanning Tree that continues to respond to BPDUs and port link up and down states in the event of a fail over to a backup management module or switch.

In addition to a distributed architecture, this implementation also provides the following Spanning Tree features:

- Automatic configuration of a physical topology into a single Spanning Tree to ensure that there is only one data path between any two switches.
- Fault tolerance within the network topology. The Spanning Tree is reconfigured in the event of a data path or bridge failure or when a new switch is added to the topology.
- Support for four Spanning Tree protocols: 802.1D (STP), 802.1W (RSTP), 802.1Q 2005 (MSTP), and RRSTP.
- A *flat* Spanning Tree operating mode. If STP or RSTP is used, this mode applies a single STP instance across all VLANs. If MSTP is used, this mode applies a single STP instance to each Multiple Spanning Tree Instance (MSTI), which identifies a set of VLANs.
- Support for maximum MSTIs per switch. In addition, there is always one Common and Internal Spanning Tree (CIST) instance 0 on each switch.
- Ring Rapid Spanning Tree Protocol (RRSTP) supports up to a maximum range supported per switch. Note that there can be no alternate connections for the same instance between any two switches within an RRSTP ring topology.
- A *1x1* Spanning Tree operating mode, which applies a single STP instance for each defined VLAN on the switch.
- An STP topology that includes 802.1Q tagged ports and link aggregate logical ports in the calculation of the physical topology.

MIB information for Distributed Spanning Tree commands is as follows:

*Filename:* AlcatelIND1VlanSTP.MIB  
*Module:* STP-MGMT-MIB

---

A summary of the available commands is listed here:

---

<b>Implicit bridge commands</b>	<b>bridge mode</b> <b>bridge protocol</b> <b>bridge priority</b> <b>bridge port loop-guard</b> <b>bridge hello time</b> <b>bridge max age</b> <b>bridge forward delay</b> <b>bridge bpdu-switching</b> <b>bridge path cost mode</b> <b>bridge auto-vlan-containment</b> <b>show spantree</b>
<b>Explicit bridge commands</b>	<b>bridge cist protocol</b> <b>bridge 1x1 protocol</b> <b>bridge cist priority</b> <b>bridge msti priority</b> <b>bridge 1x1 priority</b> <b>bridge cist hello time</b> <b>bridge 1x1 hello time</b> <b>bridge cist max age</b> <b>bridge 1x1 max age</b> <b>bridge cist forward delay</b> <b>bridge 1x1 forward delay</b> <b>show spantree cist</b> <b>show spantree msti</b> <b>show spantree 1x1</b>
<b>Implicit port commands</b>	<b>bridge</b> <b>bridge priority</b> <b>bridge path cost</b> <b>bridge mode</b> <b>bridge connection</b> <b>show spantree ports</b>

---

<b>Explicit port commands</b>	<b>bridge cist</b> <b>bridge 1x1</b> <b>bridge cist priority</b> <b>bridge msti priority</b> <b>bridge 1x1 priority</b> <b>bridge cist path cost</b> <b>bridge msti path cost</b> <b>bridge 1x1 path cost</b> <b>bridge cist mode</b> <b>bridge 1x1 mode</b> <b>bridge cist connection</b> <b>bridge 1x1 connection</b> <b>bridge cist admin-edge</b> <b>bridge 1x1 admin-edge</b> <b>bridge cist auto-edge</b> <b>bridge 1x1 auto-edge</b> <b>bridge cist restricted-role</b> <b>bridge 1x1 restricted-role</b> <b>bridge cist restricted-tcn</b> <b>bridge 1x1 restricted-tcn</b> <b>bridge cist txholdcount</b> <b>bridge 1x1 txholdcount</b> <b>show spantree cist ports</b> <b>show spantree msti ports</b> <b>show spantree 1x1 ports</b>
<b>MST region commands</b>	<b>bridge mst region name</b> <b>bridge mst region revision level</b> <b>bridge mst region max hops</b> <b>show spantree mst region</b>
<b>MST instance commands</b>	<b>bridge msti</b> <b>bridge msti vlan</b> <b>show spantree msti vlan-map</b> <b>show spantree cist vlan-map</b> <b>show spantree map-msti</b> <b>show spantree mst port</b>
<b>RRSTP commands</b>	<b>bridge rrstp</b> <b>bridge rrstp ring</b> <b>bridge rrstp ring vlan-tag</b> <b>bridge rrstp ring status</b> <b>show bridge rrstp configuration</b> <b>show bridge rrstp ring</b>
<b>PVST+ commands</b>	<b>bridge port pvst+</b> <b>bridge mode 1x1 pvst+</b>

## bridge mode

Selects a flat Spanning Tree or 1x1 Spanning Tree operating mode for the switch. These modes are exclusive; however, it is not necessary to reboot the switch when changing modes.

**bridge mode {flat | 1x1}**

---

### Syntax Definitions

<b>flat</b>	One Spanning Tree instance per switch.
<b>1x1</b>	One Spanning Tree instance for each VLAN configured on a switch.

### Defaults

By default, the bridge mode for the switch is set to 1x1 Spanning Tree.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The Multiple Spanning Tree Protocol (MSTP), as defined in the IEEE 802.1Q 2005 standard, is only supported on switches operating in the flat Spanning Tree mode.
- If standard STP or RSTP is used when the switch is running in the flat mode, a single STP instance is applied across all VLANs. For example, if a port belonging to VLAN 10 and a port belonging to VLAN 20 both connect to the same switch, then STP blocks one of these ports.
- If MSTP is used when the switch is running in the flat mode, a single STP instance is applied to each Multiple Spanning Tree Instance (MSTI). Each MSTI represents a set of VLANs.
- Flat Spanning Tree mode supports fixed (untagged) and 802.1Q tagged ports in each VLAN. However, Bridge Protocol Data Units (BPDUs) are always untagged.
- If **1x1** mode is selected, a single Spanning Tree instance is enabled for each VLAN configured on the switch. For example, if there are five VLANs configured on the switch, then there are five separate Spanning Tree instances. In essence, a VLAN is a virtual bridge that has its own bridge ID and configurable STP parameters, such as protocol, priority, hello time, max age, and forward delay.
- When operating in 1x1 mode, 802.1Q tagged ports participate in an 802.1Q Spanning Tree instance that allows the Spanning Tree to extend across tagged VLANs. As a result, a tagged port may participate in more than one Spanning Tree instance; one for each VLAN that the port carries.
- If a VLAN contains both fixed and tagged ports and the switch is operating in 1x1 Spanning Tree mode, then a hybrid of the two Spanning Tree instances (single and 802.1Q) is applied. If a VLAN appears as a tag on a port, then the BPDU for that VLAN are also tagged. However, if a VLAN appears as the configured default VLAN for the port, then BPDU are not tagged and the single Spanning Tree instance applies.
- Regardless of which mode the switch is running in, it is possible to administratively disable the Spanning Tree status for an individual VLAN (see [Chapter 5, “VLAN Management Commands”](#)).

---

**Note.** Active ports associated with VLANs that have Spanning Tree disabled on them are excluded from any Spanning Tree calculations. These VLANs remain in a forwarding state.

---

### Examples

```
-> bridge mode flat
-> bridge mode 1x1
```

### Release History

Release 6.1; command introduced.

### Related Commands

[bridge protocol](#)

Selects the Spanning Tree protocol for the specified instance.

[bridge bpdu-switching](#)

Enables the switching of Spanning Tree BPDU on a VLAN that has Spanning Tree disabled.

[show spantree](#)

Displays VLAN Spanning Tree parameter values.

### MIB Objects

```
vStpTable
  vStpNumber
  vStpMode
```

---

## bridge protocol

Configures the Spanning Tree protocol for the flat mode Common and Internal Spanning Tree (CIST) instance or for an individual VLAN instance if the switch is running in the 1x1 mode.

**bridge** [*instance*] **protocol** {**stp** | **rstp** | **mstp**}

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance (1) or an existing 1x1 mode VLAN ID instance number (1–4094).
<b>stp</b>	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
<b>rstp</b>	IEEE 802.1W Rapid Spanning Tree Protocol.
<b>mstp</b>	IEEE 802.1Q 2005 Multiple Spanning Tree Protocol.

### Defaults

RSTP is the default protocol for the flat mode CIST instance and for the 1x1 mode VLAN instance.

parameter	default
<i>instance</i>	flat mode instance

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the protocol for the associated VLAN instance.
- To configure the protocol for the flat mode CIST instance when the switch is running in either the flat or 1x1 mode, do *not* specify an instance number. The CIST is the instance configured by default with this command.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, entering 1 to specify the CIST instance is optional. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted.
- Selecting MSTP is the only option for the flat mode CIST instance and is required to configure Multiple Spanning Tree Instances (MSTI).
- MSTP is only active when the switch is operating in the flat Spanning Tree mode. STP and RSTP are active when the switch is operating in either the flat or 1x1 Spanning Tree mode.
- Delete all existing MSTIs before changing the protocol from MSTP to STP or RSTP.



---

**Note.** When changing the protocol to MSTP or from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values. However, if the path cost mode was set to 32-bit prior to the protocol change, the path cost is *not* reset to its default value. See the [bridge path cost mode](#) command page for more information.

---

## Examples

```
-> bridge mode flat
-> bridge protocol mstp
-> bridge protocol rstp
-> bridge protocol stp

-> bridge mode 1x1
-> bridge 10 protocol rstp
-> bridge 200 protocol stp
-> bridge protocol mstp
WARNING: Changing to MSTP(802.1s) resets flat bridge priority and path
-> bridge protocol rstp
WARNING: Changing from MSTP(802.1s) resets flat bridge priority and path
```

## Release History

Release 6.1; command introduced.

Release 6.1.2; default protocol changed to RSTP.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist protocol</a>	Explicit command for changing the Spanning Tree protocol for the flat mode instance.
<a href="#">bridge 1x1 protocol</a>	Explicit command for changing the Spanning Tree protocol for a VLAN instance.

## MIB Objects

```
vStpInsTable
  vStpInsNumber
  vStpInsMode
  vStpInsProtocolSpecification
```

---

## bridge cist protocol

Configures the Spanning Tree protocol for the flat mode Common and Internal Spanning Tree (CIST) instance (bridge 1).

**bridge cist protocol {stp | rstp | mstp}**

---

### Syntax Definitions

<b>stp</b>	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
<b>rstp</b>	IEEE 802.1w Rapid Spanning Tree Protocol.
<b>mstp</b>	IEEE 802.1Q 2005 Multiple Spanning Tree Protocol.

### Defaults

RSTP is the default protocol for the flat mode CIST instance and for the 1x1 mode VLAN instance.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the flat mode CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- Use this command to select STP, RSTP, or MSTP as the protocol for the flat mode CIST instance.
- Selecting MSTP is only an option for the flat mode CIST instance and is required to configure Multiple Spanning Tree Instances (MSTI).
- MSTP is only active when the switch is operating in the flat Spanning Tree mode. STP and RSTP are active when the switch is operating in either the flat or 1x1 Spanning Tree mode.
- You can also use bridge instance 1 instead of **cist** keyword to specify the CIST instance.
- If the switch is running in 1x1 mode when this command is used, the specified protocol is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.

---

#### Note.

When changing the protocol to MSTP or from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values. However, if the path cost mode was set to 32-bit prior to the protocol change, the path cost is *not* reset to its default value. See the [bridge path cost mode](#) command page for more information..

---

#### Note.

When a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

---

## Examples

```
-> bridge cist protocol rstp
-> bridge cist protocol mstp
-> bridge cist protocol stp

-> bridge mode 1x1
-> bridge cist protocol mstp
WARNING: Changing to MSTP(802.1s) resets flat bridge priority and path
```

## Release History

Release 6.1; command introduced.  
Release 6.1.2; default protocol changed to RSTP.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge protocol</a>	Implicit command for changing the Spanning Tree protocol for the flat mode instance or for a 1x1 mode VLAN instance.
<a href="#">bridge 1x1 protocol</a>	Explicit command for changing the Spanning Tree protocol for a VLAN instance.

## MIB Objects

```
vStpInsTable
  vStpInsNumber
  vStpInsProtocolSpecification
```

---

## bridge port loop-guard

Enables or disables the STP loop-guard on a port or link aggregate.

**bridge port** {*slot/port* | **linkagg** *linkagg\_id* } **loop-guard** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>linkagg_id</i>	The number corresponding to the link aggregate group. Valid range is a unique integer in the range 0–31.
<b>enable</b>	Enables STP loop-guard.
<b>disable</b>	Disables STP loop-guard.

### Defaults

STP loop-guard is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When you enable loop-guard on a port, it is automatically applied to all the active instances or VLANs associated to the port.
- Loop-guard cannot be enabled on a port if root-guard is already enabled on the port or link aggregate related to the port. Root-guard must be disabled before configuring loop-guard. Similarly, when loop-guard configuration is enabled on a port or chassis, root-guard cannot be configured on the port/s.
- Loop-guard can be enabled on all types of ports including designated (forwarding), non-designated (alternate, secondary, or root) ports. However, STP loop-guard configuration does not affect designated ports. Hence, loop-guard is not effective when applied on designated ports.
- When loop-guard is enabled on root ports, they change to blocking mode when a loop-guard error occurs. In such an instance the alternate or secondary ports takeover until the root port recovers from the error state.
- If a set of ports that are already blocked by loop-guard are grouped together to form a link aggregate, the new link aggregate gets a new designated role. The link aggregate can also obtain a forwarding state depending on the STP state.
- If a spanning tree channel is blocked by loop-guard and spanning tree loses all the state information. The individual physical ports obtain the designated role, even if one or more of the links that formed the channel are unidirectional. New link aggregate might obtain a forwarding state but new port state is defined.
- The ports that are configured as fast-forwarding or edge-ports do not receive BPDUs. Loop-guard is not effective on such ports.

- Loop-guard error state is recovered when the administrative state of the port is enabled or disabled.
- When a VLAN is disabled, all the VLAN port associations recover from the error state.
- The loop-guard feature can be enabled on the ports that have STP (RSTP, MRSTP or MSTP) enabled.
- STP loop-guard on link aggregate protects all ports that are members of the link aggregation group.

## Examples

```
-> bridge port 1/2 loop-guard enable
-> bridge port linkagg 1 loop-guard enable
-> bridge port 1/2 loop-guard disable
-> bridge port linkagg 1 loop-guard disable
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

[show spantree ports](#) Displays Spanning Tree port information for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance.

## MIB Objects

```
vStpPortConfigTable
  vStpPortConfigIfIndex
  vStpPortConfigLoopGuard
```

---

## bridge 1x1 protocol

Configures the Spanning Tree protocol for an individual VLAN instance.

**bridge 1x1** *vid* protocol {stp | rstp}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4096).
<b>stp</b>	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
<b>rstp</b>	IEEE 802.1w Rapid Spanning Tree Protocol.

### Defaults

RSTP is the default protocol for the flat mode CIST instance and for the 1x1 mode VLAN instance.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that applies only to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in flat mode when this command is used, the specified protocol is not active for the specified VLAN instance until the operating mode for the switch is changed to 1x1.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge 1x1 2 protocol stp
-> bridge 1x1 455 protocol rstp
```

### Release History

Release 6.1; command introduced.

Release 6.1.2; default protocol changed to RSTP.

### Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge protocol</a>	Implicit command for changing the Spanning Tree protocol for the flat mode instance or for a 1x1 mode VLAN instance.
<a href="#">bridge cist protocol</a>	Explicit command for changing the Spanning Tree protocol for the flat mode instance.

## **MIB Objects**

vStpInsTable

    vStpInsIxlVlanNumber

    vStpInsMode

    vStpInsProtocolSpecification

---

## bridge mst region name

Defines the name for a Multiple Spanning Tree (MST) region. One of three attributes (name, revision level, and a VLAN to MST instance association table) that defines an MST region as required by the IEEE 802.1Q 2005 standard. Switches that share the same attribute values are all considered part of the same MST region. Currently each switch can belong to one MST region at a time.

**bridge mst region name** *name*

**bridge mst region no name**

---

### Syntax Definitions

*name* An alphanumeric string up to 32 characters. Use quotes around string if the name contains multiple words with spaces between them (for example "Alcatel-Lucent Marketing").

### Defaults

By default, the MST region name is left blank.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the MST region name. Note that it is not necessary to specify the region name to remove it.
- To change an existing region name, use this same command but specify a string value that is different than the existing name. It is *not* necessary to first remove the old name.
- Specifying an MST region name is allowed regardless of which Spanning Tree operating mode or protocol is currently active on the switch. However, MST configuration values, such as region name, only apply when the switch is operating in the flat Spanning Tree mode and using MSTP.

### Examples

```
-> bridge mst region name SalesRegion
-> bridge mst region name "Alcatel-Lucent Marketing"
-> bridge mst region no name
```

### Release History

Release 6.1; command introduced.



## Related Commands

- bridge mst region revision level** Defines the revision level for an MST region.
- bridge mst region max hops** Defines the maximum number of hops for the MST region.
- bridge msti** Defines a MSTI number that identifies an association between a range of VLANs and a Spanning Tree instance.
- bridge msti vlan** Defines an association between a range of VLANs and a single MSTI.

## MIB Objects

vStpMstRegionTable  
    vStpMstRegionNumber  
    vStpMstRegionConfigName

---

## bridge mst region revision level

Defines the revision level for a Multiple Spanning Tree (MST) region. One of three attributes (name, revision level, and a VLAN to MST instance association table) that defines an MST region as required by the IEEE 802.1Q 2005 standard. Switches that share the same attribute values are all considered part of the same MST region. Currently each switch can belong to one MST region at a time.

**bridge mst region revision level** *rev\_level*

---

### Syntax Definitions

*rev\_level* A numeric value (0–65535) that identifies the MST region revision level for the switch.

### Defaults

By default, the MST revision level is set to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specifying an MST region revision level is allowed regardless of which Spanning Tree operating mode or protocol is currently active on the switch. However, MST configuration values, such as revision level, only apply when the switch is operating in the flat Spanning Tree mode and using the MSTP.

### Examples

```
-> bridge mst region revision level 1000
-> bridge mst region revision level 2000
```

### Release History

Release 6.1; command introduced.

### Related Commands

<a href="#">bridge mst region name</a>	Defines the name for an MST region.
<a href="#">bridge mst region max hops</a>	Defines the maximum number of hops for the MST region.
<a href="#">bridge msti</a>	Defines a MSTI number that identifies an association between a range of VLANs and a Spanning Tree instance.
<a href="#">bridge msti vlan</a>	Defines an association between a range of VLANs and a single MSTI.

### MIB Objects

```
vStpMstRegionTable
  vStpMstRegionNumber
  vStpMstRegionConfigRevisionLevel
```

---

## bridge mst region max hops

Configures the maximum number of hops that are authorized to receive Multiple Spanning Tree (MST) regional information. Use this command to designate how many hops a BPDU is allowed to traverse before it is discarded and related information is aged.

**bridge mst region max hops** *max\_hops*

---

### Syntax Definitions

*max\_hops*                                  A numeric value (1–40) that designates the maximum number of hops.

### Defaults

By default, the maximum number of hops is set to 20.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The value configured with this command is a regional value that applies to all instances and in essence is used to determine the size of the region.
- The maximum hop count value is the initial value of the Remaining Hops parameter in the MST BPDU that originates from the bridge that is serving as the root bridge for the region. Each bridge that in turn receives the MST BPDU decrements the Remaining Hops count value by one and passes the new value along to the next bridge. When the count reaches 0, the BPDU is discarded.
- Specifying an MST maximum hop count is allowed regardless of which Spanning Tree operating mode or protocol is currently active on the switch. However, MST configuration values only apply when the switch is operating in the flat Spanning Tree mode and using the MSTP.

### Examples

```
-> bridge mst region max hops 40  
-> bridge mst region max hops 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mst region name</b>	Defines the name for an MST region.
<b>bridge mst region revision level</b>	Defines the revision level for an MST region.
<b>bridge msti</b>	Defines a MSTI number that identifies an association between a range of VLANs and a Spanning Tree instance.
<b>bridge msti vlan</b>	Defines an association between a range of VLANs and a single MSTI.

## MIB Objects

vStpMstRegionTable  
    vStpMstRegionNumber  
    vStpMstRegionMaxHops

---

## bridge msti

Defines a Multiple Spanning Tree Instance (MSTI) number. This number identifies an association between a range of VLANs and a single Spanning Tree instance. In addition, it is possible to assign an optional name to the MSTI for further identification.

**bridge msti** *msti\_id* [**name** *name*]

**bridge no msti** *msti\_id*

**bridge msti** *msti\_id* **no name**

---

### Syntax Definitions

<i>msti_id</i>	A numeric value (1–4094) that uniquely identifies an MSTI.
<i>name</i>	An alphanumeric string up to 32 characters. Use quotes around string if the name contains multiple words with spaces between them (for example “Alcatel-Lucent Marketing”).

### Defaults

By default, a flat mode Common and Internal Spanning Tree (CIST) instance always exists. The MSTI ID number for this instance is 0.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no msti** form of this command to remove the MSTI from the switch configuration.
- Use the **no name** form of this command to remove the optional MSTI name from the specified instance. The instance itself is not removed; only the name.
- Up to 16 MSTIs are allowed per switch; select a number from 1 to 4094 for the MSTI number. In addition, there is always one Common and Internal Spanning Tree (CIST) instance 0 per switch. Initially all VLANs are associated with the CIST instance.
- Creating an MSTI is allowed when the switch is operating in either the 1x1 or flat Spanning Tree mode, as long as MSTP is the selected flat mode protocol. The MSTI configuration, however, is not active unless the switch is running in the flat mode.

### Examples

```
-> bridge msti 10
-> bridge msti 20 name BldgOneST10
-> bridge msti 20 no name
-> bridge no msti 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

- bridge mst region name** Defines the name for an MST region.
- bridge mst region revision level** Defines the revision level for an MST region.
- bridge mst region max hops** Defines the maximum number of hops for the MST region.
- bridge msti vlan** Defines an association between a range of VLANs and a single MSTI.

## MIB Objects

```
vStpMstInstanceTable  
  vStpMstInstanceNumber  
  vStpMstInstanceName  
  vStpMstInstanceVlanBitmapAddition  
  vStpMstInstanceVlanBitmapDeletion  
  vStpMstInstanceVlanBitmapState
```

---

## bridge msti vlan

Defines an association between a range of VLANs and a single Multiple Spanning Tree Instance (MSTI). The MSTI-to-VLAN mapping created with this command is one of three attributes (name, revision level, and a VLAN to MST instance association table) that defines an MST region as required by the IEEE 802.1Q 2005 standard. Switches that share the same attribute values are all considered part of the same MST region. Currently each switch can belong to one MST region at a time.

**bridge msti** *msti\_id* **vlan** *vid\_range*

**bridge msti** *msti\_id* **no vlan** *vid\_range*

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0–4094).
<i>vid_range</i>	A VLAN ID number (1–4094) To associate multiple VLANs in a single command, use a hyphen to specify a range of VLAN IDs and a space to separate multiple VLAN IDs and/or ranges (for example 100-115 122 135 200-210).

### Defaults

By default, all VLANs are associated with the flat mode Common and Internal Spanning Tree (CIST) instance, which is also known as MSTI 0.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a VLAN or a range of VLANs from the specified MSTI association.
- Note that the VLAN ID specified with this command does not have to already exist in the switch configuration. This command maps VLAN IDs to MSTIs, but does not create VLANs.
- A VLAN is associated with only one MSTI at a time, but it is possible to move a VLAN from one MSTI to another. In addition, it is also possible to assign only one VLAN to an MSTI; a range of VLANs is not required.
- Configuring an MSTI-to-VLAN mapping is allowed when the switch is operating in either the 1x1 or flat Spanning Tree mode, as long as MSTP is the selected flat mode protocol. However, the MSTI configuration is not active unless the switch is running in the flat mode.

### Examples

```
-> bridge msti 10 vlan 100-115
-> bridge msti 20 vlan 122 135 200-210
-> bridge msti 10 no vlan 112 200-204
```

## Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mst region name</b>	Defines the name for an MST region.
<b>bridge mst region revision level</b>	Defines the revision level for an MST region.
<b>bridge mst region max hops</b>	Defines the maximum number of hops for the MST region.
<b>bridge msti</b>	Defines a MSTI number that identifies an association between a range of VLANs and a Spanning Tree instance.

## MIB Objects

```
vStpMstVlanAssignmentTable  
  vStpMstVlanAssignmentVlanNumber  
  vStpMstVlanAssignmentMstiNumber
```

---



## bridge priority

Configures the bridge priority value for the flat mode Common and Internal Spanning Tree (CIST) instance or for a 1x1 mode VLAN instance. Bridge priority is used to determine which bridge the Spanning Tree algorithm designates as the root bridge.

**bridge** [*instance*] **priority** *priority*

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance or an existing VLAN ID number (1–4094).
<i>priority</i>	A bridge priority value within the range of 0–65535. Do not use commas in the value. If MSTP is the active protocol on the switch, then a bridge priority value that is a multiple of 4096 is required.

### Defaults

By default, the bridge priority value is set to 32768.

<b>parameter</b>	<b>default</b>
<i>instance</i>	flat mode instance

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The bridge priority specifies the priority value for the first two octets of the Bridge ID (eight octets long). The remaining six octets of the Bridge ID contain a dedicated bridge MAC address.
- The lower the bridge priority number, the higher the priority that is associated with the bridge.
- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the priority value for the associated VLAN instance.
- To configure the priority value for the flat mode CIST instance when the switch is running in either the flat or 1x1 mode, do *not* specify an instance number. The CIST is the instance configured by default with this command.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, entering 1 to specify the CIST instance is optional. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the [bridge cist priority](#) or [bridge msti priority](#) commands instead.
- Note that when the protocol is changed to MSTP or from MSTP, the bridge priority for the flat mode CIST instance is reset to the default value.

## Examples

```
-> bridge mode flat
-> bridge priority 8192
-> bridge priority 2500
ERROR: Valid bridge priority values are multiples of 4096: 0, 4096,
      8192, 12288, 16384 ... 61440

-> bridge mode 1x1
-> bridge 255 priority 16384
-> bridge 355 priority 3500
-> bridge priority 8192
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist priority</a>	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
<a href="#">bridge msti priority</a>	Explicit command for changing the Spanning Tree priority for an MSTI when the switch is operating in either the flat or 1x1 mode.
<a href="#">bridge 1x1 protocol</a>	Explicit command for changing the Spanning Tree priority for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable
  vStpInsNumber
  vStpInsMode
  vStpInsPriority
  vStpInsBridgeAddress
```

---

## bridge cist priority

Configures the Spanning Tree priority value for the flat mode Common and Internal Spanning Tree (CIST) instance. Bridge priority is used to determine which bridge the Spanning Tree algorithm designates as the root bridge.

**bridge cist priority** *priority*

---

### Syntax Definitions

*priority* A bridge priority value within the range of 0–65535. Do not use commas in the value. If MSTP is the active protocol on the switch, then a bridge priority value that is a multiple of 4096 is required.

### Defaults

By default, the bridge priority value is set to 32768.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The bridge priority specifies the priority value for the first two octets of the Bridge ID (eight octets long). The remaining six octets of the Bridge ID contain a dedicated bridge MAC address.
- The lower the bridge priority number, the higher the priority that is associated with the bridge.
- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified priority value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when the protocol is changed to MSTP or from MSTP, the bridge priority for the flat mode CIST instance is reset to the default value.
- In regards to the priority for a Multiple Spanning Tree Instance (MSTI), only the four most significant bits are used.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge cist priority 16384
-> bridge cist priority 53800
ERROR: Valid bridge priority values are multiples of 4096: 0, 4096,
      8192, 12288, 16384 ... 61440

-> bridge mode 1x1
-> bridge cist priority 16384
-> bridge cist priority 12288
```

## Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge priority</b>	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>bridge msti priority</b>	Explicit command for changing the Spanning Tree priority for an MSTI when the switch is operating in either the flat or 1x1 mode.
<b>bridge 1x1 protocol</b>	Explicit command for changing the Spanning Tree priority for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsPriority  
  vStpInsBridgeAddress
```

---

## bridge msti priority

Configures the bridge priority value for an Multiple Spanning Tree Instance (MSTI). Bridge priority is used to determine which bridge the Spanning Tree algorithm designates as the root bridge.

**bridge msti *msti\_id* priority *priority***

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0–4094).
<i>priority</i>	A bridge priority value that is a multiple of 4096 and within the range of 0–65535. Do not use commas in the value.

### Defaults

By default, the bridge priority value is set to 32768.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The bridge priority specifies the priority value for the first two octets of the Bridge ID (eight octets long). The remaining six octets of the Bridge ID contain a dedicated bridge MAC address.
- The bridge priority value for an MSTI is calculated by adding the configured priority value to the Spanning Tree instance number. For example, if the priority value of MSTI 10 equals 32768 (the default), then the Spanning Tree priority value advertised for this instance is 32770 (32768 + 10).
- The lower the bridge priority number, the higher the priority that is associated with the bridge.
- This command is an explicit Spanning Tree command that only applies to the specified MSTI regardless of which operating mode (flat or 1x1) is active on the switch. If MSTP is not the selected flat mode protocol, however, the priority value for any MSTI is not configurable in either mode.
- Note that if zero is entered for the *msti\_id* value, the specified priority value is applied to the CIST instance. The flat mode CIST instance 0 is also known as MSTI 0.
- If the switch is running in 1x1 mode when this command is used, the specified priority value is not active for the specified MSTI until the operating mode for the switch is changed to the flat mode.
- Note that when the protocol is changed to MSTP or from MSTP, the bridge priority for the flat mode CIST instance is reset to the default value.
- In regards to the priority for an MSTI, only the four most significant bits are used.

## Examples

```
-> bridge mode flat
-> bridge msti 2 priority 4096
-> bridge msti 10 priority 53800
ERROR: Valid bridge priority values are multiples of 4096: 0, 4096,
      8192, 12288, 16384 ... 61440

-> bridge mode 1x1
-> bridge msti 2 priority 61440
-> bridge msti 10 priority 12288
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects a flat Spanning Tree or 1x1 (per VLAN) Spanning Tree operating mode for the switch.
<a href="#">bridge priority</a>	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
<a href="#">bridge cist priority</a>	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
<a href="#">bridge 1x1 priority</a>	Explicit command for changing the Spanning Tree priority for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable
  vStpInsMstiNumber
  vStpInsMode
  vStpInsPriority
  vStpInsBridgeAddress
```

---

## bridge 1x1 priority

Configures the bridge priority value for an individual VLAN instance.

**bridge 1x1** *vid* **priority** *priority*

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>priority</i>	A bridge priority value within the range of 0–65535. Do not use commas in the value.

### Defaults

By default, the bridge priority value is set to 32768.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The bridge priority specifies the priority value for the first two octets of the Bridge ID (eight octets long). The remaining six octets of the Bridge ID contain a dedicated bridge MAC address.
- The lower the bridge priority number, the higher the priority that is associated with the bridge.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified priority value is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge 1x1 2 priority 16384
-> bridge 1x1 10 priority 53800

-> bridge mode 1x1
-> bridge 1x1 2 priority 16384
-> bridge 1x1 10 priority 53800
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects a flat Spanning Tree or 1x1 (per VLAN) Spanning Tree operating mode for the switch.
<b>bridge priority</b>	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>bridge cist priority</b>	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
<b>bridge msti priority</b>	Explicit command for changing the Spanning Tree priority for an MSTP MSTI when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpInslx1VlanNumber  
  vStpInsMode  
  vStpInsPriority  
  vStpInsBridgeAddress
```

---



## bridge hello time

Configures the Spanning Tree hello time value for the flat mode Common and Internal Spanning Tree (CIST) instance or for a 1x1 mode VLAN instance. This value specifies the amount of time, in seconds, between each transmission of a BPDU on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root.

**bridge** [*instance*] **hello time** *seconds*

---

### Syntax Definitions

*instance*                                      The flat mode CIST instance or an existing VLAN ID number (1–4094).  
*seconds*                                      Hello Time value, in seconds (1–10).

### Defaults

By default, the bridge hello time value for is set to 2 seconds.

<b>parameter</b>	<b>default</b>
<i>instance</i>	flat mode instance

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Lowering the Hello Time interval improves the robustness of the Spanning Tree Algorithm. Increasing the Hello Time interval lowers the overhead of the Spanning Tree Algorithm.
- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the hello time value for the associated VLAN instance.
- To configure the hello time value for the flat mode CIST instance when the switch is running in either the flat or 1x1 mode, do *not* specify an instance number. The CIST is the instance configured by default with this command.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, entering 1 to specify the CIST instance is optional. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted.
- Note that for Multiple Spanning Tree Instances (MSTI), the hello time value is inherited from the CIST instance and is not a configurable parameter.

### Examples

```
-> bridge mode flat
-> bridge hello time 5

-> bridge mode 1x1
-> bridge 10 hello time 8
-> bridge hello time 5
```

## Release History

Release 6.1; command introduced.

## Related Commands

**bridge mode**

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

**bridge cist hello time**

Explicit command for changing the Spanning Tree hello time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.

**bridge 1x1 hello time**

Explicit command for changing the Spanning Tree hello time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

vStpInsTable

    vStpInsNumber

    vStpInsMode

    vStpInsBridgeHelloTime

---

## bridge cist hello time

Configures the bridge hello time value for the flat mode Common and Internal Spanning Tree (CIST) instance. This value is the amount of time, in seconds, between each transmission of a BPDU on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root.

**bridge cist hello time** *seconds*

---

### Syntax Definitions

*seconds* Hello time value in seconds (1–10).

### Defaults

By default, the bridge hello time value is set to 2 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Lowering the Hello Time interval improves the robustness of the Spanning Tree Algorithm. Increasing the Hello Time interval lowers the overhead of the Spanning Tree Algorithm.
- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified hello time value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge cist hello time 5
-> bridge cist hello time 10

-> bridge mode 1x1
-> bridge cist hello time 5
-> bridge cist hello time 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge hello time</b>	Implicit command for changing the Spanning Tree hello time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<b>bridge 1x1 hello time</b>	Explicit command for changing the Spanning Tree hello time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsBridgeHelloTime
```

---

## bridge 1x1 hello time

Configures the bridge hello time value for an individual VLAN instance. This value is the amount of time, in seconds, between each transmission of a BPDU on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root.

**bridge 1x1** *vid* **hello time** *seconds*

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>seconds</i>	Hello time value in seconds (1–10).

### Defaults

By default, the bridge Hello Time value is set to 2 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Lowering the Hello Time interval improves the robustness of the Spanning Tree Algorithm. Increasing the Hello Time interval lowers the overhead of the Spanning Tree Algorithm.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified hello time value is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge 1x1 2 hello time 5
-> bridge 1x1 10 hello time 10

-> bridge mode 1x1
-> bridge 1x1 255 hello time 5
-> bridge 1x1 455 hello time 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge hello time</b>	Implicit command for changing the Spanning Tree hello time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<b>bridge cist hello time</b>	Explicit command for changing the Spanning Tree hello time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpIns1x1VlanNumber  
  vStpInsMode  
  vStpInsBridgeHelloTime
```

---

## bridge max age

Configures the Spanning Tree bridge max age time for the flat mode Common and Internal Spanning Tree (CIST) instance or for a 1x1 mode VLAN instance. This value is the amount of time, in seconds, that Spanning Tree information learned from the network on any port is retained. When this information has aged beyond the max age value, the information is discarded.

**bridge** [*instance*] **max age** *seconds*

---

### Syntax Definitions

*instance*                                      The flat mode CIST instance or an existing VLAN ID number (1–4094).  
*seconds*                                      Max age time in seconds (6–40).

### Defaults

By default, the bridge max age time value is set to 20 seconds.

<b>parameter</b>	<b>default</b>
<i>instance</i>	flat mode instance

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low max age time causes the Spanning Tree Algorithm to reconfigure more often.
- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the max age value for the associated VLAN instance.
- To configure the max age value for the flat mode CIST instance when the switch is running in either the flat or 1x1 mode, do *not* specify an instance number. The CIST is the instance configured by default with this command.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, entering 1 to specify the CIST instance is optional. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted.
- Note that for Multiple Spanning Tree Instances (MSTI), the max age value is inherited from the CIST instance and is not a configurable parameter.

### Examples

```
-> bridge mode flat
-> bridge max age 40

-> bridge mode 1x1
-> bridge 255 max age 40
-> bridge max age 10
```

## Release History

Release 6.1; command introduced.

## Related Commands

### **bridge mode**

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

### **bridge cist max age**

Explicit command for changing the Spanning Tree max age time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.

### **bridge 1x1 max age**

Explicit command for changing the Spanning Tree max age time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

vStpInsTable

    vStpInsNumber

    vStpInsMode

    vStpInsBridgeMaxAge

---



## bridge cist max age

Configures the bridge max age time value for the flat mode Common and Internal Spanning Tree (CIST) instance. This value is the amount of time, in seconds, that Spanning Tree Protocol information learned from the network on any port is retained. When this information has aged beyond the max age value, the information is discarded.

**bridge cist max age** *seconds*

---

### Syntax Definitions

*seconds*                                      Max age time in seconds (6–40).

### Defaults

By default, the bridge max age time value is set to 20 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low max age time causes the Spanning Tree Algorithm to reconfigure more often.
- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified max age time value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge cist max age 10
-> bridge cist max age 30

-> bridge mode 1x1
-> bridge cist max age 10
-> bridge cist max age 30
```

### Release History

Release 6.1; command introduced.

## Related Commands

**bridge mode**

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

**bridge max age**

Implicit command for changing the Spanning Tree max age time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.

**bridge 1x1 max age**

Explicit command for changing the Spanning Tree max age time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

vStpInsTable

    vStpInsNumber

    vStpInsBridgeMaxAge

---

## bridge 1x1 max age

Configures the bridge max age time value for an individual VLAN instance. This value is the amount of time, in seconds, that Spanning Tree Protocol information learned from the network on any port is retained. When this information has aged beyond the max age value, the information is discarded.

**bridge 1x1** *vid max age seconds*

---

### Syntax Definitions

*vid* An existing VLAN ID number (1–4094).  
*seconds* Max age time in seconds (6–40).

### Defaults

By default, the bridge max age time value is set to 20 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low max age time causes the Spanning Tree Algorithm to reconfigure more often.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified max age time value is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge 1x1 2 max age 10
-> bridge 1x1 10 max age 40

-> bridge mode 1x1
-> bridge 1x1 255 max age 30
-> bridge 1x1 455 max age 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge max age</b>	Implicit command for changing the Spanning Tree max age time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<b>bridge cist max age</b>	Explicit command for changing the Spanning Tree max age time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpIns1x1VlanNumber  
  vStpInsMode  
  vStpInsBridgeMaxAge
```

---

## bridge forward delay

Configures the bridge forward delay time for the flat mode Common and Internal Spanning Tree (CIST) instance or for 1x1 mode VLAN instance. This value is the amount of time, in seconds, that determines how fast a port changes its Spanning Tree state until it reaches a forwarding state. The forward delay time specifies how long a port stays in the listening and learning states, which precede the forwarding state.

**bridge** [*instance*] **forward delay** *seconds*

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance or an existing VLAN ID number (1–4094).
<i>seconds</i>	Forward delay time, in seconds (4–30).

### Defaults

By default, the bridge forward delay time value is set to 15 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low forward delay time can cause temporary loops in the network, because data may get forwarded before the reconfiguration message has reached all nodes on the network.
- The forward delay time is also used to age out all dynamic MAC address entries in the forwarding table (MAC address table) when a topology change occurs.
- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the forward delay time for the associated VLAN instance.
- To configure the forward delay time for the flat mode CIST instance when the switch is running in either the flat or 1x1 mode, do *not* specify an instance number. The CIST is the instance configured by default with this command.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, entering 1 to specify the CIST instance is optional. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted.
- Note that for Multiple Spanning Tree Instances (MSTI), the forward delay time is inherited from the CIST instance and is not a configurable parameter.

### Examples

```
-> bridge mode flat
-> bridge forward delay 30

-> bridge mode 1x1
-> bridge 255 forward delay 10
-> bridge forward delay 30
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist forward delay</a>	Explicit command for changing the Spanning Tree forward delay time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.
<a href="#">bridge 1x1 forward delay</a>	Explicit command for changing the Spanning Tree forward delay time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.
<a href="#">show spantree</a>	Displays VLAN Spanning Tree parameter values.

## MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsMode  
  vStpInsBridgeForwardDelay
```

---

## bridge cist forward delay

Configures the bridge forward delay time value for the flat mode Common and Internal Spanning Tree (CIST) instance. This value is the amount of time, in seconds, that determines how fast a port changes its Spanning Tree state until it reaches a forwarding state. The forward delay time specifies how long a port stays in the listening and learning states, which precede the forwarding state.

**bridge cist forward delay** *seconds*

---

### Syntax Definitions

*seconds* Forward delay time in seconds (4–30).

### Defaults

By default, the bridge forward delay time value is set to 15 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low forward delay time can cause temporary loops in the network, because data may get forwarded before the reconfiguration message has reached all nodes on the network.
- The forward delay time is also used to age out all dynamic MAC address entries in the forwarding table (MAC address table) when a topology change occurs.
- This command is an explicit Spanning Tree command that only applies to the flat mode CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified forward delay time value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge cist forward delay 10
-> bridge cist forward delay 30

-> bridge mode 1x1
-> bridge cist forward delay 25
-> bridge cist forward delay 4
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge forward delay</b>	Implicit command for changing the Spanning Tree forward delay time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<b>bridge 1x1 forward delay</b>	Explicit command for changing the Spanning Tree forward delay time value for a VLAN instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsBridgeForwardDelay
```

---



## bridge 1x1 forward delay

Configures the bridge forward delay time value for an individual VLAN instance. This value is the amount of time, in seconds, that determines how fast a port changes its Spanning Tree state until it reaches a forwarding state. The forward delay time specifies how long a port stays in the listening and learning states, which precede the forwarding state.

**bridge 1x1** *vid* forward delay *seconds*

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>seconds</i>	Forward delay time in seconds (4–30).

### Defaults

By default, the bridge forward delay time value is set to 15 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A low forward delay time can cause temporary loops in the network, because data may get forwarded before the reconfiguration message has reached all nodes on the network.
- The forward delay time is also used to age out all dynamic MAC address entries in the forwarding table (MAC address table) when a topology change occurs.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified max age time value is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge 1x1 2 forward delay 30
-> bridge 1x1 10 forward delay 4

-> bridge mode 1x1
-> bridge 1x1 255 forward delay 25
-> bridge 1x1 455 forward delay 10
```

### Release History

Release 6.1; command introduced.

## Related Commands

**bridge mode**

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

**bridge forward delay**

Implicit command for changing the Spanning Tree forward delay time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.

**bridge cist forward delay**

Explicit command for changing the Spanning Tree forward delay time value for the CIST instance when the switch is operating in either the flat or 1x1 mode.

## MIB Objects

vStpInsTable

    vStpIns1x1VlanNumber

    vStpInsMode

    vStpInsBridgeForwardDelay

---

## bridge mode 1x1 pvst+

Enables or disables PVST+ mode on the switch, enabling it to operate with Cisco switches.

**bridge mode 1x1 pvst+ {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the pvst+ mode.
<b>disable</b>	Disables the pvst+ mode.

### Defaults

PVST+ is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- In order to handle PVST+ mode, the ports must be configured in 1x1 mode.
- This command enables the ports to handle PVST+ BPDUs.
- In this mode, the bridge priority field of the bridge ID can only be changed by a multiple of 4096.

### Examples

```
-> bridge mode 1x1 pvst+ enable  
-> bridge mode 1x1 pvst+ disable
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

[bridge port pvst+](#) Configures the type of BPDU to be used on a port when PVST+ mode is enabled.

### MIB Objects

```
vStpTable  
  vStpMode  
  vStpModePVST
```

---

## bridge bpdu-switching

Enables the switching of Spanning Tree BPDU on the flat mode Common and Internal Spanning Tree (CIST) instance or for an individual VLAN instance if the switch is running in the 1x1 mode.

**bridge** [*instance*] **bpdu-switching** {**enable** | **disable**}

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance (bridge 1) or an existing 1x1 mode VLAN ID instance number (bridge 1–4094).
<b>enable</b>	Enables BPDU switching for the specified instance.
<b>disable</b>	Disables BPDU switching for the specified instance.

### Defaults

By default, BPDU switching is disabled for an instance.

parameter	default
<i>instance</i>	CIST (flat mode)

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying the BPDU switching status for a VLAN does not depend on the current VLAN Spanning Tree status. For example, setting the BPDU switching status to enabled is allowed on a VLAN that also has Spanning Tree enabled.
- The **bridge bpdu-switching** command is an implicit Spanning Tree command. When issued in the 1x1 mode, the *instance* number specified implies a VLAN ID. When issued in the flat mode, the *instance* number specified implies an MSTI number.
- If an *instance* is not specified with this command, the BPDU switching status is configured for the flat mode CIST instance by default regardless of which mode (flat or 1x1) is active on the switch.
- Note that if the switch is running in the flat mode, specifying a value greater than 1 for the *instance* returns an error message. BPDU switching is only configured for the flat mode instance (bridge 1), regardless of which protocol is active (STP, RSTP, or MSTP).

### Examples

```
-> bridge mode flat
-> bridge bpdu-switching enable
-> bridge 1 bpdu-switching disable

-> bridge mode 1x1
-> bridge 100 bpdu-switching enable
-> bridge 100 bpdu-switching disable
```

## Release History

Release 6.1; command introduced.

## Related Commands

[vlan stp](#)

Enables or disables Spanning Tree instance for the specified VLAN.

[show spantree](#)

Displays VLAN Spanning Tree parameter values.

## MIB Objects

vStpInsTable

vStpInsBpduSwitching

---

## bridge path cost mode

Configures the automatic selection of a 16-bit path cost for STP/RSTP ports and a 32-bit path cost for MSTP ports or sets all path costs to use a 32-bit value.

**bridge path cost mode {auto | 32bit}**

---

### Syntax Definitions

<b>auto</b>	The port path cost value is automatically set depending on which protocol is active on the switch (32-bit for MSTP, 16-bit for STP/RSTP).
<b>32bit</b>	Specifies that a 32-bit value is used for the port path cost value regardless of which protocol is active on the switch.

### Defaults

By default, the path cost mode is set to **auto**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Note that all path cost values, except those for MSTIs, are reset to the default path cost value when this mode is changed.
- When connecting a switch running in the 32-bit path cost mode to a switch running in the 16-bit mode, the 32-bit switch has a higher path cost value and thus an inferior path cost to the 16-bit switch. To avoid this, use the **bridge path cost mode** command to change the 32-bit switch to a 16-bit switch.
- Note that when the protocol is changed to/from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values. The exception to this is if the path cost mode is set to 32-bit prior to the protocol change, the path cost is not reset to its default value

### Examples

```
-> bridge path cost mode 32bit  
-> bridge path cost mode auto
```

### Release History

Release 6.1; command introduced.

### Related Commands

<a href="#">bridge path cost</a>	Defines a Spanning Tree path cost for a port.
<a href="#">bridge protocol</a>	Configures the protocol for the flat mode CIST instance or a 1x1 mode VLAN instance.

## **MIB Objects**

vStpBridge

vStpPathCostMode

---

## bridge auto-vlan-containment

Enables or disables Auto VLAN Containment (AVC). When enabled, AVC prevents a port that has no VLANs mapped to an Multiple Spanning Tree Instance (MSTI) from becoming the root port for that instance. Such ports are automatically assigned an infinite path cost value to make them an inferior choice for root port.

**bridge** [*msti msti\_id*] **auto-vlan-containment** {**enable** | **disable**}

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0–4094).
<b>enable</b>	Enables automatic VLAN containment.
<b>disable</b>	Disables automatic VLAN containment.

### Defaults

By default, automatic VLAN containment is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The AVC feature is not active for any MSTI until it is globally enabled. To globally enable this feature, use the **bridge auto-vlan-containment** command but do not specify an *msti\_id*.
- When AVC is globally enabled, it is active for all MSTIs. To disable AVC for a single instance, use the **disable** form of this command and specify the *msti\_id* for the instance.
- Use the **enable** form of this command and specify an *msti\_id* to enable AVC for an instance that was previously disabled.
- An administratively set port path cost takes precedence and prevents AVC configuration of the path cost. The exception to this is if the port path cost is administratively set to zero, which resets the path cost to the default value.
- Note that when AVC is disabled that a port assigned to a VLAN not mapped to a specific instance can become the root port for that instance and cause a loss of connectivity between other VLANs.
- AVC does not have any effect on root bridges.

### Examples

```
-> bridge auto-vlan-containment enable
-> bridge auto-vlan-containment disable
-> bridge msti 1 auto-vlan-containment disable
-> bridge msti 1 auto-vlan containment enable
```

### Release History

Release 6.1.1; command introduced.



## Related Commands

**bridge path cost**

Defines a Spanning Tree path cost for a port.

**show spantree msti ports**

Displays Spanning Tree port information for a flat mode Multiple Spanning Tree Instance (MSTI).

## MIB Objects

vStpInsTable

    vStpInsAutoVlanContainment

vStpBridge

    vStpBridgeAutoVlanContainment

---

## bridge port pvst+

Configures the type of BPDU to be used on a port when PVST+ mode is enabled.

**bridge port** {*slot/port* | *agg\_num*} **pvst+** {**auto** | **enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	Specifies the aggregate group.
<i>auto</i>	IEEE BPDUs are used until a PVST+ BPDU is detected.
<i>enable</i>	Specifies that PVST+ BPDUs can be used.
<i>disable</i>	Specifies that IEEE BPDUs can be used.

### Defaults

parameters	default
<b>auto</b>   <b>enable</b>   <b>disable</b>	<b>auto</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- In order to handle PVST+ mode, the ports must be configured in 1x1 mode.
- Initially, a port sends or receive IEEE BPDUs. Once a PVST+ BPDU is received, the port sends and receives only PVST+ BPDUs for tagged VLANs and IEEE BPDUs for default VLANs.

### Examples

```
-> bridge port 1/3 pvst+ enable
-> bridge port 2/2 pvst+ auto
```

### Release History

Release 6.3.1; command introduced.

## Related Commands

**bridge mode 1x1 pvst+**

Enables or disables PVST+ mode on the switch.

## MIB Objects

vStpPortConfigTable

    vStpPortConfigIfIndex

    vStpPortConfigPVST

---

## bridge

Enables or disables the Spanning Tree status on a single port or an aggregate of ports for the specified flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance.

**bridge** *instance* {*slot/port* | *logical\_port*} {**enable** | **disable**}

---

### Syntax Definitions

<i>instance</i>	The CIST instance number or an existing VLAN ID number (1–4094).
<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	The Link aggregate ID number (0–31).
<b>enable</b>	Enables Spanning Tree on the specified port for the specified instance.
<b>disable</b>	Disables Spanning Tree on the specified port for the specified instance.

### Defaults

By default, the Spanning Tree status is enabled on eligible ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the port Spanning Tree status for the associated VLAN instance.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the **bridge cist** command instead.
- Note that for Multiple Spanning Tree Instances (MSTI), the port Spanning Tree status is inherited from the CIST instance and is not a configurable parameter.
- When STP is disabled on a port, the port is set to a forwarding state for the specified STP instance.
- If STP is disabled on a VLAN in the 1x1 mode, the port Spanning Tree status is ignored and all active ports associated with the VLAN are put in a forwarding state and not included in the Spanning Tree Algorithm. Note that ports at this point are *not* switching BPDU, unless the BPDU switching status for the VLAN is enabled.
- Physical ports that are reserved for link aggregation do not participate in the Spanning Tree Algorithm. Instead, the algorithm is applied to the aggregate logical link (virtual port) that represents a collection of physical ports.

## Examples

```
-> bridge mode flat
-> bridge 1 4/1 disable
-> bridge 1 1/24 enable

-> bridge mode 1x1
-> bridge 255 5/10 enable
-> bridge 455 16 enable
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist</a>	Explicit command for configuring the Spanning Tree status on a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">bridge 1x1</a>	Explicit command for configuring the Spanning Tree status on a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">vlan stp</a>	Enables or disables the Spanning Tree instance for a VLAN.
<a href="#">bridge bpdu-switching</a>	Enables or disables BPDU switching for the specified VLAN.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

---

## bridge cist

Enables or disables the Spanning Tree status on a single port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance.

**bridge cist** {*slot/port* | *logical\_port*} {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	The Link aggregate ID number (0–31).
<b>enable</b>	Enables Spanning Tree on the specified port for the CIST instance.
<b>disable</b>	Disables Spanning Tree on the specified port for the CIST instance.

### Defaults

By default, the Spanning Tree status is enabled on eligible ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the port Spanning Tree status for the flat mode CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the Spanning Tree status configured for the port is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- When the Spanning Tree status is disabled on a port, the port is set to a forwarding state for the specified instance.
- If STP is disabled on a VLAN in the 1x1 mode, the port Spanning Tree status is ignored and all active ports associated with the VLAN are put in a forwarding state and not included in the Spanning Tree Algorithm. Note that ports at this point are *not* switching BPDU, unless the BPDU switching status for the VLAN is enabled.
- Physical ports that are reserved for link aggregation do not participate in the Spanning Tree Algorithm. Instead, the algorithm is applied to the aggregate logical link (virtual port) that represents a collection of physical ports.

## Examples

```
-> bridge mode flat
-> bridge cist 4/1 enable
-> bridge cist 16 enable

-> bridge mode 1x1
-> bridge cist 5/10 enable
-> bridge cist 22 enable
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge</a>	Implicit command for configuring the Spanning Tree status on a port for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<a href="#">bridge 1x1</a>	Explicit command for configuring the Spanning Tree status on a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">vlan stp</a>	Enables or disables the Spanning Tree instance for a VLAN.
<a href="#">bridge bpdu-switching</a>	Enables or disables BPDU switching for the specified VLAN.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

---

## bridge 1x1

Enables or disables the Spanning Tree status on a single port or an aggregate of ports for the specified VLAN instance.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} {**enable** | **disable**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4096).
<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	The Link aggregate ID number (0–31).
<b>enable</b>	Enables Spanning Tree on the specified port for the specified instance.
<b>disable</b>	Disables Spanning Tree on the specified port for the specified instance.

### Defaults

By default, the Spanning Tree status is enabled on eligible ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the Spanning Tree status configured for the port is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- When the Spanning Tree status is disabled on a port, the port is set to a forwarding state for the specified instance.
- If STP is disabled on a VLAN in the 1x1 mode, the port Spanning Tree status is ignored and all active ports associated with the VLAN are put in a forwarding state and not included in the Spanning Tree Algorithm. Note that ports at this point are *not* switching BPDU, unless the BPDU switching status for the VLAN is enabled.
- Physical ports that are reserved for link aggregation do not participate in the Spanning Tree Algorithm. Instead, the algorithm is applied to the aggregate logical link (virtual port) that represents a collection of physical ports.



## Examples

```
-> bridge mode flat
-> bridge 1x1 2 4/1 enable
-> bridge 1x1 3 16 disable

-> bridge mode 1x1
-> bridge 1x1 2 5/10 enable
-> bridge 1x1 3 22 disable
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge</a>	Implicit command for configuring the Spanning Tree status on a port for the flat mode CIST instance or for a 1x1 mode VLAN instance.
<a href="#">bridge cist</a>	Explicit command for configuring the Spanning Tree status on a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">vlan stp</a>	Enables or disables Spanning Tree instance for the specified VLAN.
<a href="#">bridge bpdu-switching</a>	Enables or disables BPDU switching for the specified VLAN.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

---

## bridge priority

Configures the Spanning Tree priority for a single port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance. The Spanning Tree Algorithm uses the port priority value to determine the most favorable port when a bridge has multiple ports with the same path cost to the root bridge.

**bridge** *instance* {*slot/port* | *logical\_port*} **priority** *priority*

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance or an existing VLAN ID number (1–4095).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>priority</i>	Port priority value (0–15). The lower the number, the higher the priority.

### Defaults

By default, the bridge port priority value is set to 7.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The port priority specifies the value of the priority field contained in the first byte of the Port ID. The second byte contains the physical switch port number.
- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the port priority value for the associated VLAN instance.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the [bridge cist priority](#) command instead.

### Examples

```
-> bridge mode flat
-> bridge 1 4/1 priority 0

-> bridge mode 1x1
-> bridge 255 1/24 priority 5
-> bridge 455 3/12 priority 15
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge cist priority</b>	Explicit command for configuring the Spanning Tree priority for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<b>bridge msti priority</b>	Explicit command for configuring the Spanning Tree priority for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat mode.
<b>bridge 1x1 priority</b>	Explicit command for configuring the Spanning Tree priority for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPriority
```

---

## bridge cist priority

Configures the Spanning Tree priority value for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance. The Spanning Tree algorithm uses the port priority value to determine the most favorable port when a bridge has multiple ports with the same path cost to the root bridge.

**bridge cist** {*slot/port* | *logical\_port*} **priority** *priority*

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>priority</i>	Port priority value (0–15). The lower the number, the higher the priority.

### Defaults

By default, the bridge port priority value is set to 7.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The port priority specifies the value of the priority field contained in the first byte of the Port ID. The second byte contains the physical switch port number.
- This command is an explicit Spanning Tree command that only applies to the port priority value for the flat mode CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified port priority value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge cist 4/1 priority 2
-> bridge cist 10 priority 15

-> bridge mode 1x1
-> bridge cist 5/10 priority 1
-> bridge cist 16 priority 15
```

## Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge priority</b>	Implicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<b>bridge msti priority</b>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat mode.
<b>bridge 1x1 priority</b>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

vStpInsPortTable  
    vStpInsPortNumber  
    vStpInsPortPriority

---

## bridge msti priority

Configures the Spanning Tree priority value for a port or an aggregate of ports for the specified flat mode Multiple Spanning Tree Instance (MSTI). The Spanning Tree algorithm uses the port priority value to determine the most favorable port when a bridge has multiple ports with the same path cost to the root bridge.

**bridge msti** *msti\_id* {*slot/port* | *logical\_port*} **priority** *priority*

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>priority</i>	Port priority value (0–15). The lower the number, the higher the priority.

### Defaults

By default, the bridge port priority value is set to 7.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The port priority specifies the value of the priority field contained in the first byte of the Port ID. The second byte contains the physical switch port number.
- This command is an explicit Spanning Tree command that only applies to the specified MSTI regardless of which operating mode (flat or 1x1) is active on the switch. If MSTP is not the selected flat mode protocol, however, the port priority value for any MSTI is not configurable in either mode.
- Note that if zero is entered for the *msti\_id* value, the specified priority value is applied to the CIST instance. The flat mode CIST instance 0 is also known as MSTI 0.
- The port priority value configured with this command is only applied to the specified MSTI. As a result, a single port can have different priority values for each instance. For example, in flat mode, port 1/24 can have a priority value of 7 for MSTI 2 and a priority value of 5 for MSTI 3.
- If the switch is running in 1x1 mode when this command is used, the specified priority value is not active for the specified MSTI until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

## Examples

```
-> bridge mode flat
-> bridge msti 0 1/24 priority 12
-> bridge msti 2 1/24 priority 5

-> bridge mode 1x1
-> bridge msti 0 1/24 priority 12
-> bridge msti 2 1/24 priority 5
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge priority</a>	Implicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<a href="#">bridge cist priority</a>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or Tree mode.
<a href="#">bridge 1x1 priority</a>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortPriority
```

---

## bridge 1x1 priority

Configures the Spanning Tree priority value for a port or an aggregate of ports for the specified 1x1 mode VLAN instance. The Spanning Tree algorithm uses the port priority value to determine the most favorable port when a bridge has multiple ports with the same path cost to the root bridge.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **priority** *priority*

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4096).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>priority</i>	Port priority value (0–15). The lower the number, the higher the priority.

### Defaults

By default, the bridge port priority value is set to 7.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The port priority specifies the value of the priority field contained in the first byte of the Port ID. The second byte contains the physical switch port number.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified priority value for the port is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge mode flat
-> bridge 1x1 100 4/1 priority 2
-> bridge 1x1 200 1/24 priority 4

-> bridge mode 1x1
-> bridge 1x1 255 5/10 priority 1
-> bridge 1x1 455 1/16 priority 15
```



## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge priority</a>	Implicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<a href="#">bridge path cost</a>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">bridge msti priority</a>	Explicit command for configuring the Spanning Tree priority value for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

vStpInsPortTable  
    vStpInsPortNumber  
    vStpInsPortPriority

---

## bridge path cost

Configures the Spanning Tree path cost value for a single port or an aggregate of ports that applies to the specified flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance. This value is the contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops.

**bridge** *instance* {*slot/port* | *logical\_port*} **path cost** *path\_cost*

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance or an existing VLAN ID number (0–4095).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>path_cost</i>	Path cost value (0 - 65535 for 16-bit, 0–200000000 for 32-bit).

### Defaults

By default, the path cost is set to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying an instance number with this command when the switch is running in the 1x1 Spanning Tree mode implies a VLAN ID and configures the port path cost for the associated VLAN instance.
- If the switch is running in the flat mode and STP (802.1D) or RSTP (802.1W) is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the **bridge cist path cost** command instead.
- Note that when the Spanning Tree protocol is changed to/from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values.
- Use the **bridge path cost mode** command to automatically select the path cost value based on the active Spanning Tree protocol (16-bit for STP and RSTP, 32-bit for MSTP) or to use a 32-bit path cost value regardless of which protocol is active.
- If a 32-bit path cost value is in use and the *path\_cost* is set to zero, the following recommended default path cost values based on link speed are used:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
10 MB	2,000,000
100 MB	200,000
1 GB	20,000
10 Gbps	2,000

- If a 16-bit path cost value is in use and the *path\_cost* is set to zero, the following IEEE 802.1D recommended default path cost values based on link speed are used:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
4 Mbps	250
10 Mbps	100
16 Mbps	62
100 Mbps	19
1 Gbps	4
10 Gbps	2

- If a 32-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values based on link speed and link aggregate size are used:

<b>Link Speed</b>	<b>Aggregate Size (number of links)</b>	<b>Default Path Cost Value</b>
10 MB	2	1,200,000
	4	800,000
	8	600,000
100 MB	2	120,000
	4	80,000
	8	60,000
1 GB	2	12,000
	4	8,000
	8	6,000
10 GB	2	1,200
	4	800
	8	600

- If a 16-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values based on link speed and link aggregate size are used. Note that for Gigabit ports the aggregate size is not applicable in this case:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
10 Mbps	2	60
	4	40
	8	30
100 Mbps	2	12
	4	9
	8	7
1 Gbps	N/A	3
10 Gbps	N/A	1

### Examples

```
-> bridge mode flat
-> bridge 1 4/1 path cost 19
-> bridge 1 5/1 path cost 0

-> bridge mode 1x1
-> bridge 455 1/24 path cost 2000
-> bridge 955 3/12 path cost 500
```

### Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge path cost mode</b>	Selects a 32-bit or automatic path cost mode for the switch.
<b>bridge cist path cost</b>	Explicit command for configuring the Spanning Tree path cost for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<b>bridge msti path cost</b>	Explicit command for configuring the Spanning Tree path cost for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat mode.
<b>bridge 1x1 path cost</b>	Explicit command for configuring the Spanning Tree path cost for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPathCost
```

---

## bridge cist path cost

Configures the Spanning Tree path cost value for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance. This value is the contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops.

**bridge cist** {*slot/port* | *logical\_port*} **path cost** *path\_cost*

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>path_cost</i>	Path cost value (0 - 65535 for 16-bit, 0–200000000 for 32-bit).

### Defaults

By default, the path cost is set to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the port path cost value for the CIST instance regardless of which operating mode (flat or 1x1) or protocol is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified path cost value is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when the Spanning Tree protocol is changed to/from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values.
- Use the **bridge path cost mode** command to automatically select the path cost value based on the active Spanning Tree protocol (16-bit for STP and RSTP, 32-bit for MSTP) or to use a 32-bit path cost value regardless of which protocol is active.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- If a 32-bit path cost value is in use and the *path\_cost* is set to zero, the following recommended default path cost values based on link speed are used:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
10 MB	2,000,000
100 MB	200,000
1 GB	20,000
10 Gbps	2,000

- If a 16-bit path cost value is in use and the *path\_cost* is set to zero, the following IEEE 802.1D recommended default path cost values based on link speed are used:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
4 Mbps	250
10 Mbps	100
16 Mbps	62
100 Mbps	19
1 Gbps	4
10 Gbps	2

- If a 32-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values based on link speed and link aggregate size are used:

<b>Link Speed</b>	<b>Aggregate Size (number of links)</b>	<b>Default Path Cost Value</b>
10 MB	2	1,200,000
	4	800,000
	8	600,000
100 MB	2	120,000
	4	80,000
	8	60,000
1 GB	2	12,000
	4	8,000
	8	6,000
10 GB	2	1,200
	4	800
	8	600

- If a 16-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values based on link speed and link aggregate size are used. Note that for Gigabit ports the aggregate size is not applicable in this case:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
10 Mbps	2	60
	4	40
	8	30
100 Mbps	2	12
	4	9
	8	7
1 Gbps	N/A	3
10 Gbps	N/A	1

### Examples

```
-> bridge mode flat
-> bridge cist 4/1 path cost 19
-> bridge cist 16 path cost 12000

-> bridge mode 1x1
-> bridge cist 5/10 path cost 19
-> bridge cist 11 path cost 12000
```

### Release History

Release 6.1; command introduced.



## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge path cost mode</b>	Selects a 32-bit or automatic path cost mode for the switch.
<b>bridge path cost</b>	Implicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<b>bridge msti path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat mode.
<b>bridge 1x1 path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPathCost
```

---

## bridge msti path cost

Configures the Spanning Tree path cost value for a port or an aggregate of ports for the specified flat mode Multiple Spanning Tree Instance (MSTI). This value is the contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops.

**bridge msti** *msti\_id* {*slot/port* | *logical\_port*} **path cost** *path\_cost*

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>path_cost</i>	Path cost value (0 - 65535 for 16-bit, 0–200000000 for 32-bit).

### Defaults

By default, the path cost is set to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified MSTI regardless of which operating mode (flat or 1x1) is active on the switch. If MSTP is not the selected flat mode protocol, however, the path cost value for any MSTI is not configurable.
- Note that if zero is entered for the *msti\_id* value, the specified path cost value is applied to the CIST instance. The flat mode CIST instance 0 is also known as MSTI 0.
- Note that when the Spanning Tree protocol is changed to/from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values.
- The path cost value configured with this command is only applied to the specified instance. As a result, a single port can have a different path cost for each instance. For example, in flat mode, port 1/24 can have a path cost of 20000 for MSTI 2 and a path cost of 200000 for MSTI 3.
- If the switch is running in 1x1 mode when this command is used, the specified path cost value is not active for the specified MSTI until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- When MSTP is the active protocol on the switch, only a 32-bit path cost value is used. You cannot use a 16-bit path cost value is option when the MSTP protocol is active on the switch.

- If zero is entered for the *path\_cost* value, then the following default path cost values are used based on the link speed:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
10 MB	2,000,000
100 MB	200,000
1 GB	20,000
10 Gbps	2,000

- If the *path\_cost* value for a link aggregate is set to zero, the following default values are used based on link speed and link aggregate size:

<b>Link Speed</b>	<b>Aggregate Size (number of links)</b>	<b>Default Path Cost Value</b>
10 MB	2	1,200,000
	4	800,000
	8	600,000
100 MB	2	120,000
	4	80,000
	8	60,000
1 GB	2	12,000
	4	8,000
	8	6,000
10 GB	2	1,200
	4	800
	8	600

## Examples

```
-> bridge mode flat
-> bridge msti 0 4/1 path cost 200000
-> bridge msti 2 4/1 path cost 20000

-> bridge mode 1x1
-> bridge msti 0 1/24 path cost 200000
-> bridge msti 2 1/24 path cost 20000
```

## Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge path cost</b>	Implicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<b>bridge cist path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<b>bridge 1x1 path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPathCost
```

---

## bridge 1x1 path cost

Configures the Spanning Tree path cost value for a port or an aggregate of ports for the specified 1x1 mode VLAN instance. This value is the contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops.

```
bridge 1x1 vid {slot/port | logical_port} path cost path_cost
```

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<i>path_cost</i>	Path cost value (0 - 65535 for 16-bit, 0–200000000 for 32-bit).

### Defaults

By default, the path cost is set to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified path cost for the port is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when the Spanning Tree protocol is changed to/from MSTP, the bridge priority and port path cost values for the flat mode CIST instance are reset to their default values.
- Use the [bridge path cost mode](#) command to automatically select the path cost value based on the active Spanning Tree protocol (16-bit for STP and RSTP, 32-bit for MSTP) or to use a 32-bit path cost value regardless of which protocol is active.
- All Spanning Tree commands are saved in their explicit format when a configuration snapshot is taken of the switch.
- If a 32-bit path cost value is in use and the *path\_cost* is set to zero, the following IEEE 892.1S recommended default path cost values are used based on link speed:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
10 MB	2,000,000
100 MB	200,000
1 GB	20,000
10 Gbps	2,000

- If a 16-bit path cost value is in use and the *path\_cost* is set to zero, the following IEEE 802.1D recommended default path cost values are used based on the link speed:

<b>Link Speed</b>	<b>IEEE 802.1D Recommended Value</b>
4 Mbps	250
10 Mbps	100
16 Mbps	62
100 Mbps	19
1 Gbps	4
10 Gbps	2

- If a 32-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values are used based on the link speed and link aggregate size:

<b>Link Speed</b>	<b>Aggregate Size (number of links)</b>	<b>Default Path Cost Value</b>
10 MB	2	1,200,000
	4	800,000
	8	600,000
100 MB	2	120,000
	4	80,000
	8	60,000
1 GB	2	12,000
	4	8,000
	8	6,000
10 GB	2	1,200
	4	800
	8	600

- If a 16-bit path cost value is in use and the *path\_cost* for a link aggregate is set to zero, the following default values are used based on the link speed and link aggregate size:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
10 Mbps	2	60
	4	40
	8	30
100 Mbps	2	12
	4	9
	8	7
1 Gbps	N/A	3
10 Gbps	N/A	1

---

**Note.** The aggregate size is not applicable for Gigabit ports when a 16-bit path cost value is set.

---

## Examples

```
-> bridge mode flat
-> bridge 1x1 200 4/1 path cost 4
-> bridge 1x1 300 16 path cost 200000

-> bridge mode 1x1
-> bridge 1x1 400 5/10 path cost 19
-> bridge 1x1 500 1/24 path cost 20000
```

## Release History

Release 6.1; command introduced.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge path cost</b>	Implicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports that applies to the specified CIST or VLAN instance.
<b>bridge cist path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<b>bridge msti path cost</b>	Explicit command for configuring the Spanning Tree path cost value for a port or an aggregate of ports for an MSTI when the switch is operating in either the 1x1 or flat Spanning Tree mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPathCost
```

---



## bridge mode

Configures Manual mode (forwarding or blocking) or Dynamic mode to manage the state of a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance. Dynamic mode defers the configuration of the port state to the Spanning Tree Protocol.

**bridge** *instance* {*slot/port* | *logical\_port*} **mode** {**forwarding** | **blocking** | **dynamic**}

---

### Syntax Definitions

<i>instance</i>	The CIST instance or an existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>forwarding</b>	Set port state to forwarding.
<b>blocking</b>	Set port state to blocking.
<b>dynamic</b>	Port state is determined by Spanning Tree Protocol.

### Defaults

By default, the port Spanning Tree mode is set to dynamic.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying an instance number with this command when the switch is running the 1x1 Spanning Tree operating mode implies a VLAN ID and configures the port Spanning Tree mode (**forwarding**, **blocking**, or **dynamic**) for the associated VLAN instance.
- If the switch is running in the flat mode and STP (802.1D) or RSTP (802.1W) is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the **bridge cist mode** command instead.
- For Multiple Spanning Tree Instances (MSTI), the port Spanning Tree mode is inherited from the CIST instance. The spanning tree mode cannot be configured explicitly when the CIST instance is active.
- When a port state is manually set to forwarding or blocking, the port remains in that state until it is changed using this command.
- Ports manually configured to operate in a forwarding or blocking state do not participate in the Spanning Tree Algorithm.

## Examples

```
-> bridge mode flat
-> bridge 1 4/1 mode forwarding

-> bridge mode 1x1
-> bridge 200 4/1 mode dynamic
-> bridge 300 1/24 mode forwarding
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist mode</a>	Explicit command for configuring the Spanning Tree mode on a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat mode.
<a href="#">bridge 1x1 mode</a>	Explicit command for configuring the Spanning Tree mode on a port or an aggregate of ports for a VLAN instance when the switch is operating in either the 1x1 or flat mode.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortManualMode
```

---

## bridge cist mode

Configures Manual mode (forwarding or blocking) or Dynamic mode to manage the state of a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance. Dynamic mode defers the management of the port state to the Spanning Tree algorithm.

**bridge cist** {*slot/port* | *logical\_port*} **mode** {**dynamic** | **blocking** | **forwarding**}

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>dynamic</b>	Port state is determined by Spanning Tree algorithm.
<b>blocking</b>	Sets port state to blocking.
<b>forwarding</b>	Sets port state to forwarding.

### Defaults

By default, the port Spanning Tree mode is set to dynamic.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the port Spanning Tree mode for the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified port mode is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- Ports manually configured to operate in a forwarding or blocking state do not participate in the Spanning Tree algorithm.
- When port state is manually set to forwarding or blocking, the port remains in that state until it is changed using this command.

### Examples

```
-> bridge mode flat
-> bridge cist 4/1 mode forwarding
-> bridge cist 10 mode blocking

-> bridge mode 1x1
-> bridge cist 2/2 mode blocking
-> bridge cist 11 mode forwarding
```

## Release History

Release 6.1; command introduced.

## Related Commands

[bridge mode](#)

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

[bridge mode](#)

Implicit command for configuring the Spanning Tree mode for a port or an aggregate of ports for the CIST instance or a VLAN instance.

[bridge 1x1 mode](#)

Explicit command for configuring the Spanning Tree mode for a port or an aggregate of ports for the specified VLAN instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.

## MIB Objects

vStpInsPortTable

    vStpInsPortNumber

    vStpInsPortManualMode

---

## bridge 1x1 mode

Configures Manual mode (forwarding or blocking) or Dynamic mode to manage the state of a port or an aggregate of ports for the specified 1x1 mode VLAN instance. Dynamic mode defers the management of the port state to the Spanning Tree algorithm.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **mode** {**dynamic** | **blocking** | **forwarding**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>dynamic</b>	Port state is determined by Spanning Tree algorithm.
<b>blocking</b>	Sets port state to blocking.
<b>forwarding</b>	Sets port state to forwarding.

### Defaults

By default, the port Spanning Tree mode is set to dynamic.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified mode for the port is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- Ports manually configured to operate in a forwarding or blocking state do not participate in the Spanning Tree algorithm.
- When port state is manually set to forwarding or blocking, the port remains in that state until it is changed using this command.

## Examples

```
-> bridge mode flat
-> bridge 1x1 255 4/1 mode forwarding
-> bridge 1x1 355 1/24 mode dynamic

-> bridge mode 1x1
-> bridge 1x1 255 2/2 mode blocking
-> bridge 1x1 355 3/12 mode forwarding
```

## Release History

Release 6.1; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge mode</a>	Implicit command for configuring the Spanning Tree mode for a port or an aggregate of ports for the CIST instance or for a VLAN instance.
<a href="#">bridge cist mode</a>	Explicit command for configuring the Spanning Tree mode for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortManualMode
```

---

## bridge connection

Configures the connection type for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance.

**bridge** *instance* {*slot/port* | *logical\_port*} **connection** {**noptp** | **ptp** | **autoptp** | **edgeport**}

---

### Syntax Definitions

<i>instance</i>	The flat mode CIST instance or an existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31). <i>This parameter is not available on OmniSwitch 6850 and OmniSwitch 6855 switches.</i>
<b>noptp</b>	Defines port connection type as no point-to-point link.
<b>ptp</b>	Defines port connection type as point-to-point link.
<b>autoptp</b>	Specifies that switch software automatically defines connection type as point-to-point or no point-to-point.
<b>edgeport</b>	<i>This parameter is currently not supported.</i> Use the <b>bridge cist admin-edge</b> or <b>bridge cist auto-edge</b> command to configure edge port status.

### Defaults

By default the link connection type is set to auto point-to-point.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specifying an instance number with this command when the switch is running the 1x1 Spanning Tree operating mode implies a VLAN ID and configures the port connection type for the associated VLAN instance.
- If the switch is running in the flat mode and STP or RSTP is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the **bridge cist connection** command instead.
- Note that for Multiple Spanning Tree Instances (MSTI), the port connection type is inherited from the CIST instance and is not a configurable parameter.
- A port is considered connected to a point-to-point LAN segment if the port belongs to a link aggregate of ports or if autonegotiation determines if the port should run in full duplex mode or if full duplex mode was administratively set. Otherwise, the port is considered connected to a no point-to-point LAN segment.

- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as a point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.

## Examples

```
-> bridge mode flat
-> bridge 1 1/24 connection noptp

-> bridge mode 1x1
-> bridge 200 8/2 connection ptp
-> bridge 300 10 connection autoptp
```

## Release History

Release 6.1; command introduced.

Release 6.1.3; **edgeport** parameter was deprecated.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist connection</a>	Explicit command for configuring the Spanning Tree connection type for a port or an aggregate of ports for the CIST instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.
<a href="#">bridge 1x1 connection</a>	Explicit command for configuring the Spanning Tree connection type for a port or an aggregate of ports for the specified VLAN instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminConnectionType
  vStpInsPortOperConnectionType
```

---



## bridge cist connection

Configures the connection type for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST).

```
bridge cist {slot/port | logical_port} connection {noptp | ptp | autoptp | edgeport}
```

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>noptp</b>	Defines port connection type as no point-to-point link.
<b>ptp</b>	Defines port connection type as point-to-point link.
<b>autoptp</b>	Specifies that switch software automatically defines connection type as point-to-point or no point-to-point.
<b>edgeport</b>	<i>This parameter is currently not supported.</i> Use the <b>bridge cist admin-edge</b> or <b>bridge cist auto-edge</b> command to configure edge port status.

### Defaults

By default, the link connection type is set to auto point-to-point.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the port connection type for the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in 1x1 mode when this command is used, the specified port connection type is not active for the CIST instance until the operating mode for the switch is changed to the flat mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- A port is considered connected to a point-to-point LAN segment if the port belongs to a link aggregate of ports or if autonegotiation determines the port should run in full duplex mode or if full duplex mode was administratively set. Otherwise, the port is considered connected to a no point-to-point LAN segment.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as a point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.

## Examples

```
-> bridge mode flat
-> bridge cist 7/24 connection noptp

-> bridge mode 1x1
-> bridge cist 2/2 connection noptp
```

## Release History

Release 6.1; command introduced.

Release 6.1.3; **edgeport** parameter was deprecated.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge connection</a>	Implicit command for configuring the Spanning Tree connection type for a port or an aggregate of ports for the CIST instance or for a VLAN instance.
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminConnectionType
  vStpInsPortOperConnectionType
```

---

## bridge 1x1 connection

Configures the connection type for a port or an aggregate of ports for a 1x1 mode VLAN instance.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **connection** {**noptp** | **ptp** | **autoptp** | **edgeport**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>noptp</b>	Defines port connection type as no point-to-point link.
<b>ptp</b>	Defines port connection type as point-to-point link.
<b>autoptp</b>	Specifies that switch software automatically defines connection type as point-to-point or no point-to-point <i>and</i> whether or not the port is an edge port.
<b>edgeport</b>	<i>This parameter is currently not supported.</i> Use the <b>bridge 1x1 admin-edge</b> or <b>bridge 1x1 auto-edge</b> command to configure edge port status.

### Defaults

By default, the link connection type is set to auto point-to-point.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified connection type for the port is not active for the specified VLAN instance until the operating mode for the switch is changed to the 1x1 mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- A port is considered connected to a point-to-point LAN segment if the port belongs to a link aggregate of ports or if autonegotiation determines the port should run in full duplex mode or if full duplex mode was administratively set. Otherwise, the port is considered connected to a no point-to-point LAN segment.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as a point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.

## Examples

```
-> bridge mode flat
-> bridge 1x1 255 7/24 connection noptp

-> bridge mode 1x1
-> bridge 1x1 200 2/2 connection noptp
```

## Release History

Release 6.1; command introduced.

Release 6.1.3; **edgeport** parameter was deprecated.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
<a href="#">bridge connection</a>	Implicit command for configuring the Spanning Tree connection type for a port or an aggregate of ports for the CIST instance or for a VLAN instance.
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminConnectionType
  vStpInsPortOperConnectionType
```

---

## bridge cist admin-edge

Configures the administrative edge port status for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST).

**bridge cist** {*slot/port* | *logical\_port*} **admin-edge** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Turns on the administrative edge port status for the specified port-CIST instance.
<b>off</b>	Turns off the administrative edge port status for the specified port-CIST instance.
<b>enable</b>	Enables the administrative edge port status for the specified port-CIST instance.
<b>disable</b>	Disables the administrative edge port status for the specified port-CIST instance.

### Defaults

By default, the administrative edge port status is disabled (off).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the port connection type for the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the 1x1 mode when this command is used, the specified edge port status is not active for the CIST instance until the switch is configured to run in the flat Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- The administrative edge port status is used to determine if a port is an edge or non-edge port when automatic edge port configuration (**auto-edge**) is disabled for the port. However, if **auto-edge** is enabled for the port, then the administrative status is overridden.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as a point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.

- Configure ports that connect to a host (PC, workstation, server, and so on) as edge ports to avoid unnecessary topology changes when these ports go active. This also prevents the flushing of learned MAC addresses on these ports if a topology change occurs as a result of another non-edge port going active. If an edge port receives a BPDU, it operationally reverts back to a no point-to-point connection type.

## Examples

```
-> bridge mode flat
-> bridge cist 15 admin-edge enable
-> bridge cist 8/23 admin-edge disable

-> bridge mode 1x1
-> bridge cist 2/2 admin-edge enable
-> bridge cist 8/23 admin-edge off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
<a href="#">bridge 1x1 admin-edge</a>	Configures the administrative edge port status for a port or an aggregate of ports for a specific VLAN instance.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the flat mode CIST instance.
<a href="#">bridge 1x1 auto-edge</a>	Configures whether or not Spanning Tree determines the operational edge port status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminEdge
```

---

## bridge 1x1 admin-edge

Configures the administrative edge port status for a port or an aggregate of ports for a 1x1 mode VLAN instance.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **admin-edge** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Turns on the administrative edge port status for the specified port-VLAN instance.
<b>off</b>	Turns off the administrative edge port status for the specified port-VLAN instance.
<b>enable</b>	Enables the administrative edge port status for the specified port-VLAN instance.
<b>disable</b>	Disables the administrative edge port status for the specified port-VLAN instance.

### Defaults

By default, the administrative edge port status is disabled (off).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified edge port status for the port is not active for the VLAN instance until the switch is configured to run in the 1x1 Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- The administrative edge port status is used to determine if a port is an edge or non-edge port when automatic edge port configuration (**auto-edge**) is disabled for the port. However, if **auto-edge** is enabled for the port, then the administrative status is overridden.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.

- Configure ports that connect to a host (PC, workstation, server, and so on) as edge ports to avoid unnecessary topology changes when these ports go active. This also prevents the flushing of learned MAC addresses on these ports if a topology change occurs as a result of another non-edge port going active. If an edge port receives a BPDU, it operationally reverts back to a no point-to-point connection type.

## Examples

```
-> bridge mode flat
-> bridge 1x1 4 15 admin-edge on
-> bridge 1x1 255 8/23 admin-edge disable

-> bridge mode 1x1
-> bridge 1x1 3 2/2 admin-edge enable
-> bridge 1x1 255 10 admin-edge off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.
<a href="#">bridge 1x1 auto-edge</a>	Configures whether or not Spanning Tree determines the operational edge port status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminEdge
```

---



## bridge cist auto-edge

Configures whether or not Spanning Tree automatically determines the operational edge port status of a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST).

**bridge cist** {*slot/port* | *logical\_port*} **auto-edge** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Spanning Tree automatically determines edge port status.
<b>off</b>	Spanning Tree does not automatically determine edge port status.
<b>enable</b>	Spanning Tree automatically determines edge port status.
<b>disable</b>	Spanning Tree does not automatically determine edge port status.

### Defaults

By default, automatic edge port status configuration is enabled (on).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the 1x1 mode when this command is used, the specified edge port status for the port is not active for the CIST instance until the switch is running in the flat Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- The administrative edge port status is used to determine if a port is an edge or non-edge port when automatic edge port configuration (**auto-edge**) is disabled for the port. However, if **auto-edge** is enabled for the port, then the administrative status is overridden.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.
- Configure ports that connect to a host (PC, workstation, server, and so on) as edge ports to avoid unnecessary topology changes when these ports go active. This also prevents the flushing of learned MAC addresses on these ports if a topology change occurs as a result of another non-edge port going active. If an edge port receives a BPDU, it operationally reverts back to a no point-to-point connection type.

## Examples

```
-> bridge mode flat
-> bridge cist 15 auto-edge on
-> bridge cist 8/23 auto-edge disable

-> bridge mode 1x1
-> bridge cist 2/2 auto-edge enable
-> bridge cist 10 auto-edge off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
<a href="#">bridge 1x1 auto-edge</a>	Configures whether or not Spanning Tree determines the operational edge port status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance.
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge 1x1 admin-edge</a>	Configures the administrative edge port status for a port or an aggregate of ports for a specific VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAutoEdge
```

---

## bridge 1x1 auto-edge

Configures whether or not Spanning Tree determines the operational edge port status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **auto-edge** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Spanning Tree automatically determines edge port status.
<b>off</b>	Spanning Tree does not automatically determine edge port status.
<b>enable</b>	Spanning Tree automatically determines edge port status.
<b>disable</b>	Spanning Tree does not automatically determine edge port status.

### Defaults

By default, automatic edge port status configuration is enabled (on).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified edge port status for the port is not active for the VLAN instance until the switch is running in the 1x1 Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.
- The administrative edge port status is used to determine if a port is an edge or non-edge port when automatic edge port configuration (**auto-edge**) is disabled for the port. However, if **auto-edge** is enabled for the port, then the administrative status is overridden.
- Rapid transition of a designated port to forwarding can only occur if the port connection type is defined as point-to-point or an edge port. Rapid transition of an alternate port role to a root port role is not affected by the port connection type definition.
- Configure ports that connect to a host (PC, workstation, server, and so on) as edge ports to avoid unnecessary topology changes when these ports go active. This also prevents the flushing of learned MAC addresses on these ports if a topology change occurs as a result of another non-edge port going active. If an edge port receives a BPDU, it operationally reverts back to a no point-to-point connection type.

## Examples

```
-> bridge mode flat
-> bridge 1x1 3 15 auto-edge on
-> bridge 1x1 255 8/23 auto-edge disable

-> bridge mode 1x1
-> bridge 1x1 4 2/2 auto-edge enable
-> bridge 1x1 255 10 auto-edge off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist auto-edge</a>	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.
<a href="#">bridge cist admin-edge</a>	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
<a href="#">bridge 1x1 admin-edge</a>	Configures the administrative edge port status for a port or an aggregate of ports for a specific VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAutoEdge
```

---

## bridge cist restricted-role

Configures whether or not to prevent a port (or an aggregate of ports) from becoming the root port. When this parameter is enabled, the port does not become the root even if the port is the most likely candidate for the root. Once another port is selected as the root port, the restricted port becomes the Alternate Port.

**bridge cist** {*slot/port* | *logical\_port*} {**restricted-role** | **root-guard**} {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>root-guard</b>	Optional command syntax. Enter <b>root-guard</b> instead of <b>restricted-role</b> ; both parameters specify the same functionality for this command.
<b>on</b>	Turns on (enables) the restricted role status for the specified port.
<b>off</b>	Turns off (disables) the restricted role status for the specified port.
<b>enable</b>	Enables the restricted role status for the specified port.
<b>disable</b>	Disables the restricted role status for the specified port.

### Defaults

By default, the port is not restricted from becoming the root port.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When running in flat mode, this is a per-port setting and is applicable to any CIST or MSTI instances configured on that port.
- Note that preventing an eligible root port from becoming the root may impact connectivity within the network.
- Network administrators exclude certain ports from becoming the root to prevent bridges external to the core region of the network from influencing the Spanning Tree topology.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

## Examples

```
-> bridge mode flat
-> bridge cist 15 restricted-role on
-> bridge cist 8/23 root-guard disable

-> bridge mode 1x1
-> bridge cist 2/2 root-guard enable
-> bridge cist 10 restricted-role off
```

## Release History

Release 6.1.3; command introduced.  
Release 6.3.3; **root-guard** parameter was added.

### Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge 1x1 restricted-role</b>	Configures the restricted role status for a port or an aggregate of ports for the 1x1 mode VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortRestrictedRole
```

---

## bridge 1x1 restricted-role

Configures whether or not to prevent a port (or an aggregate of ports) for the specified 1x1 mode VLAN instance from becoming the root port. When this parameter is enabled, the port does not become the root even if the port is the most likely candidate for the root. Once another port is selected as the root port, the restricted port becomes the Alternate Port.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} {**restricted-role** | **root-guard**} {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>root-guard</b>	Optional command syntax. Enter <b>root-guard</b> instead of <b>restricted-role</b> ; both parameters specify the same functionality for this command.
<b>on</b>	Turns on (enables) the restricted role status for the specified port-VLAN instance.
<b>off</b>	Turns off (disables) the restricted role status for the specified port-VLAN instance.
<b>enable</b>	Enables the restricted role status for the specified port-VLAN instance.
<b>disable</b>	Disables the restricted role status for the specified port-VLAN instance.

### Defaults

By default, the port is not restricted from becoming the root port.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Note that preventing an eligible port from becoming the root may impact connectivity within the network.
- Network administrators exclude certain ports from becoming the root to prevent bridges external to the core region of the network from influencing the Spanning Tree topology.
- This command is an explicit Spanning Tree command that only applies to the VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the restricted status of the port is not active for the VLAN instance until the switch is running in the 1x1 Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

## Examples

```
-> bridge mode flat
-> bridge 1x1 3 15 restricted-role on
-> bridge 1x1 255 8/23 root-guard disable

-> bridge mode 1x1
-> bridge 1x1 4 2/2 root-guard enable
-> bridge 1x1 255 10 restricted-role off
```

## Release History

Release 6.1.3; command introduced.  
Release 6.3.3; **root-guard** parameter was added.

## Related Commands

<b>bridge mode</b>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<b>bridge cist restricted-role</b>	Configures the restricted role status for a port or an aggregate of ports for the flat mode CIST instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortRestrictedRole
```

---



## bridge cist restricted-tcn

Configures the restricted TCN status for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST). When this parameter is enabled, the port does not propagate topology changes and notifications to/from other ports.

**bridge cist** {*slot/port* | *logical\_port*} **restricted-tcn** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Turns on (enables) the restricted TCN status for the specified port-CIST instance.
<b>off</b>	Turns off (disables) the restricted TCN status for the specified port-CIST instance.
<b>enable</b>	Enables the restricted TCN status for the specified port-CIST instance.
<b>disable</b>	Disables the restricted TCN status for the specified port-CIST instance.

### Defaults

By default, the restricted TCN status for the port is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enabling the restricted TCN status is used by network administrators to prevent bridges external to the core region of the network from causing unnecessary MAC address flushing in that region.
- Note that enabling the restricted TCN status for a port may impact Spanning Tree connectivity.
- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the 1x1 mode when this command is used, the specified restricted TCN status for the port is not active for the CIST instance until the switch is running in the flat Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

## Examples

```
-> bridge mode flat
-> bridge cist 15 restricted-tcn on
-> bridge cist 8/23 restricted-tcn disable
```

```
-> bridge mode 1x1
-> bridge cist 2/2 restricted-tcn enable
-> bridge cist 10 restricted-tcn off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge 1x1 restricted-tcn</a>	Configures the restricted TCN status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance.

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortRestrictedTcn
```

---

## bridge 1x1 restricted-tcn

Configures the restricted TCN status for a port or an aggregate of ports for the specified 1x1 mode VLAN instance. When this parameter is enabled, the port does not propagate topology changes and notifications to/from other ports.

**bridge 1x1** *vid* {*slot/port* | *logical\_port*} **restricted-tcn** {**on** | **off** | **enable** | **disable**}

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
<b>on</b>	Turns on (enables) the restricted TCN status for the specified port-VLAN instance.
<b>off</b>	Turns off (disables) the restricted TCN status for the specified port-VLAN instance.
<b>enable</b>	Enables the restricted TCN status for the specified port-VLAN instance.
<b>disable</b>	Disables the restricted TCN status for the specified port-VLAN instance.

### Defaults

By default, the restricted TCN is set to disable.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enabling the restricted TCN status is used by network administrators to prevent bridges external to the core region of the network from causing unnecessary MAC address flushing in that region.
- Note that enabling the restricted TCN status for a port may impact Spanning Tree connectivity.
- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified restricted TCN status for the port is not active for the VLAN instance until the switch is running in the 1x1 Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

## Examples

```
-> bridge mode flat
-> bridge 1x1 2 15 restricted-tcn on
-> bridge 1x1 255 8/23 restricted-tcn disable

-> bridge mode 1x1
-> bridge 1x1 5 2/2 restricted-tcn enable
-> bridge 1x1 255 10 restricted-tcn off
```

## Release History

Release 6.1.3; command introduced.

## Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist restricted-tcn</a>	Configures the restricted TCN status for a port or an aggregate of ports for the flat mode Common and Internal Spanning Tree (CIST).

## MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortRestrictedTcn
```

---

## bridge cist txholdcount

This command is used to rate limit the transmission of BPDU through a given port for the flat mode Common and Internal Spanning Tree (CIST) instance.

**bridge cist txholdcount** *value*

---

### Syntax Definitions

*value* A numeric value (1–10) that controls the transmission of BPDU through the port.

### Defaults

By default, the **txholdcount** value is set to 3.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the CIST instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the 1x1 mode when this command is used, the specified **txholdcount** status for the port is not active for the CIST instance until the switch is running in the flat Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge cist txholdcount 3
```

### Release History

Release 6.1.3; command introduced.

### Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge 1x1 txholdcount</a>	Explicit command used to rate limit the transmission of BPDU for the specified VLAN instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.

### MIB Objects

vStpInsTable  
vStpInsBridgeTxHoldCount

---

## bridge 1x1 txholdcount

Configures a rate limit value that controls the transmission of BPDU through a given port for the 1x1 mode VLAN instance.

**bridge 1x1** *vid* **txholdcount** {*value*}

---

### Syntax Definitions

*value* A numeric value (1–10) that controls the transmission of BPDU through the port.

### Defaults

By default, the **txholdcount** value is set to 3.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is an explicit Spanning Tree command that only applies to the specified VLAN instance regardless of which operating mode (flat or 1x1) is active on the switch.
- If the switch is running in the flat mode when this command is used, the specified **txholdcount** status for the port is not active for the VLAN instance until the switch is running in the 1x1 Spanning Tree mode.
- Note that when a configuration snapshot is taken of the switch, all Spanning Tree commands are saved in their explicit format.

### Examples

```
-> bridge 1x1 3 txholdcount 3
```

### Release History

Release 6.1.3; command introduced.

### Related Commands

<a href="#">bridge mode</a>	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
<a href="#">bridge cist txholdcount</a>	Explicit command used to rate limit the transmission of BPDU for the CIST instance when the switch is operating in either the 1x1 or flat Spanning Tree mode.

### MIB Objects

vStpInsTable  
vStpInsBridgeTxHoldCount

---

## bridge rrstp

Enables or disables RRSTP on a switch.

**bridge rrstp**

**no bridge rrstp**

---

### Syntax Definitions

N/A

### Defaults

By default, RRSTP is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable RRSTP on the switch.
- RRSTP can be enabled on the switch only when the **flat** mode is active. If you try to enable RRSTP in 1x1 mode, you get an error message: “Failed to enable RRSTP because STP Mode is 1x1”.

### Examples

```
-> bridge mode flat
-> bridge rrstp
-> no bridge rrstp
```

```
-> bridge mode 1x1
-> bridge rrstp
ERROR: Failed to enable Rrstp because STP Mode is 1x1
```

### Release History

Release 6.2.1; command introduced.

### Related Commands

[bridge rrstp ring](#)

Creates a RRSTP ring consisting of two ports.

[show bridge rrstp configuration](#)

Displays the current RRSTP status for the switch.

### MIB Objects

vStpInfo

VStpRrstpGlobalState

---

## bridge rrstp ring

Creates a RRSTP ring consisting of two ports.

```
bridge rrstp ring ring_id port1 {slot/port | linkagg agg_num} port2
{slot/port | linkagg agg_num} vlan-tag vlan_id [status {enable | disable}]
```

```
no bridge rrstp ring [ring_id]
```

---

### Syntax Definitions

<i>ring_id</i>	A numeric value (1–128) that identifies the RRSTP ring.
<i>slot/port</i>	The slot number of the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the static aggregate group. Must be a unique integer in the range 0–31.
<i>vlan_id</i>	VLAN identifier with which ring ports should be 802.1q tagged before ring creation.
<b>enable</b>	Enables the RRSTP ring.
<b>disable</b>	Disables the RRSTP ring.

### Defaults

Parameters	Defaults
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a specific RRSTP ring.
- This command is used to create a ring or modify ports in an existing ring or modify the ring status.
- The ring ports must be 802.1q tagged with the VLAN before using this command.
- Note that there can be no alternate connections for the same instance between any two switches within an RRSTP ring topology.
- If RRSTP ring consists of NNI ports then they must be tagged with SVLAN (VLAN stacking) and not with standard VLAN before ring creation. For tagged RRSTP frame generation same SVLAN must be specified as ring vlan-tag. Also RRSTP ring ports must be of same type (both ring ports should be NNI ports or both should be conventional ports).
- RRSTP ring cannot be created on UNI ports.



## Examples

```
-> bridge rrstp ring 1 port1 1/1 port2 1/3 vlan-tag 10 status enable  
-> no bridge rrstp ring 1
```

## Release History

Release 6.2.1; command introduced.

## Related Commands

[bridge rrstp](#)

Enables or disables RRSTP on a switch.

[show bridge rrstp ring](#)

Displays information for all the rings or a specific ring present in the system.

## MIB Objects

```
vStpRrstpRingConfigTable  
  vStpRrstpRingId  
  vStpRrstpRingPort1  
  vStpRrstpRingPort2  
  vStpRrstpRingVlanTag  
  vStpRrstpRingState  
  vStpRrstpRingRowStatus
```

---

## bridge rrstp ring vlan-tag

Modifies the unique VLAN tag associated with the ring. The previous ring VLAN tag is replaced when this command is used.

**bridge rrstp ring** *ring\_id* **vlan-tag** *vid*

---

### Syntax Definitions

<i>ring_id</i>	A numeric value (1–128) that identifies the RRSTP ring.
<i>vid</i>	The VLAN identification number of an existing VLAN with which ring ports are 802.1Q tagged. The RRSTP ring frames shall be 802.1Q tagged with this VLAN.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The RRSTP ring can have only one VLAN tag associated with it.
- Untagged RRSTP frames shall be generated if the specified **vlan-tag** is the default VLAN of the ports.
- The ring ports must be 802.1Q tagged with the new **vlan-tag** before modifying the ring **vlan-tag**.
- RRSTP frames have 802.1Q priority similar to STP BPDUs. In order to retain this priority, use the [qos trust ports](#) command.

### Examples

```
-> bridge rrstp ring 1 vlan-tag 10
-> bridge rrstp ring 5 vlan-tag 20
-> bridge rrstp ring 11 vlan-tag 11
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

<a href="#">bridge rrstp ring</a>	Creates a RRSTP ring consisting of two ports.
<a href="#">show bridge rrstp ring</a>	Displays information for all the rings or a specific ring present in the system.

## **MIB Objects**

vStpRrstpRingConfigTable

    vStpRrstpRingId

    vStpRrstpRingVlanTag

---

## bridge rrstp ring status

Modifies the RRSTP status of an existing ring.

**bridge rrstp ring** *ring\_id* status {enable | disable}

---

### Syntax Definitions

<i>ring_id</i>	A numeric value (1–128) that identifies the RRSTP ring.
<b>enable</b>	Enables the RRSTP ring.
<b>disable</b>	Disables the RRSTP ring.

### Defaults

Parameters	Defaults
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The RRSTP status can also be modified by using the [bridge rrstp ring](#) command.

### Examples

```
-> bridge rrstp ring 1 status enable
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

<a href="#">bridge rrstp ring</a>	Creates a RRSTP ring consisting of two ports.
<a href="#">show bridge rrstp ring</a>	Displays information for all the rings or a specific ring present in the system.

### MIB Objects

```
vStpRrstpRingConfigTable
  vStpRrstpRingId
  vStpRrstpRingState
  vStpRrstpRingRowStatus
```

---



```
-> bridge protocol mstp
WARNING: Changing to MSTP(802.1s) resets flat bridge priority and path
```

```
-> show spantree
```

```
Spanning Tree Path Cost Mode : AUTO
Msti STP Status Protocol Priority (Prio:SysID)
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
  0      ON      MSTP   32768 (0x8000:0x0000)
  2      ON      MSTP   32770 (0x8000:0x0002)
```

```
-> show spantree 1
```

```
Spanning Tree Parameters
Spanning Tree Status : ON,
Protocol : IEEE MSTP,
mode : FLAT (Single STP),
Priority : 32768 (0x8000),
Bridge ID : 8000-00:d0:95:57:3a:9e,
Designated Root : 8000-00:00:e8:00:00:00,
Cost to Root Bridge : 71,
Root Port : Slot 1 Interface 1,
Next Best Root Cost : 0,
Next Best Root Port : None,
Tx Hold Count : 6,
Topology Changes : 8,
Topology age : 00:00:02,
Current Parameters (seconds)
Max Age = 20,
Forward Delay = 15,
Hello Time = 2
Parameters system uses when attempting to become root
System Max Age = 20,
System Forward Delay = 15,
System Hello Time = 2
```

*output definitions*

<b>Spanning Tree Path Cost Mode</b>	The Spanning Tree path cost mode for the switch ( <b>32 BIT</b> or <b>AUTO</b> ). Configured through the <b>bridge path cost mode</b> command.
<b>VLAN</b>	The VLAN ID when RSTP or STP mode is configured.
<b>MSTI</b>	The MSTI ID when MSTP mode is configured.
<b>Bridge</b>	The CIST instance, referred to as bridge 1 when either STP (802.1D) or RSTP (802.1W) is the active protocol in the flat mode.
<b>STP Status / Spanning Tree Status</b>	The Spanning Tree state for the CIST instance ( <b>ON</b> or <b>OFF</b> ).
<b>Protocol</b>	The Spanning Tree protocol applied to the instance ( <b>STP</b> or <b>RSTP</b> ). Configured through the <b>bridge protocol</b> command.
<b>Mode</b>	The Spanning Tree operating mode for the switch ( <b>1x1</b> or <b>flat</b> ). Configured through the <b>bridge mode</b> command.
<b>Priority</b>	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Bridge ID</b>	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
<b>Designated Root</b>	The bridge identifier for the root of the Spanning Tree for this instance.
<b>Cost to Root Bridge</b>	The cost of the path to the root for this Spanning Tree instance.
<b>Root Port</b>	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
<b>Next Best Root Cost</b>	The cost of the next best root port for this Spanning Tree instance.
<b>Next Best Root Port</b>	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
<b>Tx Hold Count</b>	The count to limit the transmission of BPDU through the port.
<b>Topology Changes</b>	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
<b>Topology age</b>	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance ( <b>hh:mm:ss</b> or <b>dd days and hh:mm:ss</b> ).
<b>Max Age</b>	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the <b>bridge max age</b> command.
<b>Forward Delay</b>	The amount of time (in seconds) that a port remains in the Listening state and then the Learning state until it reaches the forwarding state. This is also the amount of time used to age out all dynamic entries in the Forwarding Database when a topology change occurs. Configured through the <b>bridge forward delay</b> command.
<b>Hello Time</b>	The amount of time (in seconds) between the transmission of Configuration BPDUs on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root. Configured through the <b>bridge hello time</b> command.

*output definitions (continued)*


---

<b>System Max Age</b>	The Max Age value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.
<b>System Hello Time</b>	The Hello Time value for the root bridge.

---

```

-> bridge mode 1x1
-> show spantree
  Spanning Tree Path Cost Mode : AUTO
  Spanning Tree PVST+ Mode     : Enable
  Vlan STP Status Protocol Priority
-----+-----+-----+-----+
  1      ON      STP    32768 (0x8000)
  2      ON      STP    32768 (0x8000)
  3      ON      STP    32768 (0x8000)

-> show spantree 2
Spanning Tree Parameters for Vlan 2
  Spanning Tree Status :                ON,
  Protocol              :                IEEE STP,
  mode                  :                PVST+ 1x1 (1 STP per Vlan),
  Priority              :                32768 (0x8000),
  Bridge ID             :                8000-00:d0:95:6a:f4:58,
  Designated Root      :                0000-00:00:00:00:00:00,
  Cost to Root Bridge  :                0,
  Root Port            :                Slot 1 Interface 1,
  Next Best Root Cost  :                0,
  Next Best Root Port  :                Slot 1 Interface 1,
  Tx Hold Count        :                6,
  Topology Changes     :                0,
  Topology age         :                00:00:00,
  Current Parameters (seconds)
    Max Age             =                20,
    Forward Delay       =                15,
    Hello Time         =                2
  Parameters system uses when attempting to become root
    System Max Age     =                20,
    System Forward Delay =                15,
    System Hello Time  =                2

```

*output definitions*


---

<b>Spanning Tree Path Cost Mode</b>	The Spanning Tree path cost mode for the switch ( <b>32 BIT</b> or <b>AUTO</b> ). Configured through the <b>bridge path cost mode</b> command.
<b>Spanning Tree PVST+ Mode</b>	Indicates whether the PVST + status is enabled or disabled. Configured through the <b>bridge mode 1x1 pvst+</b> command.
<b>Vlan</b>	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the <b>vlan</b> commands
<b>STP Status</b>	The Spanning Tree state for the instance ( <b>ON</b> or <b>OFF</b> ). Configured through the <b>vlan stp</b> command.
<b>Protocol</b>	The Spanning Tree protocol applied to this instance ( <b>STP</b> or <b>RSTP</b> ). Configured through the <b>bridge protocol</b> command.
<b>Mode</b>	The Spanning Tree operating mode for the switch ( <b>PVST+</b> , <b>1x1</b> or <b>flat</b> ). Configured through <b>bridge mode</b> command.



*output definitions (continued)*


---

<b>Priority</b>	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Bridge ID</b>	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
<b>Designated Root</b>	The bridge identifier for the root of the Spanning Tree for this instance.
<b>Cost to Root Bridge</b>	The cost of the path to the root for this Spanning Tree instance.
<b>Root Port</b>	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
<b>Next Best Root Cost</b>	The cost of the next best root port for this Spanning Tree instance.
<b>Next Best Root Port</b>	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
<b>Tx Hold Count</b>	The count to limit the transmission of BPDU through the port.
<b>Topology Changes</b>	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
<b>Topology age</b>	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance ( <b>hh:mm:ss</b> or <b>dd days and hh:mm:ss</b> ).
<b>Max Age</b>	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the <b>bridge max age</b> command.
<b>Forward Delay</b>	The amount of time (in seconds) that a port remains in the Listening state and then the Learning state until it reaches the forwarding state. This is also the amount of time used to age out all dynamic entries in the Forwarding Database when a topology change occurs. Configured through the <b>bridge forward delay</b> command.
<b>Hello Time</b>	The amount of time (in seconds) between the transmission of Configuration BPDUs on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root. Configured through the <b>bridge hello time</b> command.
<b>System Max Age</b>	The Max Age value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.
<b>System Hello Time</b>	The Hello Time value for the root bridge.

---

```
-> show spantree 1
```

```
Spanning Tree Parameters
Spanning Tree Status : ON,
Protocol : IEEE Rapid STP,
mode : FLAT (Single STP),
Auto-Vlan-Containment: Enabled ,
Priority : 32768 (0x8000),
Bridge ID : 8000-00:e0:b1:77:78:3a,
Designated Root : 0000-00:e0:b1:7d:da:0e,
Cost to Root Bridge : 19,
Root Port : Slot 1 Interface 24,
Next Best Root Cost : 0,
```

```

Next Best Root Port :           None,
TxHoldCount         :           3,
Topology Changes    :           1,
Topology age        :           00:18:55,
  Current Parameters (seconds)
    Max Age          =          20,
    Forward Delay    =          20,
    Hello Time       =           2
  Parameters system uses when attempting to become root
    System Max Age   =          20,
    System Forward Delay =       15,
    System Hello Time =           2

```

## Release History

Release 6.1; command introduced.

Release 6.1.3; **Tx Hold Count** field added.

## Related Commands

- show spantree cist** Explicit command for displaying the Spanning Tree bridge configuration for the CIST instance regardless of which mode (1x1 or flat) is active on the switch.
- show spantree msti** Explicit command for displaying the Spanning Tree bridge configuration for an MSTI regardless of which mode (1x1 or flat) is active on the switch.
- show spantree 1x1** Explicit command for displaying the Spanning Tree bridge configuration for a VLAN instance regardless of which mode (1x1 or flat) is active on the switch.

## MIB Objects

```

vStpInsTable
  vStpInsNumber
  vStpInsProtocolSpecification
  vStpInsMode
  vStpInsPriority
  vStpInsBridgeAddress
  vStpInsDesignatedRoot
  vStpInsRootCost
  vStpInsRootPortNumber
  vStpInsNextBestRootCost
  vStpInsNextBestRootPortNumber
  vStpInsBridgeTxHoldCount
  vStpInsTopChanges
  vStpInsTimeSinceTopologyChange
  vStpInsMaxAge
  vStpInsForwardDelay
  vStpInsHelloTime

```

## show spantree cist

Displays the Spanning Tree bridge configuration for the flat mode Common and Internal Spanning Tree (CIST) instance.

**show spantree cist**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guideline

This is an explicit Spanning Tree command that displays Spanning Tree bridge information for the flat mode CIST instance regardless of which mode (1x1 or flat) is active on the switch. Note that minimal information is displayed when this command is used in the 1x1 mode, as the CIST is not active in this mode. See second example below.

### Examples

```
-> bridge mode flat
-> show spantree cist
```

```
Spanning Tree Parameters for Cist
Spanning Tree Status :                ON,
Protocol              :                IEEE Multiple STP,
mode                  :                FLAT (Single STP),
Priority               :                32768 (0x8000),
Bridge ID             :                8000-00:d0:95:6a:f4:58,
CST Designated Root  :                0001-00:d0:95:6a:79:50,
Cost to CST Root     :                19,
Next CST Best Cost   :                0,
Designated Root      :                8000-00:d0:95:6a:f4:58,
Cost to Root Bridge  :                0,
Root Port            :                Slot 1 Interface 12,
Next Best Root Cost  :                0,
Next Best Root Port  :                None,
Tx Hold Count        :                6,
Topology Changes     :                7,
Topology age         :                00:00:07,
Current Parameters (seconds)
Max Age               =                20,
Forward Delay        =                15,
Hello Time           =                2
Parameters system uses when attempting to become root
System Max Age       =                20,
System Forward Delay =                15,
```

```

        System Hello Time      =      2
-> bridge mode 1x1
-> show spantree cist

Per Vlan Spanning Tree is enforced !! (1x1 mode)
INACTIVE Spanning Tree Parameters for Cist
  Spanning Tree Status :          ON,
  Protocol              :          IEEE Multiple STP,
  Priority               :      32768 (0x8000),
  System Max Age (seconds) =      20,
  System Forward Delay (seconds) =    15,
  System Hello Time (seconds) =      2

```

### output definitions

---

<b>STP Status</b>	The Spanning Tree state for the instance ( <b>on</b> or <b>off</b> ).
<b>Protocol</b>	The Spanning Tree protocol applied to the CIST ( <b>STP</b> , <b>RSTP</b> , or <b>MSTP</b> ). Configured through the <b>bridge protocol</b> command.
<b>Mode</b>	The Spanning Tree operating mode for the switch ( <b>1x1</b> or <b>flat</b> ). Configured through the <b>bridge mode</b> command.
<b>Priority</b>	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Bridge ID</b>	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
<b>CST Designated Root</b>	The bridge identifier for the root of the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Cost to CST Root</b>	The cost of the path to the root of the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Next CST Best Cost</b>	The cost of the next best root port for the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Designated Root</b>	The bridge identifier for the root of the Spanning Tree for this instance.
<b>Cost to Root Bridge</b>	The cost of the path to the root for this Spanning Tree instance.
<b>Root Port</b>	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
<b>Next Best Root Cost</b>	The cost of the next best root port for this Spanning Tree instance.
<b>Next Best Root Port</b>	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
<b>Tx Hold Count</b>	The count to limit the transmission of BPDU through the port.
<b>Topology Changes</b>	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
<b>Topology age</b>	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance ( <b>hh:mm:ss</b> or <b>dd days and hh:mm:ss</b> ).
<b>Max Age</b>	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the <b>bridge max age</b> command.

*output definitions (continued)*

---

<b>Forward Delay</b>	The amount of time (in seconds) that a port remains in the Listening state and then the Learning state until it reaches the forwarding state. This is also the amount of time used to age out all dynamic entries in the Forwarding Database when a topology change occurs. Configured through the <b>bridge forward delay</b> command.
<b>Hello Time</b>	The amount of time (in seconds) between the transmission of Configuration BPDUs on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root. Configured through the <b>bridge hello time</b> command.
<b>System Max Age</b>	The Max Age value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.

---

**Release History**

Release 6.1; command introduced.

Release 6.1.3; **Tx Hold Count** field added.

**Related Commands**

<b>show spantree</b>	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree msti</b>	Explicit command for displaying the Spanning Tree bridge configuration for an MSTI regardless of which mode (1x1 or flat) is active on the switch.
<b>show spantree 1x1</b>	Explicit command for displaying the Spanning Tree bridge configuration for a VLAN instance regardless of which mode (1x1 or flat) is active on the switch.

**MIB Objects**

## vStpInsTable

- vStpInsNumber
- vStpInsMode
- vStpInsProtocolSpecification
- vStpInsPriority
- vStpInsBridgeAddress
- vStpInsTimeSinceTopologyChange
- vStpInsTopChanges
- vStpInsDesignatedRoot
- vStpInsRootCost
- vStpInsRootPortNumber
- vStpInsNextBestRootCost
- vStpInsNextBestRootPortNumber
- vStpInsMaxAge
- vStpInsHelloTime
- vStpInsBridgeTxHoldCount
- vStpInsForwardDelay
- vStpInsBridgeMaxAge
- vStpInsBridgeHelloTime
- vStpInsBridgeForwardDelay
- vStpInsCistRegionalRootId
- vStpInsCistPathCost

---

## show spantree msti

Displays Spanning Tree bridge information for a Multiple Spanning Tree Instance (MSTI).

```
show spantree msti [msti_id]
```

---

### Syntax Definitions

*msti\_id* An existing MSTI ID number (0-4094).

### Defaults

parameter	default
<i>instance</i>	all MSTIs

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If an *msti\_id* number is *not* specified, this command displays the Spanning Tree status, protocol, and priority values for all MSTIs.
- This is an explicit Spanning Tree command that displays Spanning Tree bridge information for an MSTI regardless of which mode (1x1 or flat) is active on the switch.
- Note that minimal information is displayed when this command is used in the 1x1 mode, as MSTIs are not active in this mode. In addition, this command fails if MSTP is not the selected flat mode protocol.
- Note that MSTI 0 also represents the CIST instance that is always present on the switch. To view the CIST instance using this command, specify zero (0) for the *msti\_id* number.

### Examples

```
-> bridge mode flat
-> bridge protocol mstp
-> show spantree msti
  Spanning Tree Path Cost Mode : AUTO
  Msti STP Status Protocol Priority (Prio:SysID)
-----+-----+-----+-----
    0      ON      MSTP   32768 (0x8000:0x0000)
    2      ON      MSTP   32770 (0x8000:0x0002)
    3      ON      MSTP   32771 (0x8000:0x0003)

-> show spantree msti 0
Spanning Tree Parameters for Cist
  Spanning Tree Status :                ON,
  Protocol              :                IEEE Multiple STP,
  mode                  :                FLAT (Single STP),
  Priority               :                32768 (0x8000),
  Bridge ID             :                8000-00:d0:95:6b:08:40,
  CST Designated Root  :                0001-00:10:b5:58:9d:39,
```

```

Cost to CST Root      :                39,
Next CST Best Cost   :                0,
Designated Root      :    8000-00:d0:95:6b:08:40,
Cost to Root Bridge  :                0,
Root Port            :    Slot 9 Interface 2,
Next Best Root Cost  :                0,
Next Best Root Port  :                None,
TxHoldCount          :                6,
Topology Changes     :                1,
Topology age         :                0:30:46
  Current Parameters (seconds)
    Max Age           =                6,
    Forward Delay     =                4,
    Hello Time        =                2
  Parameters system uses when attempting to become root
    System Max Age    =                20,
    System Forward Delay =            15,
    System Hello Time =                2

-> show spantree msti 1
Spanning Tree Parameters for Msti 1
Spanning Tree Status :                ON,
Protocol              :    IEEE Multiple STP,
mode                  :    FLAT (Single STP),
Priority               :            32769 (0x8001),
Bridge ID             :    8001-00:d0:95:6b:08:40,
Designated Root      :    8001-00:d0:95:6b:08:40,
Cost to Root Bridge  :                0,
Root Port            :                None,
Next Best Root Cost  :                0,
Next Best Root Port  :                None,
TxHoldCount          :                6,
Topology Changes     :                0,
Topology age         :                0:0:0
  Current Parameters (seconds)
    Max Age           =                20,
    Forward Delay     =            15,
    Hello Time        =                2
  Parameters system uses when attempting to become root
    System Max Age    =                20,
    System Forward Delay =            15,
    System Hello Time =                2

-> bridge mode 1x1
-> show spantree msti
Spanning Tree Path Cost Mode : AUTO
** Inactive flat mode instances: **
Msti STP Status Protocol Priority (Prio:SysID)
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
  0      ON      MSTP   32768 (0x8000:0x0000)
  2      ON      MSTP   32770 (0x8000:0x0002)
  3      ON      MSTP   32771 (0x8000:0x0003)

```



```
-> show spantree msti 0
Per Vlan Spanning Tree is enforced !! (1x1 mode)
INACTIVE Spanning Tree Parameters for Cist
  Spanning Tree Status :          ON,
  Protocol               :          IEEE Multiple STP,
  Priority                :          32768 (0x8000),
  System Max Age (seconds) =          20,
  System Forward Delay (seconds) =          15,
  System Hello Time (seconds) =          2
```

```
-> show spantree msti 2
Per Vlan Spanning Tree is enforced !! (1x1 mode)
INACTIVE Spanning Tree Parameters for Msti 2
  Spanning Tree Status :          ON,
  Protocol               :          IEEE Multiple STP,
  Priority                :          32770 (0x8002),
  System Max Age (seconds) =          20,
  System Forward Delay (seconds) =          15,
  System Hello Time (seconds) =          2
```

### *output definitions*

<b>Spanning Tree Path Cost Mode</b>	The Spanning Tree path cost mode for the switch ( <b>32 BIT</b> or <b>AUTO</b> ). Configured through the <b>bridge path cost mode</b> command.
<b>Msti</b>	The Multiple Spanning Tree Instance (MSTI) number. MSTI 0 represents the CIST. Configured through the <b>bridge msti</b> command.
<b>STP Status</b>	The Spanning Tree state for the instance ( <b>ON</b> or <b>OFF</b> ).
<b>Protocol</b>	The Spanning Tree protocol applied to the instance ( <b>STP</b> , <b>RSTP</b> , or <b>MSTP</b> ). This value is not configurable for an MSTI. Configured through the <b>bridge protocol</b> command.
<b>Mode</b>	The Spanning Tree operating mode for the switch ( <b>1x1</b> or <b>flat</b> ). Configured through the <b>bridge mode</b> command.
<b>Priority</b>	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the <b>bridge msti priority</b> command.
<b>Bridge ID</b>	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
<b>CST Designated Root</b>	The bridge identifier for the root of the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Cost to CST Root</b>	The cost of the path to the root for the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Next CST Best Cost</b>	The cost of the next best root port for the flat mode CIST instance. This field only appears when MSTP is active on the switch.
<b>Designated Root</b>	The bridge identifier for the root of the Spanning Tree for this instance.
<b>Cost to Root Bridge</b>	The cost of the path to the root for this Spanning Tree instance.
<b>Root Port</b>	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
<b>Next Best Root Cost</b>	The cost of the next best root port for this Spanning Tree instance.

*output definitions (continued)*


---

<b>Next Best Root Port</b>	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
<b>TxHoldCount</b>	The count to limit the transmission of BPDU through the port.
<b>Topology Changes</b>	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
<b>Topology age</b>	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance ( <b>hh:mm:ss</b> or <b>dd days and hh:mm:ss</b> ).
<b>Max Age</b>	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. MSTIs inherit this value from the CIST instance.
<b>Forward Delay</b>	The amount of time (in seconds) that a port remains in the Listening state and then the Learning state until it reaches the forwarding state. This is also the amount of time used to age out all dynamic entries in the Forwarding Database when a topology change occurs. MSTIs inherit this value from the CIST instance.
<b>Hello Time</b>	The amount of time (in seconds) between the transmission of Configuration BPDUs on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root. MSTIs inherit this value from the CIST instance.
<b>System Max Age</b>	The Max Age value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.

---

**Release History**

Release 6.1; command introduced.

Release 6.1.3; **Tx Hold Count** field added.

**Related Commands**

<b>show spantree</b>	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree cist</b>	Explicit command for displaying the Spanning Tree bridge configuration for the CIST instance regardless of which mode (1x1 or flat) is active on the switch.
<b>show spantree 1x1</b>	Explicit command for displaying the Spanning Tree bridge configuration for a VLAN instance regardless of which mode (1x1 or flat) is active on the switch.

## **MIB Objects**

### vStpInsTable

- vStpInsNumber
- vStpInsMode
- vStpInsProtocolSpecification
- vStpInsPriority
- vStpInsBridgeAddress
- vStpInsTimeSinceTopologyChange
- vStpInsTopChanges
- vStpInsDesignatedRoot
- vStpInsRootCost
- vStpInsRootPortNumber
- vStpInsNextBestRootCost
- vStpInsNextBestRootPortNumber
- vStpInsMaxAge
- vStpInsHelloTime
- vStpInsBridgeTxHoldCount
- vStpInsForwardDelay
- vStpInsBridgeMaxAge
- vStpInsBridgeHelloTime
- vStpInsBridgeForwardDelay
- vStpInsCistRegionalRootId
- vStpInsCistPathCost
- vStpInsMstiNumber

---

## show spantree 1x1

Displays Spanning Tree bridge information for a 1x1 mode VLAN instance.

**show spantree 1x1** [*vid*]

---

### Syntax Definitions

*vid* An existing VLAN ID number (1-4094).

### Defaults

parameter	default
<i>vid</i>	all VLAN instances

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a *vid* number is *not* specified, this command displays the Spanning Tree status, protocol, and priority values for all VLAN instances.
- Specify a *vid* number with this command to display Spanning Tree bridge information for a specific VLAN instance.
- Specifying a range of VLAN IDs is also allowed. Use a hyphen to indicate a contiguous range (for example, **show spantree 1x1 10-15**). Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.
- This is an explicit Spanning Tree command that displays Spanning Tree bridge information for a VLAN instance regardless of which mode (1x1 or flat) is active on the switch. Note that minimal information is displayed when this command is used in the flat mode, as VLAN instances are not active in this mode.

### Examples

```
-> show spantree
```

```
Spanning Tree Path Cost Mode : AUTO
Bridge STP Status Protocol Priority(Prio:SysID)
-----+-----+-----+-----
  1      ON      RSTP   32768 (0x8000:0x0000)
```

```
-> show spantree 1x1
```

```
Spanning Tree Path Cost Mode : AUTO
Vlan STP Status Protocol Priority
-----+-----+-----+-----
  1      ON      RSTP   32768 (0x8000)
  2      ON      RSTP   32768 (0x8000)
  3      ON      RSTP   32768 (0x8000)
```

```

-> show spantree 1x1 2
Spanning Tree Parameters for Vlan 2
Spanning Tree Status : ON,
Protocol : IEEE STP,
mode : 1X1 (1 STP per Vlan),
Priority : 32768 (0x8000),
Bridge ID : 8000-00:d0:95:6a:f4:58,
Designated Root : 0000-00:00:00:00:00:00,
Cost to Root Bridge : 0,
Root Port : Slot 1 Interface 1,
Next Best Root Cost : 0,
Next Best Root Port : Slot 1 Interface 1,
Tx Hold Count : 6,
Topology Changes : 0,
Topology age : 00:00:00,
Current Parameters (seconds)
Max Age = 20,
Forward Delay = 15,
Hello Time = 2
Parameters system uses when attempting to become root
System Max Age = 20,
System Forward Delay = 15,
System Hello Time = 2
BPDU Switching Enabled

```

```

-> show spantree 1x1 10-15
Spanning Tree Path Cost Mode : AUTO
Vlan STP Status Protocol Priority
-----+-----+-----+-----+
10 ON RSTP 32768 (0x8000)
11 ON RSTP 32768 (0x8000)
12 ON RSTP 32768 (0x8000)
13 ON RSTP 32768 (0x8000)
14 ON RSTP 32768 (0x8000)
15 ON RSTP 32768 (0x8000)

```

### output definitions

<b>Spanning Tree Path Cost Mode</b>	The Spanning Tree path cost mode for the switch ( <b>32 BIT</b> or <b>AUTO</b> ) Configured through the <b>bridge path cost mode</b> command.
<b>Vlan</b>	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the <b>vlan</b> commands
<b>STP Status</b>	The Spanning Tree state for the instance ( <b>ON</b> or <b>OFF</b> ).
<b>Protocol</b>	The Spanning Tree protocol applied to the VLAN instance ( <b>STP</b> or <b>RSTP</b> ). Note that MSTP is not supported for a VLAN instance. Configured through the <b>bridge protocol</b> command.
<b>Mode</b>	The Spanning Tree operating mode for the switch ( <b>1x1</b> or <b>flat</b> ). Configured through the <b>bridge mode</b> command.
<b>Priority</b>	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Bridge ID</b>	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.

*output definitions (continued)*


---

<b>Designated Root</b>	The bridge identifier for the root of the Spanning Tree for this instance.
<b>Cost to Root Bridge</b>	The cost of the path to the root for this Spanning Tree instance.
<b>Root Port</b>	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
<b>Next Best Root Cost</b>	The cost of the next best root port for this Spanning Tree instance.
<b>Next Best Root Port</b>	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
<b>Tx Hold Count</b>	The count to limit the transmission of BPDU through the port.
<b>Topology Changes</b>	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
<b>Topology age</b>	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance ( <b>hh:mm:ss</b> or <b>dd days and hh:mm:ss</b> ).
<b>Max Age</b>	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the <b>bridge max age</b> command.
<b>Forward Delay</b>	The amount of time (in seconds) that a port remains in the Listening state and then the Learning state until it reaches the forwarding state. This is also the amount of time used to age out all dynamic entries in the Forwarding Database when a topology change occurs. Configured through the <b>bridge forward delay</b> command.
<b>Hello Time</b>	The amount of time (in seconds) between the transmission of Configuration BPDUs on any port that is the Spanning Tree root or is attempting to become the Spanning Tree root. Configured through the <b>bridge hello time</b> command.
<b>System Max Age</b>	The Max Age value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.
<b>System Forward Delay</b>	The Forward Delay value for the root bridge.

---

**Release History**

Release 6.1; command introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

Release 6.1.3; **Tx Hold Count** field added.

Release 6.4.4; **Loop Guard** and **Note** fields added.

## Related Commands

<b>show spantree</b>	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree cist</b>	Explicit command for displaying the Spanning Tree bridge configuration for the CIST instance regardless of which mode (1x1 or flat) is active on the switch.
<b>show spantree msti</b>	Explicit command for displaying the Spanning Tree bridge information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.

## MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsMode  
  vStpInsProtocolSpecification  
  vStpInsPriority  
  vStpInsBridgeAddress  
  vStpInsTimeSinceTopologyChange  
  vStpInsTopChanges  
  vStpInsDesignatedRoot  
  vStpInsRootCost  
  vStpInsRootPortNumber  
  vStpInsNextBestRootCost  
  vStpInsNextBestRootPortNumber  
  vStpInsMaxAge  
  vStpInsHelloTime  
  vStpInsBridgeTxHoldCount  
  vStpInsForwardDelay  
  vStpInsBridgeMaxAge  
  vStpInsBridgeHelloTime  
  vStpInsBridgeForwardDelay  
  vStpIns1x1VlanNumber
```

---

## show spantree ports

Displays Spanning Tree port information for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance.

**show spantree** [*instance*] **ports** [**forwarding** | **blocking** | **active** | **configured**]

---

### Syntax Definitions

<i>instance</i>	The CIST instance or an existing VLAN ID number (1–4094).
<b>forwarding</b>	Displays Spanning Tree operational port parameters for ports that are forwarding for the specified instance.
<b>blocking</b>	Displays Spanning Tree operational port parameters for ports that are blocked for the specified instance.
<b>active</b>	Displays a list of active ports associated with the specified instance.
<b>configured</b>	Displays Spanning Tree administrative port parameters for all ports associated with the specified instance. Note that this parameter is only available if an <i>instance</i> value is specified with this command.

### Defaults

parameter	default
<i>instance</i>	all instances
<b>forwarding</b>   <b>blocking</b>   <b>active</b>   <b>configured</b>	all ports

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If an instance number is *not* specified, this command displays the Spanning Tree operational status, path cost, and role for all ports and their associated instances.
- Specifying an instance number with this command when the switch is running the 1x1 Spanning Tree operating mode implies a VLAN ID and displays Spanning Tree port information for the associated VLAN instance.
- If the switch is running in the flat mode and STP (802.1D) or RSTP (802.1W) is the active protocol, enter 1 to specify the CIST instance. If MSTP is the active protocol, however, entering 1 for the instance number is not accepted. In this case, use the [show spantree cist ports](#) or [show spantree msti ports](#) commands instead.
- The **configured** keyword is only available when an instance number is specified with this command. In addition, this keyword cannot be used in combination with either the **forwarding** or **blocking** keywords.



## Examples

```
-> show spantree 1x1
```

```
Spanning Tree Path Cost Mode : AUTO
** Inactive 1x1 mode instances: **
Vlan STP Status Protocol Priority
-----+-----+-----+-----+
  1     ON      RSTP   32768 (0x8000)
  2     ON      RSTP   32768 (0x8000)
  3     ON      RSTP   32768 (0x8000)
```

```
-> bridge mode flat
```

```
-> show spantree ports
```

```
Vlan Port Oper Status Path Cost Role Loop Guard Note
-----+-----+-----+-----+-----+-----+-----+-----+
  1  1/3     DIS           0     DIS           DIS
  1  1/4     DIS           0     DIS           DIS
  1  1/6     DIS           0     DIS           DIS
  1  1/7     DIS           0     DIS           DIS
```

```
-> show spantree 1 ports
```

```
Spanning Tree Port Summary for Vlan 2
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/1	FORW	19	52	ROOT	1/1	PTP	EDG	DIS	8000-00:30:f1:5b:37:73	
1/2	DIS	0	0	DIS	1/2	NS	NO	ENA	0000-00:00:00:00:00:00	
1/3	DIS	0	0	DIS	1/3	NS	NO	ENA	0000-00:00:00:00:00:00	
1/4	DIS	0	0	DIS	1/4	NS	NO	ENA	0000-00:00:00:00:00:00	
1/5	DIS	0	0	DIS	1/5	NS	NO	DIS	0000-00:00:00:00:00:00	
1/6	DIS	0	0	DIS	1/6	NS	NO	DIS	0000-00:00:00:00:00:00	
1/7	DIS	0	0	DIS	1/7	NS	NO	DIS	0000-00:00:00:00:00:00	
1/8	DIS	0	0	DIS	1/8	NS	NO	DIS	0000-00:00:00:00:00:00	
1/9	DIS	0	0	DIS	1/9	NS	NO	DIS	0000-00:00:00:00:00:00	
1/10	DIS	0	0	DIS	1/10	NS	NO	DIS	0000-00:00:00:00:00:00	
1/11	DIS	0	0	DIS	1/11	NS	NO	DIS	0000-00:00:00:00:00:00	
1/12	DIS	0	0	DIS	1/12	NS	NO	DIS	0000-00:00:00:00:00:00	

```
-> show spantree 2 ports active
```

```
Spanning Tree Port Summary for Vlan 2
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
2/2	FORW	19	0	ROOT	1/2	PTP	NO	DIS	8000-00:d0:95:f9:c4:7e	

```
-> show spantree 1 ports active
```

## Spanning Tree Port Summary for Vlan 1

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig	Bridge ID	Note
1/1	FORW	19	52	ROOT	1/1	PTP	EDG	DIS	8000-00:d0:95:f3:96:76		

*output definitions*

<b>Vlan</b>	The CIST instance, referred to as bridge 1 when either STP (802.1D) or RSTP (802.1W) is the active protocol in the flat mode.
<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper St</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge path cost</b> command.
<b>Desig Cost</b>	The path cost of the Designated Port of the segment connected to this port. If this is the root bridge or the Spanning Tree status of the port is administratively disabled, this value is 0.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Prim. Port</b>	The slot number for the module and the physical port number on that module for the primary port associated with this Spanning Tree instance. This information is only available if the port role is backup.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <b>bridge connection</b> command for more information.
<b>Op Edg</b>	Operational connection type: <b>EDG</b> . Shows the current operational state of the port connection type. See the <b>bridge connection</b> command on page 7-93 for more information.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> )
<b>Desig Bridge ID</b>	The bridge identifier for the designated bridge for this port segment.
<b>Note</b>	Specifies if an Error has occurred on the particular loop-guard enabled port. ( <b>ERR</b> )

```
-> show spantree msti 1 ports configured
```

## Spanning Tree Port Admin Configuration

Port	Pri	Adm St.	Man. Mode	Config Cost	Adm Cnx	Adm Edg	Aut Edg	Rstr Tcn	Rstr Role	10G Opt.	PVST+ Cfg	Stat
1/1	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/2	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off

1/3	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/4	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/5	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/6	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/7	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/8	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/9	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/10	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/11	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/12	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off

*output definitions*

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Port Pri</b>	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Adm St</b>	The Spanning Tree administrative status of the port: <b>enabled</b> or <b>disabled</b> . Configured through the <b>bridge</b> command to enable or disable Spanning Tree on a port.
<b>Man. Mode</b>	The manual mode setting for the port: <b>yes</b> indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; <b>no</b> indicates that the Spanning Tree Algorithm is managing the port state. Configured through the <b>bridge mode</b> command.
<b>Config Cost</b>	The configured path cost value for this port. Configured through the <b>bridge path cost</b> command.
<b>Adm Cnx</b>	The administrative connection type: <b>PTP</b> , <b>NPT</b> , or <b>AUT</b> . Configured through the <b>bridge connection</b> command.
<b>Adm Edg</b>	The edge port administrative status: <b>yes</b> indicates that the port is an admin edge port; <b>no</b> indicates that the port is not an admin edge port. Configured through the <b>bridge connection</b> command.
<b>Aut Edg</b>	The edge port automatic status: <b>yes</b> indicates that the port is an automatic edge port; <b>no</b> indicates that the port is not an automatic edge port. Configured through the <b>bridge cist auto-edge</b> or <b>bridge 1x1 auto-edge</b> command.
<b>Rstr Tcn</b>	The restricted TCN capability: <b>yes</b> indicates that the port supports the restricted TCN capability; <b>no</b> indicates that the port does not support the restricted TCN capability. Configured through the <b>bridge cist restricted-tcn</b> or <b>bridge 1x1 restricted-tcn</b> command.
<b>Rstr Role</b>	The restricted role port status: <b>yes</b> indicates that the port is a restricted role port; <b>no</b> indicates that the port is not a restricted role port. Configured through the <b>bridge cist restricted-role</b> or <b>bridge 1x1 restricted-role</b> command.
<b>10G Opt.</b>	Indicates whether the 10 GB port interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ).

*output definitions*

---

<b>PVST+ Cfg</b>	Indicates the current PVST+ port configuration ( <b>auto</b> , <b>enable</b> or <b>disable</b> ).
<b>PVST+ Stat</b>	Indicates the current status of the PVST+ port ( <b>On</b> or <b>Off</b> ).

---

```
-> bridge mode flat
-> bridge protocol mstp
-> show spantree ports
```

Msti	Port	Oper	Status	Path Cost	Role	Loop Guard	Note
0	1/1		FORW	200000	ROOT	DIS	
0	1/2		DIS	0	DIS	ENA	
0	1/3		DIS	0	DIS	ENA	
0	1/4		DIS	0	DIS	ENA	
0	1/5		DIS	0	DIS	DIS	
0	1/6		DIS	0	DIS	DIS	
0	1/7		DIS	0	DIS	DIS	
0	1/8		DIS	0	DIS	DIS	
0	1/9		DIS	0	DIS	DIS	
0	1/10		DIS	0	DIS	DIS	
0	5/1		DIS	0	DIS	DIS	
0	5/2		DIS	0	DIS	DIS	

```
-> show spantree ports active
```

Msti	Port	Oper	Status	Path Cost	Role	Loop Guard	Note
0	1/1		FORW	200000	ROOT	DIS	

```
-> bridge mode lxl
-> bridge protocol rstp
-> show spantree ports active
```

Brdge	Port	Oper	Status	Path Cost	Role
1	1/15		LIST	19	DESG
1	1/21		FORW	19	DESG
1	1/24		FORW	19	ROOT

### output definitions

<b>Msti</b>	The Multiple Spanning Tree Instance (MSTI) instance number. Configured through the <b>bridge msti</b> command. <b>Note.</b> MSTI 0 also represents the CIST instance that is always present on the switch.
<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper Status</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>DIS</b> - disabled, <b>BLOCK</b> - blocking, <b>LIST</b> - listening, <b>LEARN</b> - learning, and <b>FORW</b> - forwarding.
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge path cost</b> command.

*output definitions (continued)*

---

<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> ).
<b>Note</b>	Indicates whether a loop-guard error ( <b>ERR</b> ) has occurred on the MSTI instance.

---

```
-> bridge mode 1x1
-> show spantree ports
```

Vlan	Port	Oper	Status	Path Cost	Role	Loop Guard	Note
1	1/1		DIS	0	DIS	ENA	
1	1/2		DIS	0	DIS	ENA	
1	1/3		DIS	0	DIS	ENA	
1	1/4		DIS	0	DIS	DIS	
1	1/5		DIS	0	DIS	DIS	
1	1/6		DIS	0	DIS	DIS	
1	1/7		DIS	0	DIS	DIS	
1	1/8		DIS	0	DIS	DIS	
1	1/9		DIS	0	DIS	DIS	
1	1/10		DIS	0	DIS	DIS	
1	1/11		DIS	0	DIS	DIS	
1	1/12		FORW	19	ROOT	DIS	

```
-> show spantree 1 ports
```

Spanning Tree Port Summary for Vlan 1

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/1	DIS	0	0	DIS	1/1	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/2	DIS	0	0	DIS	1/2	NS	NO	DIS	0000-00:00:00:00:00:00	
1/3	DIS	0	0	DIS	1/3	NS	NO	DIS	0000-00:00:00:00:00:00	
1/4	DIS	0	0	DIS	1/4	NS	NO	DIS	0000-00:00:00:00:00:00	
1/5	DIS	0	0	DIS	1/5	NS	NO	ENA	0000-00:00:00:00:00:00	
1/6	DIS	0	0	DIS	1/6	NS	NO	ENA	0000-00:00:00:00:00:00	
1/7	DIS	0	0	DIS	1/7	NS	NO	DIS	0000-00:00:00:00:00:00	
1/8	DIS	0	0	DIS	1/8	NS	NO	DIS	0000-00:00:00:00:00:00	
1/9	DIS	0	0	DIS	1/9	NS	NO	DIS	0000-00:00:00:00:00:00	
1/10	DIS	0	0	DIS	1/10	NS	NO	DIS	0000-00:00:00:00:00:00	
1/11	BLK	19	0	DESG	1/11	NS	EDG	ENA	0000-00:00:00:00:00:00	ERR
1/12	FORW	20	0	ROOT	1/12	PTP	EDG	ENA	0001-00:d0:95:6a:79:50	

```
-> show spantree 1 ports active
```

Spanning Tree Port Summary for Vlan 1

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/12	FORW	0	0	DIS	1/5	NS	EDG	ENA	0000-00:00:00:00:00:00	

```
-> show spantree ports blocking
```

Vlan	Port	Oper	Status	Path Cost	Role	Loop Guard	Note
1	1/11		BLK	19	DESG	ENA	ERR

*output definitions*


---

<b>Vlan</b>	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the <b>vlan</b> commands
<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper Status</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>listening</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge path cost</b> command.
<b>Desig Cost</b>	The path cost of the Designated Port of the segment connected to this port. If this is the root bridge or the Spanning Tree status of the port is administratively disabled, this value is 0.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Prim. Port</b>	The slot number for the module and the physical port number on that module for the primary port associated with this Spanning Tree instance. This information is only available if the port role is backup.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <b>bridge connection</b> command for more information.
<b>Op Edg</b>	Operational connection type: <b>EDG</b> . Shows the current operational state of the port connection type. See the <b>bridge connection</b> command on page 7-93 for more information.
<b>Desig Bridge ID</b>	The bridge identifier for the designated bridge for the port segment.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> )
<b>Note</b>	Specifies if an Error has occurred on the particular loop-guard enabled port. ( <b>ERR</b> )

---

```
-> show spantree 2 ports configured
```

```
Spanning Tree Port Admin Configuration for Vlan 2
      Port  Adm Man. Config  Adm  Adm  Aut  Rstr Rstr OS8800      PVST+
Port  Pri   St. Mode   Cost Cnx  Edg  Edg  Tcn  Role 10G Opt.  Cfg Stat
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
 3/1   7  ENA  No       0  AUT  No  Yes  No   No  No  DIS  AUT  ON
 3/3   7  ENA  No       0  AUT  No  Yes  No   No  No  DIS  AUT  OFF
 0/9   7  ENA  No       0  AUT  No  Yes  No   No  No  DIS  AUT  ON
```



*output definitions*

---

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Port Pri</b>	The Spanning Tree priority for the port. The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Adm St</b>	The Spanning Tree administrative status of the port: <b>enabled</b> or <b>disabled</b> . Configured through the <b>bridge</b> command to enable or disable Spanning Tree on a port.
<b>Man. Mode</b>	The manual mode setting for the port: <b>yes</b> indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; <b>no</b> indicates that the Spanning Tree Algorithm is managing the port state. Configured through the <b>bridge mode</b> command.
<b>Config Cost</b>	The configured path cost value for this port. Configured through the <b>bridge path cost</b> command.
<b>Adm Cnx</b>	The administrative connection type: <b>PTP</b> , <b>NPT</b> , or <b>AUT</b> . Configured through the <b>bridge connection</b> command.
<b>Adm Edg</b>	The edge port administrative status: <b>yes</b> indicates that the port is an admin edge port; <b>no</b> indicates that the port is not an admin edge port. Configured through the <b>bridge connection</b> command.
<b>Aut Edg</b>	The edge port automatic status: <b>yes</b> indicates that the port is an automatic edge port; <b>no</b> indicates that the port is not an automatic edge port. Configured through the <b>bridge cist auto-edge</b> or <b>bridge 1x1 auto-edge</b> command.
<b>Rstr Tcn</b>	The restricted TCN capability: <b>yes</b> indicates that the port supports the restricted TCN capability; <b>no</b> indicates that the port does not support the restricted TCN capability. Configured through the <b>bridge cist restricted-tcn</b> or <b>bridge 1x1 restricted-tcn</b> command.
<b>Rstr Role</b>	The restricted role port status: <b>yes</b> indicates that the port is a restricted role port; <b>no</b> indicates that the port is not a restricted role port. Configured through the <b>bridge cist restricted-role</b> or <b>bridge 1x1 restricted-role</b> command.
<b>OS8800 10G Opt.</b>	Indicates whether the 10 GB port interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ).
<b>PVST+ Cfg</b>	Indicates the current PVST+ port configuration ( <b>auto</b> , <b>enable</b> or <b>disable</b> ).
<b>PVST+ Stat</b>	Indicates the current status of the PVST+ port ( <b>On</b> or <b>Off</b> ).

---

**Release History**

Release 6.1; command introduced.

Release 6.3.1; **PVST+** field added.

Release 6.4.4; **Loop Guard** and **Note** fields added.

## Related Commands

<b>show spantree cist ports</b>	Implicit command for displaying Spanning Tree port information for the flat mode CIST when the switch is operating in the 1x1 or flat Spanning Tree mode.
<b>show spantree msti ports</b>	Explicit command for displaying Spanning Tree port information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.
<b>show spantree 1x1 ports</b>	Explicit command for displaying Spanning Tree port information for a VLAN instance when the switch is operating in the 1x1 or flat Spanning Tree mode.

## MIB Objects

```
vStpInsPortTable  
  vStpInsPortNumber  
  vStpInsPortPriority  
  vStpInsPortEnable  
  vStpInsPortState  
  vStpInsPortManualMode  
  vStpInsPortPathCost  
  vStpInsPortDesignatedCost  
  vStpInsPortRole  
  vStpInsPortAdminConnectionType  
  vStpInsPortOperConnectionType  
  vStpInsPortAdminEdge  
  vStpInsPortAutoEdge  
  vStpInsPortRestrictedRole  
  vStpInsPortRestrictedTcn  
  vStpInsPortPrimaryPortNumber  
  vStpInsPortDesignatedRoot  
  vStpInsPortDesignatedBridge
```

---

## show spantree cist ports

Displays Spanning Tree port information for the flat mode Common and Internal Spanning Tree (CIST) instance.

**show spantree cist ports** [**forwarding** | **blocking** | **active** | **configured**]

---

### Syntax Definitions

<b>forwarding</b>	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
<b>blocking</b>	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
<b>active</b>	Displays a list of active ports associated with the specified instance.
<b>configured</b>	Displays Spanning Tree administrative port parameters for the CIST instance.

### Defaults

parameter	default
<b>forwarding</b>   <b>blocking</b>   <b>active</b>   <b>configured</b>	all ports

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This is an explicit Spanning Tree command that displays Spanning Tree port information for the flat mode CIST instance regardless of which mode (1x1 or flat) is active on the switch.
- Note that minimal information is displayed when this command is used in the 1x1 mode, as the CIST is not active in this mode.

### Examples

```
-> show spantree cist ports
```

```
Spanning Tree Port Summary
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig	Bridge ID	Note
1/1	DIS	0	0	DIS	1/1	NS	EDG	DIS	0000-00:00:00:00:00:00		
1/2	DIS	0	0	DIS	1/2	NS	EDG	DIS	0000-00:00:00:00:00:00		

```
-> show spantree cist ports active
```

## Spanning Tree Port Summary

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/19	FORW	4	8	DESG	1/19	PTP	NO	DIS	8000-00:d0:95:d5:e5:a2	
1/23	FORW	4	4	ROOT	1/23	PTP	NO	DIS	8000-00:d0:95:ea:b2:48	

*output definitions*

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper St</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>listening</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge path cost</b> command.
<b>Desig Cost</b>	The path cost of the designated port of the segment connected to this port. If this is the root bridge or the Spanning Tree status of the port is administratively disabled, this value is 0.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Prim. Port</b>	The slot number for the module and the physical port number on that module for the primary port associated with this Spanning Tree instance. This information is only available if the port role is backup.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <b>bridge connection</b> command for more information.
<b>Op Edg</b>	Operational connection type: <b>EDG</b> . Shows the current operational state of the port connection type. See the <b>bridge connection</b> command on <a href="#">page 7-93</a> for more information.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> ).
<b>Desig Bridge ID</b>	The bridge identifier for the designated bridge for this port segment.
<b>Note</b>	Indicates whether a loop-guard error ( <b>ERR</b> ) has occurred on the MSTI instance.

-> show spantree cist ports configured

```
Spanning Tree Port Admin Configuration for Vlan 1
```

Port	Pri	Adm St.	Man. Mode	Config Cost	Adm Cnx	Adm Edg	Aut Edg	Rstr Tcn	Rstr Root	Role/Guard	OS8800 10G Opt	PVST+ Cfg Stat
1/1	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/2	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/3	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off
1/4	7	ENA	No	0	AUT	No	Yes	No	No	DIS	AUT	Off

### output definitions

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Port Pri</b>	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the <b>bridge priority</b> command.
<b>Adm St.</b>	The Spanning Tree administrative status of the port: <b>enabled</b> or <b>disabled</b> . Configured through the <b>bridge</b> command to enable or disable Spanning Tree on a port.
<b>Man. Mode</b>	The manual mode setting for the port: <b>yes</b> indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; <b>no</b> indicates that the Spanning Tree Algorithm is managing the port state. Configured through the <b>bridge mode</b> command.
<b>Config Cost</b>	The configured path cost value for this port. Configured through the <b>bridge path cost</b> command.
<b>Adm Cnx</b>	The administrative connection type: <b>PTP</b> , <b>NPT</b> , or <b>AUT</b> . Configured through the <b>bridge connection</b> command.
<b>Adm Edg</b>	The edge port administrative status: <b>yes</b> indicates that the port is an admin edge port; <b>no</b> indicates that the port is not an admin edge port. Configured through the <b>bridge connection</b> command.
<b>Aut Edg</b>	The edge port automatic status: <b>yes</b> indicates that the port is an automatic edge port; <b>no</b> indicates that the port is not an automatic edge port. Configured through the <b>bridge cist auto-edge</b> or <b>bridge 1x1 auto-edge</b> command.
<b>Rstr Tcn</b>	The restricted TCN capability: <b>yes</b> indicates that the port supports the restricted TCN capability; <b>no</b> indicates that the port does not support the restricted TCN capability. Configured through the <b>bridge cist restricted-tcn</b> or <b>bridge 1x1 restricted-tcn</b> command.
<b>Rstr Role/Root Guard</b>	The restricted status of the port: <b>Yes</b> indicates that the port is restricted from becoming the root; <b>No</b> indicates that the port is not restricted from becoming the root. Configured through the <b>bridge cist restricted-role</b> or <b>bridge 1x1 restricted-role</b> command.
<b>OS8800 10G Opt.</b>	Indicates whether the 10 GB port interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ).

*output definitions (continued)*


---

<b>PVST+ Cfg Stat</b>	The PVST+ status on the switch: <b>enabled</b> or <b>disabled</b> . Configured through the command to enable or disable PVST+ mode on the switch.
<b>PVST+ Stat</b>	Indicates whether or not the PVST+ interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ) for the port. Configured through the command.

---

**Release History**

Release 6.1; command introduced.

Release 6.3.3; **PVST+** fields added.

Release 6.4.4; **Loop Guard** and **Note** fields added.

**Related Commands**

<b>show spantree ports</b>	Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree msti ports</b>	Explicit command for displaying Spanning Tree port information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.
<b>show spantree 1x1 ports</b>	Explicit command for displaying Spanning Tree port information for a VLAN instance when the switch is operating in the 1x1 or flat Spanning Tree mode.

**MIB Objects**

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortPriority
  vStpInsPortState
  vStpInsPortEnable
  vStpInsPortPathCost
  vStpInsPortDesignatedCost
  vStpInsPortDesignatedBridge
  vStpInsPortAdminEdge
  vStpInsPortAutoEdge
  vStpInsPortRestrictedRole
  vStpInsPortRestrictedTcn
  vStpInsPortManualMode
  vStpInsPortRole
  vStpInsPrimaryPortNumber
  vStpInsPortAdminConnectionType
  vStpInsPortOperConnectionType
```

---

## show spantree msti ports

Displays Spanning Tree port information for a flat mode Multiple Spanning Tree Instance (MSTI).

**show spantree msti** [*msti\_id*] **ports** [**forwarding** | **blocking** | **active** | **configured**]

---

### Syntax Definitions

<i>msti_id</i>	An existing MSTI ID number (0-4094).
<b>forwarding</b>	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
<b>blocking</b>	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
<b>active</b>	Displays a list of active ports associated with the specified instance.
<b>configured</b>	Displays Spanning Tree administrative port parameters for the CIST instance.

### Defaults

---

parameter	default
<i>msti_id</i>	all MSTIs
<b>forwarding</b>   <b>blocking</b>   <b>active</b>   <b>configured</b>	all ports

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If an *msti\_id* number is *not* specified, this command displays the Spanning Tree port operational status, path cost, and role values for all associated MSTIs.
- This is an explicit Spanning Tree command that displays Spanning Tree port information for an MSTI regardless of which mode (1x1 or flat) is active on the switch.
- The **configured** keyword is only available when an instance number is specified with this command. In addition, this keyword cannot be used in combination with either the **forwarding** or **blocking** keywords.

**Note.**

- Minimal information is displayed when this command is used in the 1x1 mode, as MSTIs are not active in this mode. In addition, if MSTP is not the selected flat mode protocol, this command fails.
- MSTI 0 also represents the CIST instance that is always present on the switch. To view the CIST instance using this command, specify zero (0) for the *msti\_id* number.

**Examples**

```
-> show spantree msti ports
```

Msti	Port	Oper Status	Path Cost	Role	Loop Guard	Note
0	1/1	DIS	0	DIS	DIS	
0	1/2	DIS	0	DIS	DIS	
2	1/5	FORW	10	MSTR	ENA	
2	1/6	DIS	0	DIS	DIS	

```
-> show spantree msti 2 ports
```

```
Spanning Tree Port Summary for Msti 2
```

Port	Oper St	Path Cost	Desig Cost	Prim. Role	Op Port	Op Cnx	Op Edg	Loop Guard	Desig	Bridge ID	Note
1/5	FORW	0	0	MSTR	1/1	NS	EDG	ENA	0000-00:00:00:00:00:00		
1/6	DIS	0	0	DIS	1/2	NS	EDG	DIS	0000-00:00:00:00:00:00		

```
-> show spantree msti 2 ports active
```

```
Spanning Tree Port Summary for Msti 2
```

Port	Oper St	Path Cost	Desig Cost	Prim. Role	Op Port	Op Cnx	Op Edg	Loop Guard	Desig	Bridge ID	Note
1/1	FORW	200000	0	DESG	1/1	PTP	EDG	DIS	8002-00:d0:95:57:3a:9e		

**output definitions**

<b>Msti</b>	The Multiple Spanning Tree Instance (MSTI) number. MSTI 0 represents the CIST. Configured through the <b>bridge msti</b> command.
<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper St</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>listening</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge msti path cost</b> command.



*output definitions (continued)*

<b>Desig Cost</b>	The path cost of the Designated Port of the segment connected to this port. If this is the root bridge or the Spanning Tree status of the port is administratively disabled, this value is 0.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Prim. Port</b>	The slot number for the module and the physical port number on that module for the primary port associated with this Spanning Tree instance. This information is only available if the port role is backup.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <a href="#">bridge connection</a> command for more information.
<b>Op Edg</b>	Operational connection type: <b>EDG</b> . Shows the current operational state of the port connection type. See the <a href="#">bridge connection</a> command on <a href="#">page 7-93</a> for more information.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> ).
<b>Desig Bridge ID</b>	The bridge identifier for the designated bridge for this port segment.
<b>Note</b>	Indicates whether a loop-guard error ( <b>ERR</b> ) has occurred on the MSTI instance.

-> show spantree msti 2 ports configured

```
Spanning Tree Port Admin Configuration for Msti 2
      Port  Adm Man. Config  Adm  Adm  Aut  Rstr Rstr OS8800
Port  Pri   St.  Mode   Cost Cnx  Edg  Edg  Tcn  Role 10G Opt.
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
1/1   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/2   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/3   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/4   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/5   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/6   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/7   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/8   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/9   7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/10  7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/11  7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
1/12  7   ENA  No      0  AUT  No  Yes  No  No  No  DIS
```

*output definitions*

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Port Pri</b>	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the <a href="#">bridge msti priority</a> command.

*output definitions (continued)*


---

<b>Adm St</b>	The Spanning Tree administrative status of the port: <b>enabled</b> or <b>disabled</b> . Configured through the <b>bridge</b> command to enable or disable Spanning Tree on a port.
<b>Man. Mode</b>	The manual mode setting for the port: <b>yes</b> indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; <b>no</b> indicates that the Spanning Tree Algorithm is managing the port state. Configured through the <b>bridge mode</b> command.
<b>Config Cost</b>	The configured path cost value for this port. Configured through the <b>bridge msti path cost</b> command.
<b>Adm Cnx</b>	The administrative connection type: <b>PTP</b> , <b>NPT</b> , or <b>AUT</b> . Configured through the <b>bridge connection</b> command.
<b>Adm Edg</b>	The edge port administrative status: <b>yes</b> indicates that the port is an admin edge port; <b>no</b> indicates that the port is not an admin edge port. Configured through the <b>bridge connection</b> command.
<b>Aut Edg</b>	The edge port automatic status: <b>yes</b> indicates that the port is an automatic edge port; <b>no</b> indicates that the port is not an automatic edge port. Configured through the <b>bridge cist auto-edge</b> or <b>bridge 1x1 auto-edge</b> command.
<b>Rstr Tcn</b>	The restricted TCN capability: <b>yes</b> indicates that the port supports the restricted TCN capability; <b>no</b> indicates that the port does not support the restricted TCN capability. Configured through the <b>bridge cist restricted-tcn</b> or <b>bridge 1x1 restricted-tcn</b> command.
<b>Rstr Role</b>	The restricted role port status: <b>yes</b> indicates that the port is a restricted role port; <b>no</b> indicates that the port is not a restricted role port. Configured through the <b>bridge cist restricted-role</b> or <b>bridge 1x1 restricted-role</b> command.
<b>OS8800 10G Opt.</b>	Indicates whether the 10 GB port interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ).

---

**Release History**

Release 6.1; command introduced.

Release 6.1.3; fields added.

Release 6.4.4; **Loop Guard** and **Note** fields added.

**Related Commands**

<b>show spantree ports</b>	Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree cist ports</b>	Explicit command for displaying Spanning Tree port information for a CIST instance when the switch is operating in the 1x1 or flat Spanning Tree mode.
<b>show spantree 1x1 ports</b>	Explicit command for displaying Spanning Tree port information for a VLAN when the switch is operating in the 1x1 or flat Spanning Tree mode.

## **MIB Objects**

vStpInsPortTable

- vStpInsPortNumber
- vStpInsPortPriority
- vStpInsPortState
- vStpInsPortEnable
- vStpInsPortPathCost
- vStpInsPortDesignatedCost
- vStpInsPortDesignatedBridge
- vStpInsPortAdminEdge
- vStpInsPortAutoEdge
- vStpInsPortRestrictedRole
- vStpInsPortRestrictedTcn
- vStpInsPortManualMode
- vStpInsPortRole
- vStpInsPrimaryPortNumber
- vStpInsPortAdminConnectionType
- vStpInsPortOperConnectionType

---

## show spantree 1x1 ports

Displays Spanning Tree port information for a 1x1 mode VLAN instance.

**show spantree 1x1** [*vid*] **ports** [**forwarding** | **blocking** | **active** | **configured**]

---

### Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1-4094).
<b>forwarding</b>	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
<b>blocking</b>	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
<b>active</b>	Displays a list of active ports associated with the specified instance.
<b>configured</b>	Displays Spanning Tree administrative port parameters for the CIST instance.

### Defaults

parameter	default
<i>vid</i>	all VLAN instances
<b>forwarding</b>   <b>blocking</b>   <b>active</b>   <b>configured</b>	all ports

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a *vid* number is *not* specified, this command displays the Spanning Tree port operational status, path cost, and role values for all VLAN instances.
- Specifying a range of VLAN IDs is also allowed. Use a hyphen to indicate a contiguous range (for example, **show spantree 1x1 10-15 ports**). Note that only one VLAN entry—a single VLAN ID or a range of VLAN IDs—is allowed with this command. Multiple entries are not accepted.
- This is an explicit Spanning Tree command that displays Spanning Tree port information for a VLAN instance regardless of which mode (1x1 or flat) is active on the switch.
- Note that minimal information is displayed when this command is used in the flat mode, as VLAN instances are not active in this mode.
- The **configured** keyword is only available when an instance number is specified with this command. In addition, this keyword cannot be used in combination with either the **forwarding** or **blocking** keywords.

## Examples

-> show spantree 1x1 ports

Vlan	Port	Oper	Status	Path Cost	Role	Loop Guard	Note
1	1/1		ROOT	0	DIS	DIS	
1	1/2		FORW	20	DIS	ENA	
1	1/3		ALT	0	DIS	DIS	
1	1/4		ALT	0	DIS	DIS	
1	1/5		ALT	0	DIS	DIS	
1	1/6		ALT	0	DIS	DIS	
10	1/7		FORW	19	DESG	ENA	
10	1/8		ALT	0	DIS	DIS	
11	1/9		ALT	0	DIS	DIS	
11	1/10		ALT	0	DIS	DIS	
172	1/11		FORW	19	ROOT	DIS	
400	1/12		BLK	0	ALT	ENA	ERR
1001	2/1		FORW	19	DESG	ENA	
1001	2/3		DIS	0	DIS	DIS	
2000	2/2		DIS	0	DIS	DIS	
2000	2/5		DIS	0	DIS	DIS	

-> show spantree 1x1 1 ports

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/1	ROOT	0	0	DIS	1/1	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/2	FORW	20	0	DIS	1/2	NS	EDG	ENA	0000-00:00:00:00:00:00	
1/3	ALT	0	0	DIS	1/3	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/4	ALT	0	0	DIS	1/4	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/5	ALT	0	0	DIS	1/5	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/6	ALT	0	0	DIS	1/6	NS	EDG	DIS	0000-00:00:00:00:00:00	

-> show spantree 1x1 1 ports active

Spanning Tree Port Summary for Vlan 1

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/2	FORW	20	0	DIS	1/2	NS	EDG	ENA	0001-00:d0:95:6a:79:50	

-> show spantree 1x1 10-11 ports

Spanning Tree Port Summary for Vlan 10

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/7	DIS	0	0	DIS	1/7	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/8	DIS	0	0	DIS	1/8	NS	EDG	DIS	0000-00:00:00:00:00:00	

## Spanning Tree Port Summary for Vlan 11

Oper Port	Path St	Desig Cost	Prim. Cost	Op Role	Op Port	Op Cnx	Op Edg	Loop Guard	Desig Bridge ID	Note
1/9	DIS	0	0	DIS	1/36	NS	EDG	DIS	0000-00:00:00:00:00:00	
1/10	DIS	0	0	DIS	1/42	NS	EDG	DIS	0000-00:00:00:00:00:00	

*output definitions*

<b>Vlan</b>	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the <b>vlan</b> commands
<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Oper St</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>listening</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Path Cost</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops. Configured through the <b>bridge 1x1 path cost</b> command.
<b>Desig Cost</b>	The path cost of the Designated Port of the segment connected to this port. If this is the root bridge or the Spanning Tree status of the port is administratively disabled, this value is 0.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.
<b>Prim. Port</b>	The slot number for the module and the physical port number on that module for the primary port associated with this Spanning Tree instance. This information is only available if the port role is backup.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <b>bridge connection</b> command for more information.
<b>Op Edg</b>	Operational connection type: <b>EDG</b> . Shows the current operational state of the port connection type. See the <b>bridge connection</b> command on <a href="#">page 7-93</a> for more information.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> ).
<b>Desig Bridge ID</b>	The bridge identifier for the designated bridge for the segment related to this port.
<b>Note</b>	Indicates whether a loop-guard error ( <b>ERR</b> ) has occurred on the MSTI instance.

```
-> show spantree 1x1 1 ports configured
```

```
Spanning Tree Port Admin Configuration for Vlan 1
  Port  Adm Man. Config  Adm  Adm  Aut  Rstr Rstr Role/  OS8800  PVST+
Port  Pri  St. Mode   Cost Cnx  Edg  Edg  Tcn  Root Guard  10G Opt  Cfg Stat
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/1    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/2    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/3    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/4    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/5    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/6    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
```

```
-> show spantree 1x1 10-11 ports configured
```

```
Spanning Tree Port Admin Configuration for Vlan 10
  Port  Adm Man. Config  Adm  Adm  Aut  Rstr Rstr Role/  OS8800  PVST+
Port  Pri  St. Mode   Cost Cnx  Edg  Edg  Tcn  Root Guard  10G Opt  Cfg Stat
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/7    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/8    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
```

```
Spanning Tree Port Admin Configuration for Vlan 11
  Port  Adm Man. Config  Adm  Adm  Aut  Rstr Rstr Role/  OS8800  PVST+
Port  Pri  St. Mode   Cost Cnx  Edg  Edg  Tcn  Root Guard  10G Opt  Cfg Stat
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/9    7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
1/10   7  ENA  No       0  AUT  No  Yes  No   No         DIS    AUT OFF
```

### output definitions

<b>Port</b>	The slot number for the module and the physical port number or a logical port. If the slot number is 0, then the port number refers to a link aggregate logical port number (for example, 0/31).
<b>Port Pri</b>	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the <b>bridge 1x1 priority</b> command.
<b>Adm St</b>	The Spanning Tree administrative status of the port: <b>enabled</b> or <b>disabled</b> . Configured through the <b>bridge</b> command to enable or disable Spanning Tree on a port.
<b>Man. Mode</b>	The manual mode setting for the port: <b>yes</b> indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; <b>no</b> indicates that the Spanning Tree Algorithm is managing the port state. Configured through the <b>bridge mode</b> command.
<b>Config Cost</b>	The configured path cost value for this port. Configured through the <b>bridge 1x1 path cost</b> command.
<b>Adm Cnx</b>	The administrative connection type: <b>PTP</b> , <b>NPT</b> , or <b>AUT</b> . Configured through the <b>bridge connection</b> command.
<b>Adm Edg</b>	The edge port administrative status: <b>yes</b> indicates that the port is an admin edge port; <b>no</b> indicates that the port is not an admin edge port. Configured through the <b>bridge connection</b> command.

*output definitions (continued)*


---

<b>Aut Edg</b>	The edge port automatic status: <b>yes</b> indicates that the port is an automatic edge port; <b>no</b> indicates that the port is not an automatic edge port. Configured through the <b>bridge cist auto-edge</b> or <b>bridge 1x1 auto-edge</b> command.
<b>Rstr Tcn</b>	The restricted TCN capability: <b>yes</b> indicates that the port supports the restricted TCN capability; <b>no</b> indicates that the port does not support the restricted TCN capability. Configured through the <b>bridge cist restricted-tcn</b> or <b>bridge 1x1 restricted-tcn</b> command.
<b>Rstr Role/Root Guard</b>	The restricted status of the port: <b>Yes</b> indicates that the port is restricted from becoming the root; <b>No</b> indicates that the port is not restricted from becoming the root. Configured through the <b>bridge cist restricted-role</b> or <b>bridge 1x1 restricted-role</b> command.
<b>10G Opt.</b>	Indicates whether the 10 GB port interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ).
<b>PVST+ Cfg</b>	The type of BPDU used on the port: <b>AUTO</b> indicates that IEEE BPDUs are used until a PVST+ BPDU is detected; <b>ENA</b> indicates that PVST+ BPDUs are used; <b>DIS</b> indicates that IEEE BPDUs are used. Configured through the <b>bridge port pvst+</b> command.
<b>PVST+ Stat</b>	Indicates whether or not the PVST+ interoperability status is enabled ( <b>ENA</b> ) or disabled ( <b>DIS</b> ) for the port. Configured through the command.

---

**Release History**

Release 6.1; command introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

Release 6.1.3; fields added.

Release 6.3.3; fields added.

Release 6.4.4; **Loop Guard** and **Note** output fields added.

**Related Commands**

<b>show spantree ports</b>	Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.
<b>show spantree cist ports</b>	Explicit command for displaying Spanning Tree port information for a CIST instance when the switch is operating in the 1x1 or flat Spanning Tree mode.
<b>show spantree msti ports</b>	Explicit command for displaying Spanning Tree port information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.

**MIB Objects**

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortPriority
  vStpInsPortState
  vStpInsPortEnable
  vStpInsPortPathCost
```



vStpInsPortDesignatedCost  
vStpInsPortDesignatedBridge  
vStpInsPortAdminConnectionType  
vStpInsPortOperConnectionType  
vStpInsPortAdminEdge  
vStpInsPortAutoEdge  
vStpInsPortRestrictedRole  
vStpInsPortRestrictedTcn  
vStpInsPortManualMode  
vStpInsPortRole  
vStpInsPrimaryPortNumber  
vStpInsPortAdminConnectionType  
vStpInsPortOperConnectionType

---

## show spantree mst region

Displays the Multiple Spanning Tree (MST) region information for the switch.

**show spantree mst region**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Three MST region attributes (configuration name, revision level, and configuration digest) define an MST region as required by the IEEE 802.1Q 2005 standard. Switches that share the same values for these attributes are all considered part of the same region. Currently each switch can belong to one MST region at a time.
- This command is available when the switch is operating in either the 1x1 or flat Spanning Tree mode.

### Examples

```
-> show spantree mst region
```

```
Configuration Name      = ,
Revision Level         = 0,
Configuration Digest    = 0xac36177f 50283cd4 b83821d8 ab26de62,
Revision Max hops      = 20,
Cist Instance Number    = 0
```

### *output definitions*

---

<b>Configuration Name</b>	An alphanumeric string that identifies the name of the MST region. Use the <b>bridge mst region name</b> command to define this value.
<b>Revision Level</b>	A numeric value that identifies the MST region revision level for the switch.
<b>Configuration Digest</b>	An MST region identifier consisting of a 16 octet hex value (as per the IEEE 802.1Q 2005 standard) that represents all defined MSTIs and their associated VLAN ranges. Use the <b>bridge msti</b> and <b>bridge msti vlan</b> commands to define VLAN to MSTI associations.

*output definitions (continued)*

---

<b>Revision Max hops</b>	The number of maximum hops authorized for region information. Configured through the <b>bridge mst region max hops</b> command.
<b>Cist Instance Number</b>	The number of the CIST instance, which is currently zero as there is only one region per switch. Therefore, only one CIST exists per switch.  <b>Note:</b> This instance is known as the flat mode instance and is known as bridge 1 when using STP or RSTP.

---

**Release History**

Release 6.1; command introduced.

**Related Commands**

<b>show spantree msti vlan-map</b>	Displays the range of VLANs associated to the specified MSTI.
<b>show spantree cist vlan-map</b>	Displays the range of VLANs associated to the CIST instance.
<b>show spantree map-msti</b>	Displays the MSTI that is associated to the specified VLAN

**MIB Objects**

```
vStpMstRegionTable  
  vStpMstRegionNumber  
  vStpMstRegionConfigDigest  
  vStpMstRegionConfigName  
  vStpMstRegionConfigRevisionLevel  
  vStpMstRegionCistInstanceNumber  
  vStpMstRegionMaxHops
```

---

## show spantree msti vlan-map

Displays the range of VLANs associated with the specified Multiple Spanning Tree Instance (MSTI).

**show spantree mst** [*msti\_id*] **vlan-map**

---

### Syntax Definitions

*msti\_id*                                      An existing MSTI ID number (0–4094).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If an *msti\_id* is not specified, then the VLAN to MSTI mapping for all defined MSTIs is displayed.
- This command is available when the switch is operating in either the 1x1 or flat Spanning Tree mode.
- Initially all VLANs are associated with the flat mode CIST instance (also known as MSTI 0).

### Examples

```
-> show spantree msti vlan-map
```

```
Cist
Name           :
VLAN list      : 1-9,14-4094
```

```
Msti 1
Name           :
VLAN list      : 10-11
```

```
Msti 2
Name           :
VLAN list      : 12-13
```

```
-> show spantree msti 2 vlan-map
```

```
Spanning Tree Msti Vlan map
-----
```

```
Msti 2
Name           :
VLAN list      : 12-13
```

*output definitions*

---

<b>Cist Instance</b>	Identifies MSTI VLAN mapping information for the CIST instance.
<b>Msti</b>	The MSTI ID number that identifies an association between a Spanning Tree instance and a range of VLANs.
<b>Name</b>	An alphanumeric value that identifies an MSTI name. Use the <b>bridge msti</b> command to define an MSTI name.
<b>VLAN list</b>	The range of VLAN IDs that are associated with this MSTI.

---

**Release History**

Release 6.1; command introduced.

**Related Commands**

<b>show spantree mst region</b>	Displays the MST region information for the switch.
<b>show spantree cist vlan-map</b>	Displays the range of VLANs associated to the CIST instance.
<b>show spantree map-msti</b>	Displays the MSTI that is associated to the specified VLAN

**MIB Objects**

vStpMstInstanceTable  
  vStpMstInstanceNumber  
  vStpMstInstanceName  
  vStpMstInstanceVlanBitmapState

---

## show spantree cist vlan-map

Displays the range of VLANs associated with the flat mode Common and Internal Spanning Tree (CIST) instance.

**show spantree cist vlan-map**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is available when the switch is operating in either the 1x1 or flat Spanning Tree mode.
- Initially all VLANs are associated with the flat mode CIST instance 0 (also known as MSTI 0).

### Examples

```
-> show spantree cist vlan-map
```

```
Cist
  Name           : ,
  VLAN list      : 1-9,14-4094
```

### *output definitions*

---

<b>Name</b>	An alphanumeric value that identifies the name of the CIST. Use the <b>bridge msti</b> command to define a name for this instance.
<b>VLAN list</b>	The range of VLAN IDs that are associated with the CIST instance.

---

### Release History

Release 6.1; command introduced.

### Related Commands

<b>show spantree mst region</b>	Displays the MST region information for the switch.
<b>show spantree msti vlan-map</b>	Displays the range of VLANs associated to the specified MSTI.
<b>show spantree map-msti</b>	Displays the MSTI that is associated to the specified VLAN

## **MIB Objects**

vStpMstInstanceTable  
  vStpMstInstanceNumber  
  vStpMstInstanceName  
  vStpMstInstanceVlanBitmapState

---

## show spantree map-msti

Displays the Multiple Spanning Tree Instance (MSTI) that is associated to the specified VLAN.

**show spantree mst *vid* vlan-map**

---

### Syntax Definitions

*vid* An existing VLAN ID number (1–4094).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is available when the switch is operating in either the 1x1 or flat Spanning Tree mode.
- Initially all VLANs are associated with the flat mode CIST instance (also known as MSTI 0).

### Examples

```
-> show spantree 200 map-msti
```

```
Vlan    Msti/Cist(0)
-----+-----
    200         0
```

### Release History

Release 6.1; command introduced.

### Related Commands

- [show spantree mst region](#) Displays the MST region information for the switch.
- [show spantree msti vlan-map](#) Displays the range of VLANs associated to the specified MSTI.
- [show spantree cist vlan-map](#) Displays the range of VLANs associated to the CIST instance.

### MIB Objects

```
vStpMstVlanAssignmentTable
  vStpMstVlanAssignmentVlanNumber
  vStpMstVlanAssignmentMstiNumber
```

---



## show spantree mst port

Displays a summary of Spanning Tree connection information and instance associations for the specified port or a link aggregate of ports.

```
show spantree mst port {slot/port | logical_port}
```

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

*logical\_port* The link aggregate ID number (0–31).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

---

**Note.** MST 0 also represents the flat mode CIST instance, that all ports are associated with when the switch is running in the flat Spanning Tree mode.

---

### Examples

```
-> bridge mode flat
-> show spantree mst port 1/2
```

```
MST  Role  State Pth Cst  Edge Boundary Op Cnx Loop Guard  Note  Vlans
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
    0  DIS   DIS    0   YES   YES    NS    DIS    1
```

```
-> bridge mode 1x1
-> show spantree mst port 1/10
```

```
MST  Role  State Pth Cst  Edge Boundary Op Cnx Loop Guard  Note  Vlans
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
    0  ROOT  ENA    0   YES   YES    NS    DIS    1
    2  DIS   DIS    0   YES   YES    NS    DIS
```

#### output definitions

---

<b>MST</b>	Indicates the MSTI ID.
<b>Role</b>	The role of the port for this Spanning Tree instance. Possible port roles are: <b>ROOT</b> - root, <b>DIS</b> - disable, <b>DESG</b> - designated, <b>ALT</b> - alternate, <b>MSTR</b> - master (valid only when MSTP mode is active), and <b>BKP</b> - backup.

*output definitions*


---

<b>State</b>	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: <b>disabled</b> , <b>blocking</b> , <b>listening</b> , <b>learning</b> , and <b>forwarding</b> .
<b>Pth Cst</b>	The contribution of this port to the path cost towards the Spanning Tree root bridge that includes this port. Path cost is a measure of the distance of the listed port from the root bridge in the number of hops.
<b>Edge</b>	Indicates whether or not the port is an <b>edge port</b> ( <b>YES</b> or <b>NO</b> ).
<b>Boundary</b>	Indicates whether or not the port is a <b>boundary port</b> ( <b>YES</b> or <b>NO</b> ). A boundary port connects an MST bridge to a LAN that belongs to a different MST region.
<b>Op Cnx</b>	Operational connection type: <b>PTP</b> , <b>NPT</b> , or <b>NS</b> (nonsignificant). Shows the current operational state of the port connection type. See the <a href="#">bridge connection</a> command for more information.
<b>Loop Guard</b>	Operational status of the loop-guard on a particular port or link aggregate ( <b>ENA</b> or <b>DIS</b> )
<b>Note</b>	Indicates whether a loop-guard error ( <b>ERR</b> ) has occurred on the MSTI instance.
<b>Vlans</b>	The VLAN ID of the default VLAN for the port.

---

**Release History**

Release 6.1; command introduced.

**Related Commands**

<a href="#">show spantree cist ports</a>	Displays Spanning Tree port information for the flat mode Common and Internal Spanning Tree (CIST) instance.
<a href="#">show spantree msti ports</a>	Displays Spanning Tree port information for a flat mode Multiple Spanning Tree Instance (MSTI).
<a href="#">show spantree 1x1 ports</a>	Displays Spanning Tree port information for a 1x1 mode VLAN instance.

## **MIB Objects**

vStpPortConfigTable  
  vStpPortConfigIfIndex  
  vStpPortConfigLoopGuard

vStpInsTable  
  vStpIns1x1VlanNumber

vStpPortTable  
  vStpPortState  
  vStpPortPathCost  
  vStpPortRole

---

## show bridge rrstp configuration

Displays the current RRSTP status for the switch.

**show bridge rrstp configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show bridge rrstp configuration  
RRSTP Global state is Enabled
```

### Release History

Release 6.2.1; command introduced.

### Related Commands

<a href="#">bridge rrstp</a>	Enables or disables RRSTP on a switch.
<a href="#">show bridge rrstp ring</a>	Displays information for all the rings or a specific ring present in the system.

### MIB Objects

vStpInfo  
VStpRrstpGlobalState

---

## show bridge rrstp ring

Displays information for all the rings or for a specific ring that exists in the switch configuration.

**show bridge rrstp ring** [*ring\_id*]

---

### Syntax Definitions

*ring\_id*                                An existing ring ID number (1–128).

### Defaults

By default displays information for all rings.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *ring\_id* parameter with this command to display information for a specific ring.

### Examples

```
-> show bridge rrstp ring
```

RingId	Vlan-Tag	Ring-Port1	Ring-Port2	Ring Status
2	1000	1/19	1/10	enabled
6	20	1/1	1/8	disabled
128	1	0/1	0/31	enabled

### output definitions

---

<b>RingId</b>	The numeric ID of the RRSTP ring.
<b>Vlan-Tag</b>	The VLAN to which the RRSTP ring frames are tagged.
<b>Ring-Port-1</b>	The first port in the RRSTP ring.
<b>Ring-Port-2</b>	The second port in the RRSTP ring.
<b>Ring Status</b>	The current state of the RRSTP ring ( <b>Enabled</b> or <b>Disabled</b> ).

---

### Release History

Release 6.2.1; command introduced.

Release 6.3.1; **ring** parameter and **Vlan-Tag** field added.

## Related Commands

**bridge rrstp ring**

Creates a RRSTP ring consists of two ports.

**show bridge rrstp  
configuration**

Displays the current RRSTP status for the switch.

## MIB Objects

```
vStpRrstpRingConfigTable  
  vStpRrstpRingId  
  vStpRrstpRingPort1  
  vStpRrstpRingPort2  
  vStpRrstpRingVlanTag  
  vStpRrstpRingState  
  vStpRrstpRingRowStatus
```

---

# 8 Link Aggregation Commands

Link aggregation is a way of combining multiple physical links between two switches into one logical link. The aggregate group operates within Spanning Tree as one virtual port and can provide more bandwidth than a single link. It also provides redundancy. If one physical link in the aggregate group goes down, link integrity is maintained.

There are two types of aggregate groups: static and dynamic. Static aggregate groups are manually configured on the switch with static links. Dynamic groups are set up on the switch but they aggregate links as necessary according to the Link Aggregation Control Protocol (LACP).

The dynamic aggregation software is compatible only with the following IEEE standard:

802.3ad — Aggregation of Multiple Link Segments

MIB information for the link aggregation commands is as follows:

*Filename:* AlcatelIND1LAG.MIB  
*Module:* ALCATEL-IND1-LAG-MIB

A summary of available commands is listed here:

<b>Static link aggregates</b>	<b>static linkagg size</b> <b>static linkagg name</b> <b>static linkagg admin state</b> <b>static agg agg num</b>
<b>Dynamic link aggregates</b>	<b>lACP linkagg size</b> <b>lACP linkagg name</b> <b>lACP linkagg admin state</b> <b>lACP linkagg actor admin key</b> <b>lACP linkagg actor system priority</b> <b>lACP linkagg actor system id</b> <b>lACP linkagg partner system id</b> <b>lACP linkagg partner system priority</b> <b>lACP linkagg partner admin key</b> <b>lACP agg actor admin key</b> <b>lACP agg actor admin state</b> <b>lACP agg actor system id</b> <b>lACP agg actor system priority</b> <b>lACP agg partner admin state</b> <b>lACP agg partner admin system id</b> <b>lACP agg partner admin key</b> <b>lACP agg partner admin system priority</b> <b>lACP agg actor port priority</b> <b>lACP agg partner admin port</b> <b>lACP agg partner admin port priority</b>
<b>Dual Home Link (DHL) Active-Standby</b>	<b>lACP agg standby</b> <b>lACP linkagg pre-empt</b> <b>lACP linkagg pre-empt timer</b>
<b>Dual Home Link (DHL) Active-Active</b>	<b>dhl num</b> <b>dhl num linka linkb</b> <b>dhl num admin-state</b> <b>dhl num vlan-map linkb</b> <b>dhl num pre-emption-time</b> <b>dhl num mac-flushing</b> <b>show dhl</b> <b>show dhl num</b> <b>show dhl num link</b>
<b>Static and dynamic</b>	<b>show linkagg</b> <b>show linkagg port</b>



## static linkagg size

Creates a static aggregate group between two switches. A static aggregate group contains static links.

**static linkagg** *agg\_num* **size** *size* [**name** *name*] [**admin state** {**enable** | **disable**}]

**no static linkagg** *agg\_num*

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the static aggregate group. Must be a unique integer in the range 0–31 (stackable products) or 0–127 (chassis-based products).
<i>size</i>	The maximum number of links allowed in the aggregate group. Values may be 2, 4, or 8.
<i>name</i>	The name of the static aggregate group. May be any alphanumeric string up to 255 characters long. Spaces must be contained within quotes (e.g., “Static Group 1”).
<b>enable</b>	Specifies that the static aggregate group is active and is able to aggregate links.
<b>disable</b>	Specifies that the static aggregate group is inactive and not able to aggregate links.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static aggregate group from the configuration.
- The maximum number of link aggregate groups allowed on the switch (static and dynamic combined) is 32 for stackable products and 128 for chassis-based products.
- Note that a maximum of 256 link aggregation ports are supported. The number of link aggregation ports per group will determine the maximum number of groups that can be configured. The table below provides some example configurations:

Number of Ports in Group	Maximum Number of Groups
2	128
4	64
8	32

- If the static aggregate has any attached ports you must delete them with the **static agg agg num** command before you can delete it.
- Use the **lacp linkagg size** command to create a dynamic aggregation (i.e., LACP) group. See [page 8-9](#) for more information about this command.

## Examples

```
-> static linkagg 3 size 8
-> static linkagg 4 size 2 admin state disable
-> no static linkagg 3
```

## Release History

Release 6.1; command was introduced.

## Related Commands

### [show linkagg](#)

Displays information about static and dynamic (LACP) link aggregate groups.

## MIB Objects

```
alclnkaggAggTable
  alclnkaggAggNumber
  alclnkaggAggSize
  alclnkaggAggLacpType
  alclnkaggAggName
  alclnkaggAggAdminState
```

---

## static linkagg name

Configures a name for an existing static aggregate group.

**static linkagg** *agg\_num* **name** *name*

**static linkagg** *agg\_num* **no name**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the static aggregate group.
<i>name</i>	The name of the static aggregation group, an alphanumeric string up to 255 characters. Spaces must be contained within quotes (e.g., “Static Group 1”).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a name from a static aggregate.

### Examples

```
-> static linkagg 2 name accounting
-> static linkagg 2 no name
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">static linkagg size</a>	Creates a static aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable
  alclnkaggAggNumber
  alclnkaggAggName
```

---

## static linkagg admin state

Configures the administrative state (whether the static aggregate group is active or inactive) of a static aggregate group.

```
static linkagg agg_num admin state {enable | disable}
```

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the static aggregate group.
<b>enable</b>	Specifies that the static aggregate group is active and is able to aggregate links.
<b>disable</b>	Specifies that the static aggregate group is inactive and not able to aggregate links.

### Defaults

parameter	default
<b>enable   disable</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

When the administrative state is set to **disable**, the static aggregate group is disabled.

### Examples

```
-> static linkagg 2 admin state disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">static linkagg size</a>	Creates a static aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable
  alclnkaggAggNumber
  alclnkaggAggAdminState
```

---

## static agg agg num

Configures a slot and port for a static aggregate group.

```
static agg [ethernet | fastethernet | gigaehternet] slot/port agg num agg_num
```

```
static agg no [ethernet | fastethernet | gigaehternet] slot/port
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>agg_num</i>	The number corresponding to the static aggregate group.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove one or more ports from a static aggregate group.
- Mobile ports cannot be aggregated.
- A port may belong to only one aggregate group.
- Ports in a static aggregate must all be the same speed (e.g., all 10 Mbps, all 100 Mbps, all 1 Gigabit, or all 10 Gigabit).
- Ports that belong to the same static aggregate group do not have to be configured sequentially and can be on any Network Interface (NI) or unit within a stack.
- The **ethernet**, **fastethernet**, and **gigaehternet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> static agg 2/1 agg num 4  
-> static agg no 2/1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**static linkagg size**

Creates a static aggregate group.

**show linkagg port**

Displays information about link aggregation ports.

## MIB Objects

alclnkaggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortLacpType

alclnkaggAggPortSelectedAggNumber

---

## lacp linkagg size

Creates a dynamic aggregate group that uses the Link Aggregation Control Protocol (LACP) to establish and maintain link aggregation. The **size** parameter is required to create the link aggregate group.

```
lacp linkagg agg_num size size
  [name name]
  [admin state {enable | disable}]
  [actor admin key actor_admin_key]
  [actor system priority actor_system_priority]
  [actor system id actor_system_id]
  [partner system id partner_system_id]
  [partner system priority partner_system_priority]
  [partner admin key partner_admin_key]
```

```
no lacp linkagg agg_num
```

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group. Must be a unique integer in the range 0–31 (stackable products) or 0–127 (chassis-based products).
<i>size</i>	The maximum number of links that may belong to the aggregate. Values may be 2, 4, or 8.
<i>name</i>	The name of the dynamic aggregate group. May be any alphanumeric string up to 255 characters long. Spaces must be contained within quotes (e.g., “Dynamic Group 1”).
<b>enable</b>	Specifies that the dynamic aggregate group is active and is able to aggregate links.
<b>disable</b>	Specifies that the dynamic aggregate group is inactive and not able to aggregate links.
<i>actor_admin_key</i>	The administrative key value associated with the dynamic aggregate group. Possible values are 0–65535.
<i>actor_system_priority</i>	The priority of the dynamic aggregate group. Possible values are 0–65535.
<i>actor_system_id</i>	The MAC address of the dynamic aggregate group on the switch.
<i>partner_system_id</i>	The MAC address of the remote system’s aggregate group to which the switch’s aggregate group is attached.
<i>partner_system_priority</i>	The priority of the remote system to which the aggregation group is attached. Possible values are 0–65535.
<i>partner_admin_key</i>	The administrative key for the aggregation group’s remote partner. Possible values are 0–65535.

## Defaults

parameter	default
enable   disable	enable

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove a dynamic aggregate group from the configuration.
- The maximum number of link aggregate groups allowed on the switch (static and dynamic combined) is 32 for stackable products and 128 for chassis-based products.
- Note that a maximum of 256 link aggregation ports are supported. The number of link aggregation ports per group will determine the maximum number of groups that can be configured. The table below provides some example configurations:

Number of Ports in Group	Maximum Number of Groups
2	128
4	64
8	32

- If the dynamic group has any attached ports, you must disable the group with the **lacp linkagg admin state** command before you can delete it.
- Optional parameters for the dynamic aggregate group may be configured when the aggregate is created or the dynamic aggregate group may be modified later.
- Use the **static linkagg size** command to create static aggregate groups. See [page 8-3](#) for more information about this command.

## Examples

```
-> lacp linkagg 2 size 4
-> lacp linkagg 3 size 2 admin state disable actor system priority 65535
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**show linkagg** Displays information about static and dynamic (LACP) aggregate groups.

## MIB Objects

alclnkaggAggTable



```
alclnkaggAggNumber  
alclnkaggAggSize  
alclnkaggAggLacpType  
alclnkaggAggName  
alclnkaggAggAdminState  
alclnkaggAggActorAdminKey  
alclnkaggAggActorSystemPriority  
alclnkaggAggActorSystemID  
alclnkaggAggPartnerSystemID  
alclnkaggAggPartnerSystemPriority  
alclnkaggAggPartnerAdminKey
```

---

## lacp linkagg name

Configures a name for a dynamic aggregate group.

```
lacp linkagg agg_num name name
```

```
lacp linkagg agg_num no name
```

---

### Syntax Definitions

*agg\_num*

The number corresponding to the dynamic aggregate group.

*name*

The name of the dynamic aggregate group. May be any alphanumeric string up to 255 characters long. Spaces must be contained within quotes (e.g., "Dynamic Group 1").

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a name from a dynamic aggregate group.

### Examples

```
-> lacp linkagg 2 name finance
```

```
-> lacp linkagg 2 no name
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg](#)

Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

alclnkaggAggTable

alclnkaggAggNumber

alclnkaggAggName

---

## lacp linkagg admin state

Configures the administrative state of the dynamic aggregate (whether it is up and active, or down and inactive) group.

**lacp linkagg *agg\_num* admin state {enable | disable}**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<b>enable</b>	Specifies that the dynamic aggregate group is active and is able to aggregate links.
<b>disable</b>	Specifies that the operation of a dynamic aggregate group cannot be performed.

### Defaults

---

parameter	default
<b>enable   disable</b>	enable

---

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

When the administrative state is set to **disable**, the operation of a dynamic aggregation (LACP) group cannot be performed.

### Examples

```
-> lacp linkagg 2 admin state disable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<code>lacp linkagg size</code>	Creates a dynamic aggregate group.
<code>show linkagg</code>	Displays information about static and dynamic (LACP) aggregate groups.
<code>show linkagg port</code>	Displays information about static and dynamic (LACP) aggregate groups.

## MIB Objects

```
alclnkaggAggTable  
  alclnkaggAggNumber  
  alclnkaggAggAdminState
```

---

## lacp linkagg actor admin key

Configures the administrative key associated with a dynamic aggregate group.

```
lacp linkagg agg_num actor admin key actor_admin_key
```

```
lacp linkagg agg_num no actor admin key
```

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<i>actor_admin_key</i>	The administrative key value associated with the dynamic aggregate group. The valid range is 0–65535.

### Defaults

parameter	default
<i>actor_admin_key</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to remove an actor admin key from a dynamic aggregate group.

### Examples

```
-> lacp linkagg 3 actor admin key 2  
-> lacp linkagg 3 no actor admin key
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable  
  alclnkaggAggNumber  
  alclnkaggAggActorAdminKey
```

---

## lacp linkagg actor system priority

Configures the priority of the dynamic aggregate group.

**lacp linkagg** *agg\_num* **actor system priority** *actor\_system\_priority*

**lacp linkagg** *agg\_num* **no actor system priority**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the link aggregate group.
<i>actor_system_priority</i>	The priority of the switch's dynamic aggregate group in relation to other aggregate groups. Possible values are 0–65535.

### Defaults

parameter	default
<i>actor_system_priority</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to return the value to its default.
- Ports with the same system priority value can join the same dynamic aggregate group.

### Examples

```
-> lacp linkagg 3 actor system priority 100
-> lacp linkagg 3 no actor system priority
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable
  alclnkaggAggNumber
  alclnkaggAggActorSystemPriority
```

---

## lacp linkagg actor system id

Configures the MAC address of a dynamic aggregate group on the switch.

```
lacp linkagg agg_num actor system id actor_system_id
```

```
lacp linkagg agg_num no actor system id
```

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<i>actor_system_id</i>	The MAC address of the dynamic aggregate group on the switch in the hexadecimal format <i>xx:xx:xx:xx:xx:xx</i> .

### Defaults

parameter	default
<i>actor_system_id</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to remove an actor system ID from a dynamic aggregate group.

### Examples

```
-> lacp linkagg 3 actor system id 00:20:da:81:d5:b0  
-> lacp linkagg 3 no actor system id
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable  
  alclnkaggAggNumber  
  alclnkaggAggActorSystemID
```

---

## lacp linkagg partner system id

Configures the MAC address of the remote system's dynamic aggregate group to which the local switch's dynamic aggregate group is attached.

**lacp linkagg** *agg\_num* **partner system id** *partner\_system\_id*

**lacp linkagg** *agg\_num* **no partner system id**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group on the switch.
<i>partner_system_id</i>	The MAC address of the remote switch's dynamic aggregate group in the hexadecimal format <i>xx:xx:xx:xx:xx:xx</i> .

### Defaults

parameter	default
<i>partner_system_id</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a partner system ID from a dynamic aggregate group.
- The *partner\_system\_id* and the *partner\_system\_priority* specify the remote system's priority.

### Examples

```
-> lacp linkagg 2 partner system id 00:20:da4:32:81
-> lacp linkagg 2 no partner system id
```

### Release History

Release 6.1; command was introduced.



## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg](#)

Displays information about static and dynamic (LACP) aggregate groups.

## MIB Objects

alclnkaggAggTable

alclnkaggAggNumber

alclnkaggAggPartnerSystemID

---

## lacp linkagg partner system priority

Configures the priority of the remote switch's dynamic aggregate group to which the local switch's aggregate group is attached.

**lacp linkagg** *agg\_num* **partner system priority** *partner\_system\_priority*

**lacp linkagg** *agg\_num* **no partner system priority**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<i>partner_system_priority</i>	The priority of the remote switch's dynamic aggregate group to which the local switch's aggregate group is attached. Possible values are 0–65535.

### Defaults

parameter	default
<i>partner_system_priority</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to return to the priority value to its default.

### Examples

```
-> lacp linkagg 3 partner system priority 65535
-> lacp linkagg 3 no partner system priority
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable
  alclnkaggAggNumber
  alclnkaggAggPartnerSystemPriority
```

---

## lacp linkagg partner admin key

Configures the administrative key for the dynamic aggregation group's remote partner.

```
lacp linkagg agg_num partner admin key partner_admin_key
```

```
lacp linkagg agg_num no partner admin key
```

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<i>partner_admin_key</i>	The administrative key for the dynamic aggregation group's remote partner. Possible values are 0–65535.

### Defaults

parameter	default
<i>partner_admin_key</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a partner admin key from a dynamic aggregate group.

### Examples

```
-> lacp linkagg 3 partner admin key 1  
-> lacp linkagg 3 no partner admin key
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg</a>	Displays information about static and dynamic (LACP) aggregate groups.

### MIB Objects

```
alclnkaggAggTable  
  alclnkaggAggNumber  
  alclnkaggAggPartnerAdminKey
```

---

## lacp agg actor admin key

Configures an actor administrative key for a port, which allows the port to join a dynamic aggregate group.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor admin key actor_admin_key
  [actor admin state {[no] active} [[no] timeout] [[no] aggregate] [[no] synchronize] [[no] collect]
  [[no] distribute] [[no] default] [[no] expire] | none}]
  [actor system id actor_system_id]
  [actor system priority actor_system_priority]
  [partner admin system id partner_admin_system_id]
  [partner admin key partner_admin_key]
  [partner admin system priority partner_admin_system_priority]
  [partner admin state {[no] active} [[no] timeout] [[no] aggregate] [[no] synchronize] [[no] collect]
  [[no] distribute] [[no] default] [[no] expire] | none}]
  [actor port priority actor_port_priority]
  [partner admin port partner_admin_port]
  [partner admin port priority partner_admin_port_priority]
```

```
lacp agg no [ethernet | fastethernet | gigaehternet] slot/port
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>actor_admin_key</i>	The administrative key associated with this dynamic aggregate group. Possible values are 0–65535.
<b>actor admin state</b>	See the <a href="#">lacp agg actor admin state command on page 8-25</a> .
<i>actor_system_id</i>	The MAC address of this dynamic aggregate group on the switch.
<i>actor_system_priority</i>	The priority of the dynamic aggregate group. Possible values are 0–255.
<i>partner_admin_system_id</i>	The MAC address of the remote switch's dynamic aggregate group.
<i>partner_admin_key</i>	The administrative key for the dynamic aggregation group's remote partner. Possible values are 0–65535.
<i>partner_admin_system_priority</i>	The priority of the remote system to which the dynamic aggregation group is attached. Possible values are 0–255.
<b>partner admin state</b>	See the <a href="#">lacp agg partner admin state command on page 8-31</a> .
<i>actor_port_priority</i>	The priority of the actor port. Possible values are 0–255.

<i>partner_admin_port</i>	The administrative state of the partner port. Possible values are 0–65535.
<i>partner_admin_port_priority</i>	The priority of the partner port. Possible values are 0–255.

## Defaults

parameter	default
[active] [timeout] ...	active, timeout, aggregate

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove a slot and port from a dynamic aggregate group.
- Mobile ports cannot be aggregated.
- A port may belong to only one aggregate group.
- Ports in a dynamic aggregate must all be in the same speed (e.g., all 100 Mbps, 1 Gigabit, or all 10 Gigabit).
- Ports that belong to the same dynamic aggregate group do not have to be configured sequentially and can be on any Network Interface (NI).
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

## Examples

```
-> lacp agg 3/1 actor admin key 0  
-> lacp agg no 3/1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.
<a href="#">show linkagg port</a>	Displays information about ports associated with a particular aggregate group or all aggregates.

## MIB Objects

```
alclnkaggAggPortTable  
  alclnkaggAggPortGlobalPortNumber  
  alclnkaggAggActorAdminKey  
  alclnkaggAggPortLacpType  
  alclnkaggAggPortActorAdminState  
  alclnkaggAggPortActorSystemID
```

```
alclnkaggAggPortActorSystemPriority  
alclnkaggAggPortPartnerAdminSystemID  
alclnkaggAggPortPartnerAdminKey  
alclnkaggAggPortPartnerAdminSystemPriority  
alclnkaggAggPortPartnerAdminState  
alclnkaggAggPortActorPortPriority  
alclnkaggAggPortPartnerAdminPort  
alclnkaggAggPortPartnerAdminPortPriority
```

---

## lacp agg actor admin state

Configures the system administrative state of the slot and port for the dynamic aggregate group on the local switch. The state values correspond to bits in the actor state octet in the LACPDU frame.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor admin state {[active] [timeout]
[aggregate] [synchronize] [collect] [distribute] [default] [expire] | none}
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port
actor admin state {[no] active} [[no] timeout] [[no] aggregate] [[no] synchronize]
[[no] collect] [[no] distribute] [[no] default] [[no] expire] | none}
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<b>active</b>	Specifies that bit 0 in the actor state octet is enabled. When this bit is set, the dynamic aggregate group is able to exchange LACPDU frames. By default, this value is set.
<b>timeout</b>	Specifies that bit 1 in the actor state octet is enabled. When this bit is set, a short timeout is used for LACPDU frames. When this bit is disabled, a long timeout is used for LACPDU frames. By default, this value is set.
<b>aggregate</b>	Specifies that bit 2 in the actor state octet is enabled. When this bit is set, the system considers this port to be a potential candidate for aggregation. If this bit is not enabled, the system considers the port to be individual (it can only operate as a single link). By default, this value is set.
<b>synchronize</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 3) is set by the system, the port is allocated to the correct dynamic aggregation group. If this bit is not set by the system, the port is not allocated to the correct dynamic aggregation group.
<b>collect</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 4) is set by the system, incoming LACPDU frames are collected from the individual ports that make up the dynamic aggregate group.
<b>distribute</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 5) is set by the system, distributing outgoing frames on the port is disabled.
<b>default</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 6) is set by the system, it indi-

cates that the actor is using the defaulted partner information administratively configured for the partner.

**expire**

Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 7) is set by the system, the actor cannot receive LACPDU frames.

**none**

Resets all administrative states to their default configurations.

**Defaults**

parameter	default
[active] [timeout] ....	active, timeout, aggregate

**Platforms Supported**

OmniSwitch 6400, 6850,6850E, 6855, 9000E

**Usage Guidelines**

- Use the **no** form of this command to restore the LACPDU bit settings to their default configuration.
- When the actor admin state is set to **none**, all bit values are restored to their default configurations.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

**Examples**

```
-> lacp agg 4/2 actor admin state synchronize no collect distribute
-> lacp agg 4/2 actor admin state no synchronize collect
-> lacp agg 4/2 actor admin state none
```

**Release History**

Release 6.1; command was introduced.

**Related Commands****lacp linkagg size**

Creates a dynamic aggregate group.

**show linkagg port**

Displays information about ports associated with a particular aggregate group or all aggregate groups.

**MIB Objects**

```
alclnkaggAggPortTable
  alclnkaggAggPortGlobalPortNumber
  alclnkaggAggPortActorAdminState
```



## lacp agg actor system id

Configures the system ID (i.e., MAC address) for the local port associated with a dynamic aggregate group.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor system id actor_system_id
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no actor system id
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>actor_system_id</i>	The MAC address of the dynamic aggregate group on the switch in the hexadecimal format <i>xx:xx:xx:xx:xx:xx</i> .

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>actor_system_id</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an actor system ID from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaehternet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp 3/1 actor system id 00:20:da:06:ba:d3  
-> lacp 3/1 no actor system id
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

alclnkaggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortActorSystemID

---

## lacp agg actor system priority

Configures the system priority of the port on the switch that belongs to the dynamic aggregate group.

**lacp agg** [ethernet | fastethernet | gigaethernet] *slot/port* **actor system priority** *actor\_system\_priority*

**lacp agg** [ethernet | fastethernet | gigaethernet] *slot/port* **no actor system priority**

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>actor_system_priority</i>	The priority of the dynamic aggregate group. Possible values are 0–255.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>actor_system_priority</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an actor system priority value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg ethernet 3/2 actor system priority 65
-> lacp agg ethernet 3/2 no actor system priority
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregates.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortActorSystemPriority

---

## lacp agg partner admin state

Configures the system administrative state of the slot and port for the dynamic aggregate group on the remote switch. The state values correspond to bits in the actor state octet in the LACPDU frame.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin state
{[active] [timeout] [aggregate] [synchronize] [collect] [distribute] [default] [expire] | none}
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin state
{[[no] active] [[no] timeout] [[no] aggregate] [[no] synchronize] [[no] collect] [[no] distribute]
[[no] default] [[no] expire] | none}
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<b>active</b>	Specifies that bit 0 in the partner state octet is enabled. When this bit is set, the dynamic aggregate group is able to exchange LACPDU frames. By default, this value is set.
<b>timeout</b>	Specifies that bit 1 in the partner state octet is enabled. When this bit is set, a short timeout is used for LACPDU frames. When this bit is disabled, a long timeout is used for LACPDU frames. By default, this value is set.
<b>aggregate</b>	Specifies that bit 2 in the partner state octet is enabled. When this bit is set, the system considers this port to be a potential candidate for aggregation. If this bit is not enabled, the system considers the port to be individual (it can only operate as a single link). By default, this value is set.
<b>synchronize</b>	Specifies that bit 3 in the partner state octet is enabled. When this bit is set, the port is allocated to the correct dynamic aggregation group. If this bit is not enabled, the port is not allocated to the correct aggregation group. By default, this value is disabled.
<b>collect</b>	Specifying this keyword has no effect because the system always determines its value. When this bit (bit 4) is set by the system, incoming LACPDU frames are collected from the individual ports that make up the dynamic aggregate group.
<b>distribute</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 5) is set by the system, distributing outgoing frames on the port is disabled.
<b>default</b>	Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 6) is set by the system, it indi-

cates that the partner is using the defaulted actor information administratively configured for the actor.

**expire**

Specifying that this keyword has no effect because the system always determines its value. When this bit (bit 7) is set by the system, the partner cannot receive LACPDU frames.

**none**

Resets all administrative states to their default configurations.

**Defaults**

parameter	default
[active] [timeout] ....	active, timeout, aggregate

**Platforms Supported**

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

**Usage Guidelines**

- Use the **no** form of this command to restore the LACPDU bit settings to their default configuration.
- When the partner admin state is set to **none**, all bit values are restored to their default configurations.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

**Examples**

```
-> lacp agg 4/2 partner admin state synchronize collect distribute
-> lacp agg 4/2 partner admin state no synchronize no collect
```

**Release History**

Release 6.1; command was introduced.

**Related Commands****lacp linkagg size**

Creates a dynamic aggregate group.

**show linkagg port**

Displays information about ports associated with a particular aggregate group or all aggregate groups.

**MIB Objects**

```
alclnkaggAggPortTable
  alclnkaggAggPortGlobalPortNumber
  alclnkaggAggPortPartnerAdminState
```

## lacp agg partner admin system id

Configures the partner administrative system ID for a dynamic aggregate group port.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin system id  
partner_admin_system_id
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin system id
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>partner_admin_system_id</i>	The MAC address of the remote dynamic aggregate group in the hexadecimal format <i>xx:xx:xx:xx:xx:xx</i> .

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>partner_admin_system_id</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a partner administrative system ID from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaehternet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 3/1 partner admin system id 00:20:da:05:f6:23
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**lacp linkagg size**

Creates a dynamic aggregate group.

**show linkagg port**

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortPartnerAdminSystemID

---



## lacp agg partner admin key

Configures the partner administrative key for a dynamic aggregate group port.

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port partner admin key partner_admin_key
```

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port no partner admin key
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>partner_admin_key</i>	The administrative key for the dynamic aggregation group's remote partner. Possible values are 0–65535.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>partner_admin_key</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a partner admin key value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 partner admin key 0  
-> lacp agg 2/1 no partner admin key
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<code>lacp linkagg size</code>	Creates a dynamic aggregate group.
<code>show linkagg port</code>	Displays detailed information about ports associated with a particular aggregate group or all aggregate groups.
<code>show linkagg port</code>	Displays information about slots and ports associated with all aggregate groups.

## MIB Objects

```
AlcLnkAggAggPortTable  
  alclnkaggAggPortGlobalPortNumber  
  alclnkaggAggPortPartnerAdminKey
```

---

## lacp agg partner admin system priority

Configures the partner system priority for a dynamic aggregate group port.

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port partner admin system priority  
partner_admin_system_priority
```

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port no partner admin system priority
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>partner_admin_system_priority</i>	The priority of the remote switch's dynamic aggregate group to which the aggregation group is attached. Possible values are 0–255.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>partner_admin_system_priority</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a *partner\_system\_priority* value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 partner admin system priority 65  
-> lacp agg 2/1 no partner admin system priority
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortAdminSystemPriority

---

## lacp agg actor port priority

Configures the priority for an actor port.

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor port priority actor_port_priority
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no actor port priority
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaehternet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>actor_port_priority</i>	The priority of the actor port. Possible values are 0–255.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>actor_port_priority</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an *actor\_port\_priority* value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaehternet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 actor port priority 100  
-> lacp agg 2/1 no actor port priority
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortActorPortPriority

---

## lacp agg partner admin port

Configures the administrative status of a partner port.

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port partner admin port partner_admin_port
```

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port no partner admin port
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>partner_admin_port</i>	The administrative state of the partner port. Possible values are 0–65535.

### Defaults

parameter	default
<i>partner_admin_port</i>	0

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a *partner\_admin\_port* value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 partner admin port 255
-> lacp agg 2/1 no partner admin port
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortPartnerAdminPort

---



## lacp agg partner admin port priority

Configures the priority for a partner port.

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port partner admin port priority
partner_admin_port_priority
```

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port no partner admin port priority
```

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port that the switch will initially use as the Spanning Tree virtual port for this aggregate.
<i>partner_admin_port_priority</i>	The priority of the partner port. Possible values are 0–255.

### Defaults

parameter	default
<i>partner_admin_port_priority</i>	0

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a *partner\_admin\_port\_priority* value from a slot and port associated with a dynamic aggregate group.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 partner admin port priority 100
-> lacp agg 2/1 no partner admin port priority
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortPartnerAdminPortPriority

---

## lacp agg standby

Configures the standby status for a switch port. When this status is enabled, the port is eligible to participate in a dual-home link aggregate as a standby port.

**lacp agg** [**ethernet** | **fastethernet** | **gigaethernet**] *slot/port* **standby** {**enable** | **disable**}

---

### Syntax Definitions

<b>ethernet</b>	Documents that the port is 10 Mbps Ethernet.
<b>fastethernet</b>	Documents that the port is 100 Mbps Fast Ethernet.
<b>gigaethernet</b>	Documents that the port is Gigabit Ethernet.
<i>slot</i>	The slot number for the standby port.
<i>port</i>	The port number for the standby port.

### Defaults

By default, the standby functionality is disabled on a switch port.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A dual home link aggregate consists of one active primary port and one standby port. Enabling the standby status makes a port eligible to serve as the standby port in this type of aggregate. Use this command to enable the standby status before the port is associated with the link aggregate.
- The **ethernet**, **fastethernet**, and **gigaethernet** keywords do not modify a port's configuration. See [Chapter 1, "Ethernet Port Commands,"](#) for information on CLI commands to configure Ethernet ports.

### Examples

```
-> lacp agg 2/1 standby enable  
-> lacp agg 2/1 standby disable
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg port](#)

Displays information about ports associated with a particular aggregate group or all aggregate groups.

## MIB Objects

AlcLnkAggAggPortTable

alclnkaggAggPortGlobalPortNumber

alclnkaggAggPortStandbyState

---

## lacp linkagg pre-empt

Configures the pre-emption status for a dynamic dual-home link aggregate. When the pre-emption status is enabled, the switch will restore a downed primary port as the primary link when the port comes back up and after a configurable period of time (pre-emption delay time).

**lacp linkagg *agg\_num* pre-empt {enable | disable}**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<b>enable</b>	Enables the pre-emption status for the aggregate group.
<b>disable</b>	Disables the pre-emption status for the aggregate group.

### Defaults

By default, the pre-emption status is disabled.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- The dynamic aggregate group number specified with this command must already exist in the switch configuration. In addition, the aggregate should have Spanning Tree disabled.
- The amount of time the switch waits to restore a port as the primary link is determined by the value of a pre-emption delay timer. This timer value is configurable using the [lacp linkagg pre-empt timer](#) command.
- If the primary port fails again before the length of the pre-emption timer has elapsed, the timer value is reset and will start again when the port comes back up.
- If the pre-emption status is disabled, the standby port retains the primary status even when the original primary port comes back up. The original primary port then becomes the standby link.

### Examples

```
-> lacp linkagg 2 pre-empt enable
-> lacp linkagg 2 pre-empt disable
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

<code>lacp linkagg size</code>	Creates a dynamic aggregate group.
<code>lacp agg standby</code>	Configures the standby status for a port. A standby port is required to configure a dual-home link aggregate.
<code>lacp linkagg pre-empt timer</code>	Configures the pre-emption delay timer value for the dynamic dual-home link aggregate group.
<code>show linkagg</code>	Displays information about static and dynamic (LACP) aggregate groups.

## MIB Objects

```
alclnkaggAggTable  
  alclnkaggAggNumber  
  alclnkaggPreemptState
```

---

## lacp linkagg pre-empt timer

Configures the pre-emption delay timer value for a dynamic dual-home link aggregate. This value is the length of time the switch will wait before restoring a port to primary link status.

**lacp linkagg** *agg\_num* **pre-empt timer** *seconds*

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the dynamic aggregate group.
<i>seconds</i>	The pre-emption delay timer value, in seconds. The range is 30–300.

### Defaults

By default, the timer value is set to 30 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When the primary port for a dual-home link aggregate fails and then comes back up, the switch will wait the length of the pre-emption timer value before restoring the port as the primary link for the aggregate.
- The pre-emption delay timer is only used when the pre-emption status for the specified aggregate group is enabled. The timer starts when a failed primary port comes back up.
- If the primary port goes down before the timer runs out, the timer is reset and then started again the next time the port comes back up.

### Examples

```
-> lacp linkagg 2 pre-empt timer 120  
-> lacp linkagg 3 pre-empt timer 300
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**lacp linkagg size**

Creates a dynamic aggregate group.

**lacp agg standby**

Configures the standby status for a port. A standby port is required to configure a dual-home link aggregate.

**lacp linkagg pre-empt**

Configures the pre-emption status for a dynamic dual-home link aggregate group.

**show linkagg**

Displays information about static and dynamic (LACP) aggregate groups.

## MIB Objects

alclnkaggAggTable  
    alclnkaggAggNumber  
    alclnkaggPreemptValue

---



## show linkagg

Displays information about static and dynamic (LACP) aggregate groups.

**show linkagg** [*agg\_num*]

---

### Syntax Definitions

*agg\_num* Specifies the aggregate group. Configured through the **static linkagg size** or **lACP linkagg size** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If no aggregation number is specified, information for all aggregate groups is displayed. If an aggregate number is specified, information about that aggregate group is displayed only. The fields included in the display depend on whether the aggregate group is a static or dynamic.
- Use the **show linkagg port** command to display information about aggregate group ports.

### Examples

No aggregate group is specified:

```
-> show linkagg
```

Number	Aggregate	SNMP Id	Size	Admin State	Oper State	Att/Sel Ports
1	Static	40000001	8	ENABLED	UP	2 2
2	Dynamic	40000002	4	ENABLED	DOWN	0 0
3	Dynamic	40000003	8	ENABLED	DOWN	0 2
4	Dynamic	40000004	8	ENABLED	UP	3 3
5	Static	40000005	2	DISABLED	DOWN	0 0

Output fields are defined here:

#### *output definitions*

---

<b>Number</b>	The aggregate group number.
<b>Aggregate</b>	The type of aggregate group, which can be <b>Static</b> or <b>Dynamic</b> .
<b>SNMP Id</b>	The SNMP ID associated with the aggregate group.
<b>Size</b>	The number of links in this aggregate group.

*output definitions (continued)*


---

<b>Admin State</b>	The current administrative state of the aggregate group, which can be <b>ENABLED</b> or <b>DISABLED</b> . You can modify this parameter with the <b>static linkagg admin state</b> command (see <a href="#">page 8-6</a> ) for static aggregate groups and with the <b>lacp linkagg admin state</b> command (see <a href="#">page 8-13</a> ) for dynamic aggregate groups.
<b>Oper State</b>	The current operational state of the aggregate group, which can be <b>UP</b> or <b>DOWN</b> .
<b>Att Ports</b>	The number of ports actually attached to this aggregate group.
<b>Sel Ports</b>	The number of ports that could possibly attach to the aggregate group.

---

A static aggregate is specified:

```
-> show linkagg 5
Static Aggregate
SNMP Id           : 40000005,
Aggregate Number  : 5,
SNMP Descriptor   : Omnichannel Aggregate Number 5 ref 40000005 size 2,
Name              : AGG5,
Admin State       : ENABLED,
Operational State : DOWN,
Aggregate Size    : 2,
Number of Selected Ports : 0,
Number of Reserved Ports : 0,
Number of Attached Ports : 0,
Primary Port      : NONE
```

*output definitions*


---

<b>SNMP Id</b>	The SNMP ID associated with this static aggregate group.
<b>Aggregate Number</b>	The group number.
<b>SNMP Descriptor</b>	The standard MIB name for this static aggregate group.
<b>Name</b>	The name of this static aggregate group. You can modify this parameter with the <b>static linkagg name</b> command (see <a href="#">page 8-5</a> ).
<b>Admin State</b>	The administrative state of this static aggregate group, which can be <b>ENABLED</b> or <b>DISABLED</b> . You can modify this parameter with the <b>static linkagg admin state</b> command (see <a href="#">page 8-6</a> ).
<b>Operational State</b>	The operational state of this static aggregate group, which can be <b>UP</b> or <b>DOWN</b> .
<b>Aggregate Size</b>	The number of links configured for this static aggregate group.
<b>Number of Selected Ports</b>	The number of ports that could possibly attach to this static aggregate group.
<b>Number of Reserved Ports</b>	The total number of ports reserved for use in link aggregation by this static aggregate group. ( <b>Note:</b> This field is not relevant for static aggregate groups.)
<b>Number of Attached Ports</b>	The number of ports actually attached to this static aggregate group.
<b>Primary Port</b>	The port number of the first port to join this static aggregate group. If the first port to join the aggregate is no longer part of the aggregate group, the switch automatically assigns another port in the aggregate group to be the primary port.

---

A dynamic aggregate group is specified:

```
-> show linkagg 2
Dynamic Aggregate
  SNMP Id           : 40000002,
  Aggregate Number  : 2,
  SNMP Descriptor   : Dynamic Aggregate Number 2 ref 40000002 size 4,
  Name              : AGG 2,
  Admin State       : ENABLED,
  Operational State : DOWN,
  Aggregate Size    : 4,
  Number of Selected Ports : 0,
  Number of Reserved Ports : 0,
  Number of Attached Ports : 0,
  Primary Port      : NONE,
LACP
  MACAddress        : [00:1f:cc:00:00:00],
  Actor System Id   : [00:20:da:81:d5:b0],
  Actor System Priority : 50,
  Actor Admin Key   : 120,
  Actor Oper Key    : 0,
  Partner System Id : [00:20:da:81:d5:b1],
  Partner System Priority : 70,
  Partner Admin Key : 220,
  Partner Oper Key  : 0
  Pre-emption       : ENABLED
  Pre-empt Value    : 250
```

### *output definitions*

---

<b>SNMP Id</b>	The SNMP ID associated with this dynamic aggregate group.
<b>Aggregate Number</b>	The group number of this dynamic aggregate group.
<b>SNMP Descriptor</b>	The standard MIB name for this dynamic aggregate group.
<b>Name</b>	The name of this dynamic aggregate group. You can modify this parameter with the <b>lacp linkagg name</b> command (see <a href="#">page 8-12</a> ).
<b>Admin State</b>	The administrative state of this dynamic aggregate group, which can be <b>ENABLED</b> or <b>DISABLED</b> . You can modify this parameter with the <b>lacp linkagg admin state</b> command (see <a href="#">page 8-13</a> ).
<b>Operational State</b>	The operational state of this dynamic aggregate group, which can be <b>UP</b> or <b>DOWN</b> .
<b>Aggregate Size</b>	The number of links configured for this dynamic aggregate group.
<b>Number of Selected Ports</b>	The number of ports available to this dynamic aggregate group.
<b>Number of Reserved Ports</b>	The total number of ports reserved for use in link aggregation by this dynamic aggregate group.
<b>Number of Attached Ports</b>	The number of ports actually attached to this dynamic aggregate group.
<b>Primary Port</b>	The port number of the first port to join this dynamic aggregate group. If the first port to join the aggregate group is no longer part of the aggregate group, the switch automatically assigns another port in the aggregate group to be the primary port.
<b>MACAddress</b>	The MAC address associated with the primary port.
<b>Actor System Id</b>	The MAC address of this dynamic aggregate group. You can modify this parameter with the <b>lacp linkagg actor system id</b> command (see <a href="#">page 8-17</a> ).

*output definitions (continued)*


---

<b>Actor System Priority</b>	The priority of this dynamic aggregate group. You can modify this parameter with the <b>lacp linkagg actor system priority</b> command (see <a href="#">page 8-16</a> ).
<b>Actor Admin Key</b>	The administrative key associated with this dynamic aggregate group. You can modify this parameter with the <b>lacp linkagg actor admin key</b> command (see <a href="#">page 8-15</a> ).
<b>Actor Oper Key</b>	The operational key associated with this dynamic aggregate group.
<b>Partner System Id</b>	The MAC address of the remote dynamic aggregate group. You can modify this parameter with the <b>lacp linkagg partner system id</b> command (see <a href="#">page 8-18</a> ).
<b>Partner System Priority</b>	The priority of the remote system to which this dynamic aggregation group is attached. You can modify this parameter with the <b>lacp linkagg partner system priority</b> command (see <a href="#">page 8-20</a> ).
<b>Partner Admin Key</b>	The administrative key for this dynamic aggregation group's remote partner. You can modify this parameter with the <b>lacp linkagg partner admin key</b> command (see <a href="#">page 8-21</a> ).
<b>Partner Oper Key</b>	The operational key of the remote system to which the dynamic aggregation group is attached.
<b>Pre-emption</b>	The pre-emption status of the link agg ID.
<b>Pre-empt Value</b>	The value of the pre-emption timer.

---

**Release History**

Release 6.1; command was introduced.

Release 6.4.3: **Pre-emption** and **Pre-empt Value** fields added.

**Related Commands**

<a href="#">static linkagg size</a>	Creates a static aggregate group.
<a href="#">lacp linkagg size</a>	Creates a dynamic aggregate group.

## **MIB Objects**

alclnkaggAggTable  
  alclnkaggAggSize  
  alclnkaggAggNumber  
  alclnkaggAggDescr  
  alclnkaggAggName  
  alclnkaggAggLacpType  
  alclnkaggAggAdminState  
  alclnkaggAggOperState  
  alclnkaggAggNbrSelectedPorts  
  alclnkaggAggNbrAttachedPorts  
  alclnkaggPrimaryPortIndex  
  alclnkaggAggMACAddress  
  alclnkaggAggActorSystemPriority  
  alclnkaggAggActorSystemID  
  alclnkaggAggPartnerAdminKey  
  alclnkaggAggActorAdminKey  
  alclnkaggAggActorOperKey  
  alclnkaggAggPartnerSystemID  
  alclnkaggAggPartnerSystemPriority  
  alclnkaggAggPartnerOperKey  
  alclnkaggAggPreemptState  
  alclnkaggAggPreemptValue

---

## show linkagg port

Displays the aggregate group information about a particular slot and port.

**show linkagg** [*agg\_num*] **port** [*slot/port*]

---

### Syntax Definitions

<i>agg_num</i>	Specifies the aggregate group. Configured through the <b>static linkagg size</b> or <b>lACP linkagg size</b> command
<i>slot</i>	The slot number for this aggregate.
<i>port</i>	The port number for this aggregate.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If no *slot/port* is specified, the information for all ports is displayed. If a particular slot or port is specified, the fields displayed depend upon whether or not the port belongs to a static aggregate group or dynamic (LACP) aggregate group.
- If no *agg\_num* is specified, the information for all aggregates is displayed.

### Examples

```
-> show linkagg port
Slot/Port Aggregate SNMP Id   Status   Agg  Oper Link Prim Standby
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  1/9      Static      1009  ATTACHED   1  UP   UP   YES  NO
  1/10     Static      1010  ATTACHED   1  UP   UP   NO   YES
  1/11     Static      1011  ATTACHED   2  UP   UP   YES  NO
```

```
-> show linkagg 1 port
Slot/Port Aggregate SNMP Id   Status   Agg  Oper Link Prim Standby
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  1/9      Static      1009  ATTACHED   1  UP   UP   YES  NO
  1/10     Static      1010  ATTACHED   1  UP   UP   NO   YES
```

### *output definitions*

---

<b>Slot/Port</b>	The slot/port associated with the aggregate group.
<b>Aggregate</b>	The type of aggregate group associated with the port, either <b>Static</b> or <b>Dynamic</b> .

*output definitions*


---

<b>SNMP Id</b>	The SNMP ID associated with the aggregate group.
<b>Status</b>	The current status of the port ( <b>ATTACHED</b> , <b>CONFIGURED</b> , <b>PENDING</b> , <b>SELECTED</b> , or <b>RESERVED</b> ).
<b>Agg</b>	The number of the aggregate groups associated with this port.
<b>Oper</b>	The current operational state of the port ( <b>UP</b> or <b>DOWN</b> ).
<b>Link</b>	The current operational state of the link from this port to its remote partner ( <b>UP</b> or <b>DOWN</b> ).
<b>Prim</b>	Whether or not the port is the primary port in the link agg.
<b>Standby</b>	Whether or not the port is a standby port. A standby port is one of two ports that participate in a dynamic dual-home link aggregate. Configured through the <b>lacp agg standby</b> command.

---

A port that belongs to a static aggregate is specified:

```
-> show linkagg port 4/1
Static Aggregable Port
  SNMP Id           : 4001,
  Slot/Port         : 4/1,
  Administrative State : ENABLED,
  Operational State  : DOWN,
  Port State        : CONFIGURED,
  Link State         : DOWN,
  Selected Agg Number : 2,
  Port position in the aggregate: 0,
  Primary port      : NONE
```

*output definitions*


---

<b>SNMP Id</b>	The SNMP ID associated with this port.
<b>Slot/Port</b>	The slot and port number.
<b>Administrative State</b>	The current administrative state of this port ( <b>ENABLED</b> or <b>DISABLED</b> ).
<b>Operational State</b>	The current operational state of the port ( <b>UP</b> or <b>DOWN</b> ).
<b>Port State</b>	The current operational state of the port ( <b>CONFIGURED</b> , <b>PENDING</b> , <b>SELECTED</b> , or <b>RESERVED</b> ).
<b>Link State</b>	The current operational state of the link from this port to its remote partner ( <b>UP</b> or <b>DOWN</b> ).
<b>Selected Agg Number</b>	The number associated with the static aggregate group to which the port is attached.
<b>Port position in the aggregate</b>	The rank of this port within the static aggregate group (0–15).
<b>Primary Port</b>	The port number of the first port to join this static aggregate group. If the first port to join the aggregate is no longer part of the aggregate group, the switch automatically assigns another port in the aggregate group to be the primary port.

---

A port that belongs to a dynamic aggregate is specified:

```
-> show linkagg port 2/1
Dynamic Aggregable Port
  SNMP Id           : 2001,
  Slot/Port         : 2/1,
```

```

Administrative State      : ENABLED,
Operational State       : DOWN,
Port State               : CONFIGURED,
Link State               : DOWN,
Selected Agg Number     : NONE,
Primary port             : UNKNOWN,
LACP
Actor System Priority    : 10,
Actor System Id         : [00:d0:95:6a:78:3a],
Actor Admin Key         : 8,
Actor Oper Key          : 8,
Partner Admin System Priority : 20,
Partner Oper System Priority : 20,
Partner Admin System Id : [00:00:00:00:00:00],
Partner Oper System Id  : [00:00:00:00:00:00],
Partner Admin Key       : 8,
Partner Oper Key        : 0,
Attached Agg Id         : 0,
Actor Port              : 7,
Actor Port Priority     : 15,
Partner Admin Port      : 0,
Partner Oper Port       : 0,
Partner Admin Port Priority : 0,
Partner Oper Port Priority : 0,
Actor Admin State       : act1.tim1.agg1.syn0.col0.dis0.def1.exp0
Actor Oper State        : act1.tim1.agg1.syn0.col0.dis0.def1.exp0,
Partner Admin State     : act0.tim0.agg1.syn1.col1.dis1.def1.exp0,
Partner Oper State      : act0.tim0.agg1.syn0.col1.dis1.def1.exp0
Standby State           : ENABLED

```

**output definitions**


---

<b>SNMP Id</b>	The SNMP ID associated with this port.
<b>Slot/Port</b>	The slot and port number.
<b>Administrative State</b>	The current administrative state of this port ( <b>ENABLED</b> or <b>DISABLED</b> ).
<b>Operational State</b>	The current operational state of the port ( <b>UP</b> or <b>DOWN</b> ).
<b>Port State</b>	The current operational state of the port ( <b>CONFIGURED</b> , <b>PENDING</b> , <b>SELECTED</b> , or <b>AGGREGATED</b> ).
<b>Link State</b>	The current operational state of the link from this port to its remote partner ( <b>UP</b> or <b>DOWN</b> ).
<b>Selected Agg Number</b>	The number associated with the dynamic aggregate group to which the port is attached.
<b>Primary Port</b>	The port number of the first port to join this dynamic aggregate group. If the first port to join the aggregate is no longer part of the aggregate group, the switch automatically assigns another port in the aggregate group to be the primary port.
<b>Actor System Priority</b>	The actor system priority of this port. Configured through the <b>lacp agg actor system priority</b> command.
<b>Actor System Id</b>	The actor system ID (i.e., MAC address) of this port. Configured through the <b>lacp agg actor system id</b> command.
<b>Actor Admin Key</b>	The actor administrative key value for this port. Configured through the <b>lacp agg actor admin key</b> command.



*output definitions (continued)*

<b>Actor Oper Key</b>	The actor operational key associated with this port.
<b>Partner Admin System Priority</b>	The administrative priority of the remote system to which this port is attached. Configured through the <b>lACP agg partner admin system priority</b> command.
<b>Partner Oper System Priority</b>	The operational priority of the remote system to which this port is attached.
<b>Partner Admin System Id</b>	The administrative MAC address associated with the remote partner's system ID. This value is used along with Partner Admin System Priority, Partner Admin Key, and Partner Admin Port Priority to manually configure aggregation. Configured through the <b>lACP agg partner admin system id</b> command.
<b>Partner Oper System id</b>	The MAC address that corresponds to the remote partner's system ID.
<b>Partner Admin Key</b>	The administrative value of the key for the remote partner. This value is used along with Partner Admin System Priority, Partner Admin System, Partner Admin Port, and Partner Admin Port Priority to manually configure aggregation. Configured through the <b>lACP agg partner admin key</b> command.
<b>Partner Oper Key</b>	The current operational value of the key for the protocol partner.
<b>Attached Agg ID</b>	The ID of the aggregate group that the port has attached itself to. A value of zero indicates that the port is not attached to an aggregate group.
<b>Actor Port</b>	The port number locally assigned to this port.
<b>Actor Port Priority</b>	The actor priority value assigned to the port. Configured through the <b>lACP agg actor port priority</b> command.
<b>Partner Admin Port</b>	The administrative value of the port number for the protocol partner. This value is used along with Partner Admin System Priority, Partner Admin System ID, Partner Admin Key, and Partner Admin Port Priority to manually configure aggregation. Configured through the <b>lACP agg partner admin port</b> command.
<b>Partner Oper Port</b>	The operational port number assigned to the port by the port's protocol partner.
<b>Partner Admin Port Priority</b>	The administrative port priority of the protocol partner. This value is used along with Partner Admin System Priority, Partner Admin System ID, and Partner Admin Key to manually configure aggregation. Configured through the <b>lACP agg partner admin port priority</b> command.
<b>Partner Oper Port Priority</b>	The priority value assigned to the this port by the partner.
<b>Actor Admin State</b>	The administrative state of the port. Configured through the <b>lACP agg actor admin state</b> command.
<b>Actor Oper State</b>	The current operational state of the port.
<b>Partner Admin State</b>	The administrative state of the partner's port. Configured through the <b>lACP agg partner admin state</b> command.

*output definitions (continued)*


---

<b>Partner Oper State</b>	The current operational state of the partner's port.
<b>Standby State</b>	The standby state of the port. This value indicates if the port will participate as a standby port in a dynamic dual-home link aggregate. Configured through the <b>lACP agg standby</b> command.

---

**Release History**

Release 6.1; command was introduced.

Release 6.3.4; *agg\_num* parameter added.

Release 6.4.3; **Standby** field added.

**Related Commands**

<b>static agg agg num</b>	Configures a slot and port for a static aggregate group.
<b>lACP agg actor admin key</b>	Configures a slot and port for a dynamic aggregate group.
<b>show linkagg</b>	Displays information about static and dynamic (LACP) aggregate groups.

**MIB Objects**

```

alclnkaggAggPortTable
  alclnkaggAggPortActorSystem
  alclnkaggAggPortActorSystemPriority
  alclnkaggAggPortActorSystemID
  alclnkaggAggPortActorAdminKey
  alclnkaggAggPortActorOperKey
  alclnkaggAggPortPartnerAdminSystemPriority
  alclnkaggAggPortPartnerOperSystemPriority
  alclnkaggAggPortPartnerAdminSystemID
  alclnkaggAggPortPartnerOperSystemID
  alclnkaggAggPortPartnerAdminKey
  alclnkaggAggPortPartnerOperKey
  alclnkaggAggPortSelectedAggID
  alclnkaggAggPortAttachedAggID
  alclnkaggAggPortActorPort
  alclnkaggAggPortActorPortPriority
  alclnkaggAggPortPartnerAdminPort
  alclnkaggAggPortPartnerOperPort
  alclnkaggAggPortPartnerAdminPortPriority
  alclnkaggAggPortPartnerOperPortPriority
  alclnkaggAggPortActorAdminState
  alclnkaggAggPortActorOperState
  alclnkaggAggPortPartnerAdminState
  alclnkaggAggPortPartnerOperState
  alclnkaggAggPortStandbyState

```

---

## dhl num

Configures a Dual-homed Link (DHL) session associated with the specified session ID number.

**dhl num** *dhl\_num* [**name** *name*]

**no dhl num** *dhl\_num*

---

### Syntax Definitions

*dhl\_num*                                   The DHL session ID number. Valid range is 1–1000.

*name*                                       The name of the DHL session.

### Defaults

By default, if a name is not assigned to a DHL session, the session is configured as DHL-1.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a DHL session ID from the switch configuration.
- Use the optional **name** parameter to specify a name for the DHL session.
- Only one DHL session can be configured per switch.
- Once the DHL session ID is created, assign a link A port and a link B port to the session. This is required before administratively enabling the DHL session is allowed.

### Examples

```
-> dhl num 1 name dhl_session1  
-> no dhl num 1
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

**dhl num linka linkb**

Associates a pair of links (port or linkagg) with the DHL session.

**dhl num admin-state**

Configures the administrative status of the DHL session.

**show dhl num**

Displays information about a specific DHL session.

## MIB Objects

alaDHLSessionTable

    alaDHLSessionIndex

    alaDHLSessionDescr

---

## dhl num linka linkb

Configures two ports or two link aggregates or a combination of both as linkA and linkB for the specified DHL session. Only two links are allowed per DHL session; only one DHL session per switch is allowed.

**dhl num** *dhl\_num* **linka** {port *slot/port* | linkagg *agg\_id*} **linkb** {port *slot/port* | linkagg *agg\_id*}

**no dhl num** *dhl\_num* **linka** {port *slot/port* | linkagg *agg\_id*} **linkb** {port *slot/port* | linkagg *agg\_id*}

---

### Syntax Definitions

<i>dhl_num</i>	An existing DHL session ID number.
<i>slot/port</i>	The slot number and the physical port number to designate as a link for the DHL session. (for example, 3/1 specifies port 1 on slot 3).
<i>agg_id</i>	The link aggregate ID number to designate as a link for the DHL session.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the linkA and linkB ports from the specified session ID. Before attempting to remove the links, administratively disable the DHL session.
- Make sure that DHL linkA *and* linkB are associated with each VLAN that the DHL session will protect. Any VLAN not associated with either link or only associated with one of the links is unprotected.
- DHL linkA *and* linkB should belong to the same default VLAN. In addition, select a default VLAN that is one of the VLANs that the DHL session will protect. For example, if the session is going to protect VLANs 10-20, then assign one of those VLANs as the default VLAN for linkA and linkB.
- Only one DHL session per switch is allowed. Each session can have only two links (linkA and linkB). Specify a physical switch port or a link aggregate (linkagg) ID as a DHL link. The same port or link aggregate is not configurable as both linkA or linkB.
- DHL is not supported on mobile, 802.1x-enabled, GVRP, or UNI ports. DHL is also not supported on a port that is a member of a link aggregate or a port that is enabled for transparent bridging.
- The administrative state of a DHL session is not configurable until a linkA port and a linkB port are associated with the specified DHL session ID number.
- Changing the port designations for linkA and linkB is not recommended while the DHL session is enabled.
- Removing a link aggregate from the switch configuration is not allowed if the aggregate is configured as a link for a DHL session.

## Examples

```
-> dhl num 1 linka port 1/1 linkb port 1/2
-> dhl num 1 linka linkagg 1 linkb port 1/2
-> dhl num 1 linka port 1/1 linkb linkagg 1
-> dhl num 1 linka linkagg 1 linkb linkagg 2
-> no dhl num 1 linka port 1/1 linkb port 1/2
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

<a href="#">dhl num</a>	Configures a session ID for the DHL session.
<a href="#">dhl num admin-state</a>	Configures the administrative status for the DHL session.
<a href="#">show dhl</a>	Displays the global status of the DHL configuration.
<a href="#">show dhl num</a>	Displays information about a specific DHL session.
<a href="#">show dhl num link</a>	Displays information about a specific link.

## MIB Objects

```
AlaDHLLinksTable
  alaDHLLinksSessionIndex
  alaDHLLinkslinkA
  alaDHLLinkslinkB
```

---

## dhl num admin-state

Enables or disables the administrative state of a DHL session.

```
dhl num dhl_num admin-state {enable | disable}
```

---

### Syntax Definitions

<i>dhl_num</i>	An existing DHL session ID number.
<b>enable</b>	Enables the DHL session.
<b>disable</b>	Disables the DHL session.

### Defaults

---

parameter	default
<b>enable   disable</b>	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The DHL session ID specified with this command must already exist in the switch configuration.
- The administrative state is not configurable until a linkA port and a linkB port are associated with the specified DHL session ID number.

### Examples

```
-> dhl num 1 admin-state enable  
-> dhl num 1 admin-state disable
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>dhl num linka linkb</b>	Configures the two links required for a DHL session.
<b>show dhl</b>	Displays the global status of the DHL configuration.
<b>show dhl num</b>	Displays information about a specific DHL session.

### MIB Objects

```
alaDHLSessionTable  
alaDHLSessionAdminStatus
```

---

## dhl num vlan-map linkb

Configures a VLAN-MAP (a single VLAN or a range of VLANs) from a common pool of VLANs to operate on DHL link B.

**dhl num** *dhl\_num* **vlan-map linkb** {*vlan\_id*[-*vlan\_id*]}

**no dhl num** *dhl\_num* **vlan-map linkb** {*vlan\_id*[-*vlan\_id*]}

---

### Syntax Definitions

<i>dhl_num</i>	Specifies the DHL session ID number.
<i>vlan_id</i> [- <i>vlan_id</i> ]	A VLAN ID number or a range of VLAN IDs to map to linkB. The valid range is 1- 4094.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A DHL session has to be created before a VLAN-MAP can be configured.
- When the DHL session is active, the common VLAN that both the dual homed links belong to is treated as a protected VLAN. The VLAN containing only one dual homed link is treated as an unprotected VLAN. Traffic is forwarded only on the dual homed links belonging to the protected VLAN.
- If a VLAN is removed globally and if the VLAN belongs to a particular dual homed link, then the VLAN will automatically be removed from the dual homed link.
- If one dual homed link, for example linkA, is moved out of a protected VLAN, then the VLAN becomes unprotected and the VPA is removed from the second dual homed link, for example linkB.
- If the admin state of a VLAN is changed to disabled, and if the VLAN is part of a protected VLAN, then the disabled VLAN is removed from the operational DHL VLAN list but will be present in the protected VLAN list.
- If the admin state of a dual homed link, for example linkA, is changed to disabled, then the protected VLANs of the disabled linkA is moved to the other link, for example linkB. When linkA is re-enabled, then the VLANs are moved back to linkA.
- If the VLAN-MAP of linkB is removed, then the VPAs for the linkB will also be removed and the VLANs configured on linkB is moved to linkA.
- If a VLAN is configured as default on one dual homed link, for example linkA, then the same VLAN cannot be configured as tagged on the other link, for example linkB.

### Examples

```
-> vlan 10-30
```



```
-> vlan 10-20 802.1q 1/1
-> vlan 4
-> vlan port default 1/1-2
-> dhl num 1 name dhl_session1
-> dhl num 1 linka port 1/1 linkb port 1/2
-> dhl num 1 vlan-map linkb 18-20
-> no dhl num 1 vlan-map linkb 18-20
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>dhl num linka linkb</b>	Configures a port or a link aggregate as dual homed links (linkA, linkB) of a DHL session.
<b>show dhl</b>	Displays the global status of the DHL configuration.
<b>show dhl num</b>	Displays information about a specific DHL session.
<b>show dhl num link</b>	Displays information about a specific DHL link.

## MIB Objects

```
alaDHLVlanMapTable
  alaDHLVlanMapSessionIndex
  alaDHLVlanMapVlanStart
  alaDHLVlanMapVlanEnd
  alaDHLVlanMapRowStatus
```

---

## dhl num pre-emption-time

Configures the pre-emption timer for the DHL session. A pre-emption timer is a recovery-delay timer that is used to delay the switchover of VLANs to their primary links. It is the delay in the resumption of traffic when a link that is down is brought up.

**dhl num** *dhl\_num* **pre-emption-time** *num*

---

### Syntax Definitions

<i>dhl_num</i>	Specifies the number of the DHL session.
<i>num</i>	Specifies the number of seconds for the delay in the switchover of VLANs to their primary links. The valid range is 0 - 600.

### Defaults

parameter	default
<i>num</i>	30 seconds

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Pre-emption timer is applicable only when a failed port is brought up. If both ports are down, the pre-emption timer is activated only when the second port is brought up.
- If the pre-emption value is set to 0, then there will be no delay in the VLANs being moved back to their primary link.
- If a link fails when the pre-emption value is active, that is when the pre-emption value is not equal to 0, then the time will be halted.
- When the pre-emption timer is active for a particular link and port and if the other port goes down, then the VLANs of the port that is down is automatically moved to the port for which the pre-emption timer is active.
- When DHL ports spanned across the NIs or DHC ports are on the same NI but data port is on different NI, it is advised to configure mac-flush mechanism (either Raw/MVRP) for faster convergence.

### Examples

```
-> dhl num 1 pre-emption-time 40sec
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>show dhl</b>	Displays the global status of the DHL configuration.
<b>show dhl num</b>	Displays information about a specific DHL session.
<b>show dhl num link</b>	Displays information about a specific dual homed link.

## MIB Objects

alaDHLSessionTable  
alaDHLSessionPreemptionTime

---

## dhl num mac-flushing

Configures the MAC-flushing technique for the DHL session. The MAC-flushing technique is used to correct any stale MAC entries that are caused when a dual homed link goes down.

**dhl num** *dhl\_num* **mac-flushing** {**none** | **raw** | **mvrp**}

---

### Syntax Definitions

<i>dhl_num</i>	Specifies the number of the DHL session.
<b>none</b>	Flushing of the MAC address tables does not occur.
<b>raw</b>	Method of flushing when VPAs of the links moved across them due to link up/down or configuration change(VLAN-map). The switch determines the MAC addresses within the affected VLANs
<b>mvrp</b>	Method of flushing when one link fails, and the other link issues 'join' declarations to establish connectivity. These new joins are flagged as 'new' and they are forwarded by the core devices causing flushing on the core network for the active VLANs.

### Defaults

parameter	default
<b>none</b>   <b>raw</b>   <b>mvrp</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Before enabling MVRP on dual homed links, the Registrar Mode should be set to 'forbidden', failing which an error message is displayed when configuring DHL. If the Registrar Mode is set to 'not forbidden', then changes cannot be made to the MVRP configuration on the dual homed links.
- If the mac-flushing technique is set to MVRP and if MVRP is not enabled on the dual homed links, then the **show dhl** command displays the active mac-flushing technique as **none**. When MVRP is enabled on the dual homed links, then the mac-flushing technique changes to **MVRP** and the Registrar Mode of the links is automatically set to 'forbidden'.
- If VLANs are moved across the dual homed links as a result of configuration changes, then mac-flushing is automatically enabled, if configured, excepting dual homed links that are changed on the fly..

### Examples

```
-> dhl num 1 mac-flushing none
-> dhl num 1 mac-flushing raw
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>show dhl</b>	Displays the global status of the DHL configuration.
<b>show dhl num</b>	Displays information about a specific DHL session.
<b>show dhl num link</b>	Displays information about a specific dual homed link.

## MIB Objects

alaDHLSessionTable  
alaDHLSessionMacFlushingtech

---

## show dhl

Displays the global status of the DHL configuration.

**show dhl**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show DHL
Number  Name      Admin  Oper  Pre-emption  Mac-flushing  Active Mac-flushing
state   state    time
-----+-----+-----+-----+-----+-----+-----+-----
1       DHL-1    UP     UP    30sec        Raw            Raw
```

#### *output definitions*

---

<b>Number</b>	Number of the DHL session.
<b>Name</b>	The user-defined text description of the DHL session.
<b>Admin state</b>	The administrative status of the DHL session.
<b>Oper state</b>	The operational status of the DHL session.
<b>Pre-emption time</b>	The pre-emption time in seconds of the DHL session.
<b>Mac-flushing</b>	Mac-flushing technique on the DHL session.
<b>Active Mac-flushing</b>	Mac-flushing technique that is currently active on the DHL session.

---

### Release History

Release 6.4.4; command was introduced.

## Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>show dhl num</b>	Displays information about a specific DHL session.
<b>show dhl num link</b>	Displays information about a specific dual homed link.

## MIB Objects

```
alaDHLSessionTable  
  alaDHLSessionIndex  
  alaDHLSessionDesc  
  alaDHLSessionAdminStatus  
  alaDHLSessionOperStatus  
  alaDHLSessionPreemptionTime  
  alaDHLSessionMacFlushingtech
```

---

## show dhl num

Displays information about a specific DHL session.

**show dhl num** *dhl\_num*

---

### Syntax Definitions

*dhl\_num* Specifies the number of the DHL session.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show dhl num 1
DHL session name      : Arice,
Admin state           : Up,
Operational state     : Up,
Pre-emption time     : 40 sec,
Mac-flushing         : Raw-Flushing,
Active Mac-flushing  : Raw-Flushing,

Protected VLANs      : 10-20,23,25,30-100,600,700,800,

linkA:
  Port                : 1/2,
  Operational state   : Up

  Un protected VLANs : 900,1980,1987,234,
  Active VLAN        : 10-20,23,25,30-100,600,700,800,

linkB:
  Port                : 1/1,
  Operational state   : Down,
  Un protected VLANs : 1730-1800,
  Vlan-map           : 30-100,600,
  Active Vlans       : none,
```

### *output definitions*

---

<b>DHL session Name</b>	The user-defined text description of the DHL session.
<b>Admin state</b>	The current administrative status of the DHL session.
<b>Operational state</b>	The operational state of the DHL session.



*output definitions*

---

<b>Pre-emption time</b>	The delay-interval in seconds to move the VLANs back to their original links.
<b>Mac-flushing</b>	Mac-flushing technique on the DHL session.
<b>Active Mac-flushing</b>	The active Mac-flushing technique that is enabled on the specified DHL session.
<b>Protected VLANs</b>	The common VLANs that contain both the dual homed links, for example linkA and linkB.
<b>LinkA</b>	A dual homed link that is part of a pair of DHL links that can be configured per switch.
<b>Port</b>	The port number of linkA.
<b>Operational state</b>	The operational state of the port. The operational states are UP or DOWN.
<b>Un protected VLANs</b>	The VLANs containing only one dual homed link.
<b>Active VLANs</b>	The VLANs that are in an active state.
<b>LinkB</b>	A dual homed link that is part of a pair of DHL links that can be configured per switch.
<b>Port</b>	The port number of linkB.
<b>Operational state</b>	The operational state of the port. The operational states are UP or DOWN.
<b>Un protected VLANs</b>	The VLANs containing only one dual homed link.
<b>VLAN-map</b>	The DHL VLAN map for linkB. This specifies the VLANs that are operational on DHL linkB from the common pool of VLANs between DHL linkA and linkB.
<b>Operational VLANs</b>	The VLANs that are in an operational state.

---

**Release History**

Release 6.4.4; command was introduced.

**Related Commands**

<a href="#">dhl num</a>	Configures a session ID for the DHL session.
<a href="#">show dhl num link</a>	Displays information about a specific dual homed link.

**MIB Objects**

```
alaDHLSessionTable
  alaDHLSessionIndex
  alaDHLSessionDescr
  alaDHLSessionAdminStatus
  alaDHLSessionOperStatus
  alaDHLSessionPreemptionTime
  alaDHLSessionMacFlushingtech
alaDHLLinksTable
  alaDHLLinksSessionIndex
  alaDHLLinkslinkA
```

```
alaDHLLinkslinkAOperStatus
alaDHLLinkslinkB
alaDHLLinkslinkBOperStatus
alaDHLVlanMapTable
  alaDHLVlanMapSessionIndex
  alaDHLVlanMapVlanStart
  alaDHLVlanMapVlanEnd
alaDHLVpaTable
  alaDHLVpalink
  alaDHLVpaVlan
  alaDHLVpaVlanType
  alaDHLVpaOperationalLink
```

---

## show dhl num link

Displays information about a specific DHL link, for example linkA or linkB and the VLAN details of the specified link.

```
show dhl num dhl_num [linkA | linkB]
```

---

### Syntax Definitions

<i>dhl_num</i>	Specifies the number of the DHL session.
<b>linkA</b>	The dual homed link that is part of a pair of DHL links that can be configured per switch.
<b>linkB</b>	The dual homed link that is part of a pair of DHL links that can be configured per switch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show dhl num 1 linkA
```

```
linkA:
  Port                : 1/2,
  Operational state   : Up,

  Protected VLANs     : 10-20, 23, 25, 30-100,600,700,800,
  Un protected VLANs  : 900, 1980, 1987,234,
  Active VLAN         : 10-20, 23, 25, 30-100,600,700,800,
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

<b>dhl num</b>	Configures a session ID for the DHL session.
<b>dhl num linka linkb</b>	Configures a port or a link aggregate as dual homed links (linkA, linkB) of a DHL session.
<b>dhl num vlan-map linkb</b>	Configures a VLAN or a range of VLANs from a common pool to operate on DHL linkB.
<b>show dhl num</b>	Displays information about a specific DHL session.

## MIB Objects

```
alaDHLLinksTable
  alaDHLLinksSessionIndex
  alaDHLLinkslinkA
  alaDHLLinkslinkAOperStatus
  alaDHLLinkslinkB
alaDHLVpaTable
  alaDHLVpalink
  alaDHLVpaVlan
  alaDHLVpaVlanType
  alaDHLVpaOperationalLink
alaDHLVlanMapTable
  alaDHLVlanMapSessionIndex
  alaDHLVlanMapVlanStart
  alaDHLVlanMapVlanEnd
```

---

# 9 Ethernet Ring Protection Commands

Ethernet Ring Protection (ERP) is a protection switching mechanism for Ethernet ring topologies, such as multi-ring and ladder networks. This implementation of ERP is based on Recommendation ITU-T G.8032 and uses the ring Automatic Protection Switching (APS) protocol to coordinate the prevention of network loops within a bridged Ethernet ring.

Loop prevention is achieved by allowing the traffic to flow on all but one of the links within the protected Ethernet ring. This link is blocked and is referred to as the Ring Protection Link (RPL). When a ring failure condition occurs, the RPL is unblocked to allow the flow of traffic to continue through the ring.

ERP and the Ring Rapid Spanning Tree Protocol (RRSTP) are both used for the prevention of loops in ring-based topologies but have the following differences in their implementation and functionality:

- RRSTP uses a different destination MAC address for each ring, based on the ring ID. ERP uses the same destination MAC address for all ERP protocol frames and identifies the ring based on a unique Service VLAN associated with each ring, which carries the ERP protocol frames.
- When a link failure is detected, RRSTP quickly sets the blocking ports to a forwarding state but relies on MSTP for actual protocol convergence. ERP does not require any support from MSTP. ERP has an inherent mechanism to recover from a failed state once the failed link is active again.
- MSTP determines which ports of a fully active RRSTP ring are blocked. The blocked ports (Ring Protection Link) for an ERP ring is pre-determined and configured by the user.
- RRSTP requires a ring of contiguous RRSTP nodes. ERP allows non-ERP nodes to participate in the ring by using the connectivity monitoring capabilities of Ethernet OAM to alert ERP of a link failure through non-ERP nodes.

MIB information for the Ethernet ring protection command is as follows:

*Filename:* AlcatelIND1Erp.mib  
*Module:* ALCATEL-IND1-ERP-MIB

A summary of available commands is listed here:

---

**erp-ring**  
**erp-ring protected-vlan**  
**erp-ring rpl-node**  
**erp-ring wait-to-restore**  
**erp-ring enable**  
**erp-ring ethoam-event remote-endpoint**  
**erp-ring guard-timer**  
**clear erp statistics**  
**show erp**  
**show erp protected-vlan**  
**show erp statistics**

---

## erp-ring

Creates an Ethernet Ring Protection (ERP) ring using the specified ports and service VLAN ID. The service VLAN transmits ERP control traffic, such as Ring Automatic Protection Switching (R-APS) messages, through the ring and the specified level number identifies an APS Management Entity Group (MEG) to which the service VLAN belongs.

```
erp-ring ring_id port1 {slot/port | linkagg agg_num} port2 {slot/port | linkagg agg_num} service-vlan
vlan_id level level_num [guard-timer guard_timer] [wait-to-restore-timer wtr_timer] [enable | disable]
```

```
no erp-ring ring_id
```

---

### Syntax Definitions

<i>ring_id</i>	The ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.
<i>vlan_id</i>	The service VLAN ID number. The valid range is 1- 4094.
<i>level_num</i>	The MEG level number for the service VLAN. The valid range is 0-7.
<i>guard-timer</i>	The guard timer value, in centi-secs, for the ring node.
<i>wtr-timer</i>	The wait-to-restore timer value, in minutes, for the Ring Protection Link (RPL) node.
<b>enable</b>	Administratively enables the ERP ring.
<b>disable</b>	Administratively disables the ERP ring.

### Defaults

parameter	default
<i>guard_timer</i>	50
<i>wtr_timer</i>	5
<b>enable</b>   <b>disable</b>	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a ring from the switch configuration. Note that administratively disabling ring ports is recommended before deleting the ring to avoid creating any network loops. Once the ring is deleted, then ensure that the same ports are administratively enabled under Spanning Tree control.
- The specified ring identification number must be unique within a switch.

- ERP is not supported on mobile ports, mirroring ports, link aggregate member ports, Multicast VLAN receiver ports (ERP is supported on Multicast VLAN sender ports only), VLAN Stacking user network interface (UNI) ports, or RRSTP ring ports.
- If a port is tagged with the service VLAN ID or the service VLAN is the default VLAN for the port, then the port is not eligible to become an ERP ring port.
- Specify an existing VLAN ID for the service VLAN ID. Use the same VLAN ID and level number for the service VLAN on each switch that will participate in the ERP ring.
- If the ERP switch participates in an Ethernet OAM Maintenance Domain (MD), configure the ERP service VLAN to use the same level number that is used for the Ethernet OAM MD.
- Specify a static VLAN ID for the ERP service VLAN; dynamic VLANs are not configurable as service VLANs.
- The service VLAN can belong to only one ERP ring at a time. Up to four rings per switch are allowed.
- The specified service VLAN ID must not participate in a Spanning Tree instance that is associated with non-ERP VLANs. This may require changing the Spanning Tree configuration for the VLAN ID prior to using this command.
- An ERP ring port can belong to only one ERP ring at a time.
- An ERP type NNI-SVLAN binding should be created before establishing an ERP ring on that SVLAN-NNI binding.

## Examples

```
-> erp-ring 1 port1 1/1 port2 2/4 service-vlan 10 level 2 enable
-> erp-ring 2 port1 linkagg 1 port2 2/10 service-vlan 20 level 2
-> erp-ring 3 port1 linkagg 2 port2 linkagg 4 service-vlan 30 level 7
-> no erp-ring 2
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.
<a href="#">show erp protected-vlan</a>	Displays the protected VLAN configuration for the switch.
<a href="#">show erp statistics</a>	Displays ERP ring statistics.
<a href="#">ethernet-service svlan nni</a>	Creates a NNI-SVLAN binding.



## **MIB Objects**

```
alaErpRingId
  alaErpRingServiceVid
  alaErpRingMEGLevel
  alaErpRingStatus
  alaErpRingPort1
  alaErpRingPort2
  alaErpRingWaitToRestore
  alaErpRingGuardTimer
  alaErpRingRowStatus
```

---

## erp-ring protected-vlan

Configures a VLAN as a protected VLAN for an ERP ring. The ring ports associated with the specified ring ID are tagged with the protected VLAN ID.

```
erp-ring ring_id protected-vlan vlan_id1[-vlan_id2] [vlan_id1[-vlan_id2]]
```

```
no erp-ring ring_id protected-vlan [vlan_id1[-vlan_id2]]
```

---

### Syntax Definitions

<i>ring_id</i>	The ERP ring ID number. The valid range is 1- 2147483647.
<i>vlan_id1[-vlan_id2]</i>	The VLAN ID number. To specify multiple VLAN IDs in a single command, use a hyphen to indicate a contiguous range of VLAN IDs and a space to separate multiple VLAN ID entries (e.g., 10-20 30 100).

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a protected VLAN from the ERP ring configuration.
- The ERP ring ID number specified must already exist in the switch configuration, unless the VLAN ID specified belongs to a VLAN Stacking SVLAN.
- The VLAN ID specified must already exist in the switch configuration.
- Specify only static VLAN IDs; dynamic VLANs are not configurable as protected VLANs.
- A protected VLAN can belong to only one ERP ring at a time.
- The specified protected VLAN ID must not participate in a Spanning Tree instance that is associated with non-ERP VLANs. This may require changing the Spanning Tree configuration for the VLAN ID prior to using this command.
- A SVLAN with two ERP VPA type NNI ports will be automatically configured as an ERP protected VLAN on a ring if the two NNI ports constitute its ring ports.
- Deletion of SVLAN-NNI binding results in removal of the SVLAN from the corresponding ERP protected VLAN database.

### Examples

```
-> erp-ring 1 protected-vlan 11
-> erp-ring 1 protected-vlan 12-20 25-40 100
-> erp-ring 2 protected-vlan 30-50
-> no erp-ring 1 protected-vlan
-> no erp-ring 1 protected-vlan 25-40
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">erp-ring</a>	Configures an ERP ring.
<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.
<a href="#">show erp protected-vlan</a>	Displays the protected VLAN configuration for the switch.

## MIB Objects

```
alaErpRingId  
  alaErpRingVlanProtectedVid  
  alaErpRingVlanRowStatus
```

---

## erp-ring rpl-node

Configures a switch as a Ring Protection Link (RPL) node. This command also identifies the ERP port as an RPL connection port. The RPL remains blocked to prevent loops within the ERP ring.

```
erp-ring ring_id rpl-node {port slot/port | linkagg agg_num}
```

```
no erp-ring ring_id rpl-node
```

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the RPL designation for the specified ring.
- The RPL node can be configured only when the ring is disabled; RPL configuration applied to the ring while it is enabled will be rejected.
- The specified ERP ring ID must already exist in the switch configuration.
- This command applies only to ERP ring ports; ports not configured as ERP ring ports are not eligible to become RPL ports.
- Only one of the two ring ports configured for the switch can be designated as an RPL node port.

### Examples

```
-> erp-ring 1 rpl-node port 2/1
-> erp-ring 2 rpl-node linkagg 2
-> no erp-ring 2 rpl-node
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">erp-ring</a>	Configures an ERP ring.
<a href="#">erp-ring wait-to-restore</a>	Configures the wait-to-restore timer value for the Ring Protection Link (RPL) node.
<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.

## MIB Objects

```
alaErpRingId  
  alaErpRingPortIfIndex  
  alaErpRingPortType
```

---

## erp-ring wait-to-restore

Configures the wait-to-restore timer value for the Ring Protection Link (RPL) switch. This timer determines the number of minutes the RPL switch waits before returning the RPL ports to a blocked state after the ERP ring has recovered from a link failure.

**erp-ring** *ring\_id* **wait-to-restore** *wtr\_timer*

**no erp-ring** *ring\_id* **wait-to-restore**

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>wtr_timer</i>	The number of minutes to wait before restoring the RPL to a blocked state. The valid range is 1-12.

### Defaults

By default, the wait-to-restore timer value is set to 5 minutes.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the timer back to the default setting of 5 minutes.
- The specified ERP ring ID must already exist in the switch configuration.
- This command applies only on a switch that serves as the RPL node for the ERP ring.

### Examples

```
-> erp-ring 1 wait-to-restore 6
-> no erp-ring 1 wait-to-restore
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">erp-ring</a>	Configures an ERP ring.
<a href="#">erp-ring rpl-node</a>	Configures a Ring Protection Link (RPL) port connection.
<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.

### MIB Objects

```
alaErpRingId
  alaErpRingWaitToRestoreTimer
```

---

## erp-ring enable

Enables or disables an ERP ring identified by the specified ring ID. This command applies to enabling or disabling existing ERP rings.

**erp-ring** *ring\_id* {**enable** / **disable**}

---

### Syntax Definitions

*ring\_id* An existing ERP ring ID number. The valid range is 1- 2147483647.

### Defaults

By default, ERP rings are disabled when they are created.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The specified ring ID must already exist in the switch configuration.
- Enabling a ring is also allowed at the time the ring is created.

### Examples

```
-> erp-ring 1 enable  
-> erp-ring 1 disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[erp-ring](#) Configures an ERP ring.  
[show erp](#) Displays the ERP ring configuration for the switch.

### MIB Objects

```
alaErpRingId  
  alaErpRingStatus
```

---

## erp-ring ethoam-event remote-endpoint

Configures an ERP ring port to accept or drop a loss of connectivity event for a Remote Ethernet OAM Maintenance End Point (MEP). This command allows ERP to interact with Ethernet OAM to monitor non-ERP nodes that may exist in an ERP ring.

**erp-ring** *ring\_id* **ethoam-event** {**port** *slot/port* | **linkagg** *agg\_num*} **remote-endpoint** *mep\_id*

**no erp-ring** *ring\_id* **ethoam-event** {**port** *slot/port* | **linkagg** *agg\_num*}

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.
<i>mep_id</i>	The remote MEP ID number. The valid range is 1-8191.

### Defaults

By default, ERP ports will drop Ethernet OAM loss of connectivity events.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to configure the ERP ring port to drop loss of connectivity events.
- The specified ring ID must already exist in the switch configuration.
- The specified remote MEP ID number is only allowed on one ring port within the same ERP ring.

### Examples

```
-> erp-ring 1 ethoam-event port 1/1 remote-endpoint 10
-> erp-ring 1 ethoam-event linkagg 1 remote-endpoint 20
-> no erp-ring 1 ethoam-event port 1/1
```

### Release History

Release 6.3.4; command was introduced.



## Related Commands

[erp-ring](#)

Configures an ERP ring.

[show erp](#)

Displays the ERP ring configuration for the switch.

## MIB Objects

alaErpRingId

alaErpRingPortEthOAMEvent

alaErpRingPortRmepId

---

## erp-ring guard-timer

Configures the guard timer value for the specified ERP ring node. The guard timer is used to prevent ring nodes from receiving outdated Ring Automatic Protection Switching (R-APS) messages. During the amount of time determined by this timer, all received R-APS messages are ignored by the ring protection control process.

**erp-ring** *ring\_id* **guard-timer** *guard\_timer*

**no erp-ring** *ring\_id* **guard-timer**

---

### Syntax Definitions

*ring\_id* An existing ERP ring ID number. The valid range is 1–2147483647.  
*guard\_timer* The guard timer value. The valid range is 1–200 centi-secs.

### Defaults

parameter	default
<i>guard_timer</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the timer back to the default value of 50 centi-secs.
- The specified ring ID must already exist in the switch configuration.

### Examples

```
-> erp-ring 1 guard-timer 10
-> no erp-ring 1 guard-timer
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[erp-ring](#) Configures an ERP ring.  
[show erp](#) Displays the ERP ring configuration for the switch.

### MIB Objects

alaErpRingId  
 alaErpRingGuardTimer

---

## clear erp statistics

Clears ERP statistics for all rings, a specific ring, or a specific ring port.

**clear erp statistics** [**ring** *ring\_id* [**port** *slot/port* | **linkagg** *agg\_num*]]

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.

### Defaults

By default, statistics are cleared for all ERP rings in the switch configuration.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Enter a ring ID to clear the statistics for a specific ring.
- Enter a ring ID and a ring port number or link aggregate ID to clear the statistics for a specific port or link aggregate.
- The specified ring ID must already exist in the switch configuration.
- The specified port must belong to the ring identified by the ring ID.

### Examples

```
-> clear erp statistics
-> clear erp statistics ring 5
-> clear erp statistics ring 5 port 1/2
-> clear erp statistics ring 5 linkagg 10
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">erp-ring</a>	Configures an ERP ring.
<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.
<a href="#">show erp statistics</a>	Displays ERP ring statistics.

## MIB Objects

```
alaERPClearStats  
alaErpRingTable  
    alaERPRingClearStats  
alaErpRingPortTable  
    alaErpRingPortIfIndex  
    alaErpRingPortClearStats
```

---

## show erp

Displays the ERP configuration information for all rings, a specific ring, or for a specific ring port.

**show erp** [**ring** *ring\_id*] [**port** *slot/port* | **linkagg** *agg\_num*]

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.

### Defaults

By default, configuration information is displayed for all ERP rings in the switch configuration.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Enter a ring ID to display the configuration for a specific ring.
- Enter a ring port number or a link aggregate ID to display the configuration for a specific port or link aggregate.
- The specified ring ID must already exist in the switch configuration.

### Examples

```
-> show erp
```

```
Legends: * - Inactive Configuration
          WTR - Wait To Restore
          MEG - Maintenance Entity Group
```

Ring ID	Ring Port1	Ring Port2	Ring Status	Serv VLAN	WTR Timer (min)	Guard Timer (csec)	MEG Level	Ring State	Ring Node
1	1/15	1/1	enabled	4094	3	50	2	idle	rpl
2	6/7	4/1	enabled	4093	1	50	1	idle	rpl
3	4/7	6/1	enabled	4092	1	50	3	idle	rpl
4	4/8	6/23	enabled	4091	5	50	4	idle	non-rpl

```
Total number of rings configured = 4
```

```
-> show erp ring 1
```

```
Legend: * - Inactive Configuration
```

```
Ring Id           : 1,
Ring Port1        : 1/15,
```

```

Ring Port2           : 1/1,
Ring Status          : enabled,
Service VLAN         : 4094,
WTR Timer (min)     : 3,
Guard Timer (centi-sec) : 50,
MEG Level            : 2,
Ring State           : idle,
Ring Node Type       : rpl,
RPL Port             : 1/1,
Last State Change    : SUN DEC 25 06:50:17 2016 (sysUpTime 00h:01m:31s)

```

**output definitions**


---

<b>Ring ID</b>	The ERP ring ID number.
<b>Ring Ports</b>	The slot and port number of the ring ports.
<b>Ring Status</b>	The ring status ( <b>enabled</b> or <b>disabled</b> ).
<b>Service VLAN</b>	The Service VLAN ID.
<b>WTR Timer</b>	The wait-to-restore timer value in minutes for RPL node.
<b>Guard Timer</b>	The guard timer value in centi-secs for the ring node.
<b>MEG Level</b>	The Service VLAN Management Entity Group (MEG) level.
<b>Ring State</b>	Indicates the state of the ring.
<b>Ring Node Type</b>	Indicates the type of the ring node.
<b>Last State Change</b>	Indicates the time when the last state change occurred.

---

```

-> show erp port 1/15
Legend: * - Inactive Configuration

```

```

Ring-Id : 1
  Ring Port Status   : forwarding,
  Ring Port Type     : non-rpl,
  Ethoam Event       : disabled

```

```

-> show erp port 1/1
Legend: * - Inactive Configuration

```

```

Ring Id : 1
  Ring Port Status   : blocking,
  Rint Port Type     : RPL,
  Ethoam Event       : enabled,
  Rmepid             : 10

```

**output definitions**


---

<b>Ring ID</b>	The ERP ring ID number.
<b>Ring Port Status</b>	The status of the ring port ( <b>blocking</b> or <b>forwarding</b> ).
<b>Ring Port Type</b>	The type of ring port ( <b>RPL</b> or <b>non-RPL</b> ).
<b>Ethoam Event</b>	Indicates whether or not the ring port will accept Ethernet OAM loss of connectivity events ( <b>enabled</b> or <b>disabled</b> ).
<b>Rmepid</b>	The remote Ethernet OAM MEP ID number from which this port accepts loss of connectivity events. This field displays only when the ring port is configured to receive such events.

---

## Release History

Release 6.3.4; command was introduced.

## Related Commands

**show erp protected-vlan**            Displays the protected VLAN configuration for the switch.  
**show erp statistics**                Displays ERP ring statistics.

## MIB Objects

```
alaErpRingId  
  alaErpRingStatus  
  alaErpRingServiceVid  
  alaErpRingMEGLevel  
  alaErpRingPort1  
  alaErpRingPort2  
  alaErpRingState  
  alaErpRingWaitToRestoreTimer  
  alaErpRingGuardTimer  
  alaErpRingLastStateChange  
  alaErpRingTimeToRevert
```

---





## Related Commands

[show erp](#)

Displays ERP ring configuration for the switch.

[show erp statistics](#)

Displays ERP ring statistics.

## MIB Objects

alaErpRingId

alaErpRingVlanProtectedVid

---

## show erp statistics

Displays the ERP statistics for all rings, a specific ring, or a specific ring port.

**show erp statistics** [**ring** *ring\_id* [**port** *slot/port* | **linkagg** *agg\_num*]]

---

### Syntax Definitions

<i>ring_id</i>	An existing ERP ring ID number. The valid range is 1- 2147483647.
<i>slot/port</i>	The slot number for the module and the physical port number on that module.
<i>agg_num</i>	The link aggregate ID number.

### Defaults

By default, statistics are displayed for all ERP rings in the switch configuration.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Enter a ring ID to display the statistics for a specific ring.
- Enter a ring ID and a ring port number or link aggregate ID to display the statistics for a specific port or link aggregate.
- The specified ring ID must already exist in the switch configuration.
- The specified port must belong to the ring identified by the ring ID.

### Examples

```
-> show erp statistics
Legends: R-APS - Ring Automatic Protection Switching
         RPL   - Ring Protection Link
```

```
Ring-Id : 1
  Ring Port : 1/15
    Signal Fail PDUs
      Sent : 3,
      Recv : 0,
      Drop : 0
    No Request PDUs
      Sent : 37,
      Recv : 37,
      Drop : 0
    No Request RPL Block PDUs
      Sent : 4322,
      Recv : 0,
      Drop : 0
    Invalid R-APS PDUs
      Recv : 0
```

```
Ring Port : 1/1
Signal Fail PDUs
  Sent : 6,
  Recv : 0,
  Drop : 0
No Request PDUs
  Sent : 37,
  Recv : 38,
  Drop : 0
No Request RPL Block PDUs
  Sent : 4322,
  Recv : 0,
  Drop : 0
Invalid R-APS PDUs
  Recv : 0
```

```
Ring-Id : 2
Ring Port : 6/7
Signal Fail PDUs
  Sent : 6,
  Recv : 0,
  Drop : 0
No Request PDUs
  Sent : 16,
  Recv : 14,
  Drop : 0
No Request RPL Block PDUs
  Sent : 4347,
  Recv : 0,
  Drop : 4341
Invalid R-APS PDUs
  Recv : 0
```

```
-> show erp statistics ring 3
Legends: R-APS - Ring Automatic Protection Switching
         RPL   - Ring Protection Link
```

```
Ring-Id : 3
Ring Port : 4/7
Signal Fail PDUs
  Sent : 6,
  Recv : 0,
  Drop : 0
No Request PDUs
  Sent : 16,
  Recv : 14,
  Drop : 0
No Request RPL Block PDUs
  Sent : 4351,
  Recv : 0,
  Drop : 0
Invalid R-APS PDUs
  Recv : 0
```

```
Ring Port : 6/1
Signal Fail PDUs
  Sent : 6,
```

```

    Recv : 0,
    Drop : 0
  No Request PDUs
    Sent : 13,
    Recv : 13,
    Drop : 0
  No Request RPL Block PDUs
    Sent : 4358,
    Recv : 0,
    Drop : 0
  Invalid R-APS PDUs
    Recv : 0

```

```

-> show erp statistics ring 1 port 1/15
Legends: R-APS - Ring Automatic Protection Switching
         RPL   - Ring Protection Link

```

```

Ring-Id : 1
  Ring Port : 1/15
    Signal Fail PDUs
      Sent : 3,
      Recv : 0,
      Drop : 0
    No Request PDUs
      Sent : 37,
      Recv : 37,
      Drop : 0
    No Request RPL Block PDUs
      Sent : 4338,
      Recv : 0,
      Drop : 0
    Invalid R-APS PDUs
      Recv: 0

```

### *output definitions*

<b>Ring ID</b>	The ERP ring ID number.
<b>Ring Port</b>	The slot and port number of the ring port.
<b>R-APS</b>	The type of Ring Automatic Switching Protocol (R-APS) event message ( <b>NR</b> = no request, <b>RB</b> = RPL is blocked, <b>SF</b> = signal failure). APS is the protocol ERP uses to monitor and control ring links.
<b>Send</b>	Total number of R-APS messages sent.
<b>Recv</b>	Total number of R-APS messages received.
<b>Drop</b>	Total number of R-APS messages dropped.

### **Release History**

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">show erp</a>	Displays the ERP ring configuration for the switch.
<a href="#">show erp protected-vlan</a>	Displays the protected VLAN configuration for the switch.
<a href="#">clear erp statistics</a>	Clears ERP ring statistics.

## MIB Objects

```
alaERPClearStats  
alaERPRingClearStats  
alaErpRingPortClearStats  
alaErpRingId  
  alaErpRingPortIfIndex  
  alaErpStatsSignalFailPduTx  
  alaErpStatsSignalFailPduRx  
  alaErpStatsSignalFailPduDrop  
  alaErpStatsNoRequestPduTx  
  alaErpStatsNoRequestPduRx  
  alaErpStatsNoRequestPduDrop  
  alaErpStatsRPLBlockPDUTx  
  alaErpStatsRPLBlockPDURx  
  alaErpStatsRPLBlockPDUDrop  
  alaErpStatsPDUErr
```

---



# 10 GVRP Commands

The GARP VLAN Registration Protocol (GVRP) facilitates control of virtual local area networks (VLANs) within a larger network. It is an application of General Attribute Registration Protocol (GARP) that provides the VLAN registration service. The GARP provides a generic framework whereby devices in a bridged LAN can register and de-register attribute values, such as VLAN identifiers.

GVRP is compliant with 802.1q and dynamically learns and further propagates VLAN membership information across a bridged network. It dynamically maintains and updates the registration and de-registration of VLANs and prunes unnecessary broadcast and unicast traffic. Through propagation of GVRP information, a switch can continuously update its knowledge on the set of VLANs that currently have active nodes and on ports through which those nodes can be reached.

A summary of the available commands is listed here:

---

- gvrp**
- gvrp port**
- gvrp transparent switching**
- gvrp maximum vlan**
- gvrp registration**
- gvrp applicant**
- gvrp timer**
- gvrp restrict-vlan-registration**
- gvrp restrict-vlan-advertisement**
- gvrp static-vlan restrict**
- clear gvrp statistics**
- show gvrp statistics**
- show gvrp last-pdu-origin**
- show gvrp configuration**
- show gvrp configuration port**
- show gvrp configuration linkagg/port**
- show gvrp timer**

---

## **gvrp**

Enables GVRP on the switch globally.

**gvrp**

**no gvrp**

---

### **Syntax Definitions**

N/A

### **Defaults**

By default, GVRP is disabled on the switch.

### **Platforms Supported**

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### **Usage Guidelines**

- Use the **no** form of this command to disable GVRP globally on the switch.
- Disabling GVRP globally will delete all the learned VLANs.
- GVRP is supported only when the switch is operating in the flat Spanning Tree mode; it is not supported in the 1x1 mode.

### **Examples**

```
-> gvrp  
-> no gvrp
```

### **Release History**

Release 6.2.1; command was introduced.

### **Related Commands**

[show gvrp configuration](#)      Displays the global configuration for GVRP.

### **MIB Objects**

dot1qGvrpStatus

---





## Related Commands

- show gvrp configuration port** Displays the GVRP configuration for all the ports.
- show gvrp configuration linkagg/port** Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

dot1qPortVlanTable  
dot1qPortGvrpStatus

---

## **gvrp transparent switching**

Enables transparent switching on the switch. When transparent switching is enabled, the switch propagates GVRP information to other switches but does not register itself in the GVRP process.

**gvrp transparent switching**

**no gvrp transparent switching**

---

### **Syntax Definitions**

N/A

### **Defaults**

By default, transparent switching is disabled on the switch.

### **Platforms Supported**

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### **Usage Guidelines**

- Use the **no** form of this command to disable transparent switching on the device.
- If GVRP is globally disabled and transparent switching is enabled, the router will flood the GVRP messages.
- If GVRP is globally disabled and transparent switching is disabled, the router will discard the GVRP messages.
- If GVRP is globally enabled transparent switching will not have any effect on the functional behavior of the device.

### **Examples**

```
-> gvrp transparent switching  
-> no gvrp transparent switching
```

### **Release History**

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch chassis-based switches added.

### **Related Commands**

[show gvrp configuration](#) Displays the global configuration for GVRP.

### **MIB Objects**

alaGvrpTransparentSwitching

---

## gvrp maximum vlan

Configures the maximum number of dynamic VLANs that can be created by GVRP.

**gvrp maximum vlan** *vlanlimit*

---

### Syntax Definitions

*vlanlimit* The maximum number of VLANs to be created by GVRP. The valid range is 32–4094.

### Defaults

parameter	default
<i>vlanlimit</i>	256

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command can be used even when GVRP is not enabled on the switch. However, GVRP should be enabled on the switch for creating dynamic VLANs.
- If the VLAN limit to be set is less than the current number of dynamically learnt VLANs, then the new configuration will take effect only after the GVRP is disabled and enabled again on the switch. If this operation is not done, the VLANs learnt earlier will be maintained.

### Examples

```
-> gvrp maximum vlan 100
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show gvrp configuration](#) Displays the global configuration for GVRP.

### MIB Objects

alaGvrpMaxVlanLimit

---

## gvrp registration

Configures the GVRP registration mode for a specific port or an aggregate of ports.

**gvrp registration** {**normal** | **fixed** | **forbidden**} {**linkagg** *agg\_num* | **port** *slot/port*}

**no gvrp registration** {**linkagg** *agg\_num* | **port** *slot/port*}

---

### Syntax Definitions

<b>normal</b>	Specifies that both registration and de-registration of VLANs are allowed. VLANs can be mapped either dynamically (through GVRP) or statically (through management application) on such a port.
<b>fixed</b>	Specifies that only static mapping of VLANs is allowed on the port but de-registration of previously created dynamic or static VLANs is not allowed.
<b>forbidden</b>	Specifies that dynamic VLAN registration or de-registration is not allowed on the port. Any dynamic VLAN created earlier will be de-registered.
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

parameter	default
<b>normal</b>   <b>fixed</b>   <b>forbidden</b>	<b>normal</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the registration mode to the default value.
- GVRP should be enabled on the port before configuring the GVRP registration mode.
- The registration mode for the default VLANs of all the ports in the switch will be set to fixed.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

### Examples

```
-> gvrp registration forbidden port 3/2
-> no gvrp registration port 3/2
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**show gvrp configuration  
linkagg/port**

Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

alaGvrpPortConfigtable  
alaGvrpPortConfigRegistrarMode

---

## gvrp applicant

Configures the applicant mode of a specific port or an aggregate of ports on the switch. The applicant mode determines whether or not GVRP PDU exchanges are allowed on a port depending on the Spanning Tree state of the port.

**gvrp applicant** {**participant** | **non-participant** | **active**} {**linkagg** *agg\_num* | **port** *slot/port*}

**no gvrp applicant** {**linkagg** *agg\_num* | **port** *slot/port*}

---

### Syntax Definitions

<b>participant</b>	Specifies that GVRP PDU exchanges are only allowed when the port is in the STP forwarding state.
<b>non-participant</b>	Specifies that no GVRP PDU exchanges are allowed on the port, regardless of the STP status of the port.
<b>active</b>	Specifies that GVRP PDU exchanges are allowed when the port is either in the STP forwarding or STP blocking state.
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

parameter	default
<b>participant</b>   <b>non-participant</b>   <b>active</b>	<b>participant</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the applicant mode to the default value.
- GVRP should be enabled on the port before configuring the GVRP applicant mode.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

### Examples

```
-> gvrp applicant active port 2/2
-> no gvrp applicant port 2/2
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**show gvrp configuration  
linkagg/port**

Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

alaGvrpPortConfigtable  
  alaGvrpPortConfigApplicantMode

---



## gvrp timer

Configures the Join, Leave, or LeaveAll timer values for the switch ports.

**gvrp timer** {**join** | **leave** | **leaveall**} *timer-value* {**linkagg** *agg\_num* | **port** *slot/port*}

**no gvrp timer** {**join** | **leave** | **leaveall**} {**linkagg** *agg\_num* | **port** *slot/port*}

---

### Syntax Definitions

<b>join</b>	Specifies the value of the Join timer in milliseconds.
<b>leave</b>	Specifies the value of the Leave timer in milliseconds.
<b>leaveall</b>	Specifies the value of the LeaveAll timer in milliseconds.
<i>timer-value</i>	The value of the specified timer in milliseconds. The valid range is 1–2,147,483,647 for Join timer, 3–2,147,483,647 for Leave timer, and 3–2,147,483,647 for LeaveAll timer.
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

parameter	default
<i>timer-value</i> ( <b>join</b> )	600 ms
<i>timer-value</i> ( <b>leave</b> )	1800 ms
<i>timer-value</i> ( <b>leaveall</b> )	30000 ms

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the timer for a particular slot or port to the default value.
- GVRP should be enabled on the port before configuring the timer value for that port.
- Leave timer value should be greater than or equal to three times the Join timer value.
- Leaveall timer value should be greater than or equal to the Leave timer value.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

## Examples

```
-> gvrp timer join 300 port 3/2
-> no gvrp timer join 3/2
-> gvrp timer leave 900 port 3/2
-> no gvrp timer leave port 3/2
-> gvrp timer leaveall 950 port 3/2
-> no gvrp timer leaveall port 3/2
```

## Release History

Release 6.2.1; command was introduced.

## Related Commands

<a href="#">show gvrp timer</a>	Displays the timer values configured for all the ports or a specific port.
<a href="#">show gvrp configuration linkagg/port</a>	Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

```
alaGvrpPortConfigTable
  alaGvrpPortConfigJoinTimer
  alaGvrpPortConfigLeaveTimer
  alaGvrpPortConfigLeaveAllTimer
```

---

## gvrp restrict-vlan-registration

Restricts GVRP processing from dynamically registering the specified VLAN(s) on the switch.

**gvrp restrict-vlan-registration** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

**no gvrp restrict-vlan-registration** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>vlan-list</i>	The VLAN ID or the VLAN ID range (e.g., 1-10).

### Defaults

By default, GVRP dynamic VLAN registration is not restricted.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to allow registration of dynamic VLAN IDs through GVRP processing.
- GVRP should be enabled on the port before restricting dynamic VLAN registrations on that port.
- This command can be used only if the GVRP registration mode is set to normal.
- If the specified VLAN already exists on the switch, the VLAN is mapped to the receiving port.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

### Examples

```
-> gvrp restrict-vlan-registration port 3/1 5
-> no gvrp restrict-vlan-registration port 3/1 5
-> gvrp restrict-vlan-registration port 3/1 6-10
-> no gvrp restrict-vlan-registration port 3/1 6-10
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

[gvrp registration](#)

Configures the GVRP registration mode for the switch ports.

[show gvrp configuration linkagg/port](#)

Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

alaGvrpPortConfigTable

  alaGvrpPortConfigRestrictedRegistrationBitmap

  alaGvrpPortConfigAllowRegistrationBitmap

  alaGvrpPortConfigRegistrationBitmap

---

## gvrp restrict-vlan-advertisement

Restricts the advertisement of VLANs on a specific port or an aggregate of ports.

**gvrp restrict-vlan-advertisement** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

**no gvrp restrict-vlan-advertisement** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>vlan-list</i>	The VLAN ID or the VLAN ID range (e.g., 1-10).

### Defaults

By default, VLAN advertisement is not restricted.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to allow the propagation of VLANs.
- GVRP should be enabled on the port before restricting VLAN advertisements on that port.
- This command affects the GVRP processing only if the applicant mode is set to participant or active.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

### Examples

```
-> gvrp restrict-vlan-advertisement port 3/1 4
-> no gvrp restrict-vlan-advertisement port 3/1 4
-> gvrp restrict-vlan-advertisement port 3/1 6-9
-> no gvrp restrict-vlan-advertisement port 3/1 6-9
-> gvrp restrict-vlan-advertisement linkagg 3 10
-> no gvrp restrict-vlan-advertisement linkagg 3 10
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**gvrp applicant**

Configures the applicant mode for the switch port.

**show gvrp configuration  
linkagg/port**

Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

alaGvrpPortConfigTable

alaGvrpPortConfigRestrictedApplicantBitmap

alaGvrpPortConfigAllowApplicantBitmap

alaGvrpPortConfigApplicantBitmap

---

## **gvrp static-vlan restrict**

Restricts a port from becoming a member of a statically created VLAN or a range of VLANs.

**gvrp static-vlan restrict** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

**no gvrp static-vlan restrict** {linkagg *agg\_num* | port *slot/port*} *vlan-list*

---

### **Syntax Definitions**

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>vlan-list</i>	The VLAN ID or the VLAN ID range (e.g., 1-10).

### **Defaults**

By default, ports are assigned to the static VLAN based on GVRP PDU processing.

### **Platforms Supported**

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### **Usage Guidelines**

- Use the **no** form of this command to set the specified port and VLAN to the default value.
- GVRP should be enabled on the port before restricting static VLAN registrations on that port.
- This command does not apply to dynamic VLANs.
- To use the *agg\_num* parameter, the link aggregate group should be created and enabled.

### **Examples**

```
-> gvrp static-vlan restrict port 3/2 5
-> no gvrp static-vlan restrict port 3/2 5
-> gvrp static-vlan restrict port 3/2 6-9
-> no gvrp static-vlan restrict port 3/2 6-9
-> gvrp static-vlan restrict linkagg 3 4-5
-> no gvrp static-vlan aggregate linkagg 3 4-5
```

### **Release History**

Release 6.2.1; command was introduced.

## Related Commands

**show gvrp configuration  
linkagg/port**

Displays the GVRP configuration for a specific port or an aggregate of ports.

## MIB Objects

alaGvrpPortConfigTable

  alaGvrpPortConfigRegistrationToStaticVlan

  alaGvrpPortConfigRegistrationToStaticVlanLearn

  alaGvrpPortConfigRegistrationToStaticVlanRestrict

---



## clear gvrp statistics

Clears GVRP statistics for all the ports, an aggregate of ports, or a specific port.

**clear gvrp statistics** [**linkagg** *agg\_num* | **port** *slot/port*]

---

### Syntax Definitions

*agg\_num*

The number corresponding to the aggregate group.

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

By default, the GVRP statistics are deleted for all the ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *agg\_num* or *slot/port* parameter with this command to clear GVRP statistics for a specific port.

### Examples

```
-> clear gvrp statistics port 3/2
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show gvrp statistics](#)

Displays the GVRP statistics or all the ports, an aggregate of ports, or a specific port.

### MIB Objects

```
alaGvrpGlobalClearStats  
alaGvrpPortStatsTable  
alaGvrpPortStatsClearStats
```

---

## show gvrp statistics

Displays the GVRP statistics for all the ports, an aggregate of ports, or a specific port.

**show gvrp statistics** [**linkagg** *agg\_num* | **port** *slot/port*]

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

By default, the GVRP statistics are displayed for all ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *agg\_num* or *slot/port* parameter with this command to display GVRP statistics for a specific port.

### Examples

```
-> show gvrp statistics port 1/21
Port 1/21:
  Join Empty Received      : 8290,
  Join In Received        : 1526,
  Empty Received          : 0,
  Leave Empty Received     : 1,
  Leave In Received       : 0,
  Leave All Received      : 283,
  Join Empty Transmitted  : 826,
  Join In Transmitted     : 1532,
  Empty Transmitted       : 39,
  Leave Empty Transmitted : 0,
  Leave In Transmitted    : 0,
  Leave All Transmitted   : 296,
  Failed Registrations    : 0,
  Garp PDU Received       : 1160,
  Garp PDU Transmitted    : 957,
  Garp Msgs Received      : 10100,
  Garp Msgs Transmitted   : 2693,
  Invalid Msgs Received   : 0

-> show gvrp statistics
Port 1/1:
  Join Empty Received      : 0,
  Join In Received        : 0,
  Empty Received          : 0,
  Leave Empty Received     : 0,
```

```
Leave In Received      : 0,  
Leave All Received    : 0,  
Join Empty Transmitted : 0,  
Join In Transmitted  : 0,  
Empty Transmitted    : 0,  
Leave Empty Transmitted : 0,  
Leave In Transmitted  : 0,  
Leave All Transmitted : 0,  
Failed Registrations : 0,  
Garp PDU Received    : 0,  
Garp PDU Transmitted : 0,  
Garp Msgs Received   : 0,  
Garp Msgs Transmitted : 0,  
Invalid Msgs Received : 0
```

## Port 1/2:

```
Join Empty Received   : 8330,  
Join In Received     : 1526,  
Empty Received       : 0,  
Leave Empty Received  : 1,  
Leave In Received     : 0,  
Leave All Received    : 284,  
Join Empty Transmitted : 830,  
Join In Transmitted  : 1532,  
Empty Transmitted    : 39,  
Leave Empty Transmitted : 0,  
Leave In Transmitted  : 0,  
Leave All Transmitted : 297,  
Failed Registrations : 0,  
Garp PDU Received    : 1165,  
Garp PDU Transmitted : 962,  
Garp Msgs Received   : 10141,  
Garp Msgs Transmitted : 2698,  
Invalid Msgs Received : 0
```

## Port 1/3:

```
Join Empty Received   : 0,  
Join In Received     : 0,  
Empty Received       : 0,
```

*output definitions*

---

<b>Join Empty Received</b>	The number of Join Empty messages received.
<b>Join In Received</b>	The number of Join In messages received.
<b>Empty Received</b>	The number of Empty messages received.
<b>Leave Empty Received</b>	The number of Leave Empty messages received.
<b>Leave In Received</b>	The number of Leave In messages received.
<b>Leave All Received</b>	The number of Leave All messages received.
<b>Join Empty Transmitted</b>	The number of Join Empty messages transmitted.
<b>Join In Transmitted</b>	The number of Join In messages transmitted.
<b>Empty Transmitted</b>	The number of Empty messages transmitted.
<b>Leave Empty Transmitted</b>	The number of Leave Empty messages transmitted.

*output definitions*


---

<b>Join Empty Received</b>	The number of Join Empty messages received.
<b>Leave In Transmitted</b>	The number of Leave In messages transmitted.
<b>Leave All Transmitted</b>	The number of Leave All messages transmitted.
<b>Failed Registrations</b>	The number of failed registrations.
<b>Total PDU Received</b>	The number of total PDUs received.
<b>Total PDU Transmitted</b>	The number of total PDUs transmitted.
<b>Invalid Msgs Received</b>	The number of invalid messages received.
<b>Total Msgs Received</b>	The number of total messages received.
<b>Total Msgs Transmitted</b>	The number of total messages transmitted.

---

**Release History**

Release 6.2.1; command was introduced.

Release 6.3.1; **Total PDU Received**, **Total PDU Transmitted**, **Invalid Msgs Received**, **Total Msgs Received**, **Total Msgs Transmitted** fields are added.

**Related Commands****clear gvrp statistics**

Clears GVRP statistics for all the ports, an aggregate of ports, or a specific port.

**MIB Objects**

alaGvrpPortStatsTable

```

alaGvrpPortStatsJoinEmptyReceived
alaGvrpPortStatsJoinInReceived
alaGvrpPortStatsEmptyReceived
alaGvrpPortStatsLeaveInReceived
alaGvrpPortStatsLeaveEmptyReceived
alaGvrpPortStatsLeaveAllReceived
alaGvrpPortStatsJoinEmptyTransmitted
alaGvrpPortStatsJoinInTransmitted
alaGvrpPortStatsEmptyTransmitted
alaGvrpPortStatsLeaveInTransmitted
alaGvrpPortStatsLeaveEmptyTransmitted
alaGvrpPortStatsLeaveAllTransmitted
dot1qPortGvrpFailedRegistrations
alaGvrpPortStatsTotalPDURceived
alaGvrpPortStatsTotalPDUTransmitted
alaGvrpPortStatsInvalidMsgsReceived
alaGvrpPortStatsTotalMsgsReceived
alaGvrpPortStatsTotalMsgsTransmitted

```

---

## show gvrp last-pdu-origin

Displays the source MAC address of the last GVRP message received on a specific port or an aggregate of ports.

**show gvrp last-pdu-origin** {linkagg *agg\_num* | port *slot/port*}

---

### Syntax Definitions

*agg\_num*

The number corresponding to the aggregate group.

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show gvrp last-pdu-origin port 1/21
Last-PDU Origin : 00:d0:95:ee:f4:64
```

#### *output definitions*

---

**Last-PDU Origin**

The source MAC address of the last PDU message received on the specific port.

---

### Release History

Release 6.2.1; command was introduced.

### Related Commands

N/A

### MIB Objects

Dot1qPortVlanTable

dot1qPortGvrpLastPduOrigin

---

---

## show gvrp configuration

Displays the global configuration for GVRP.

**show gvrp configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show gvrp configuration
GVRP Enabled                : yes,
Transparent Switching Enabled : no,
Maximum VLAN Limit          : 256
```

### *output definitions*

---

<b>GVRP Enabled</b>	Indicates whether or not GVRP is globally enabled.
<b>Transparent Switching Enabled</b>	Indicates whether transparent switching is enabled ( <b>Yes</b> ) or disabled ( <b>No</b> ). When enabled, GVRP messages are flooded even if GVRP is disabled for the switch.
<b>Maximum VLAN Limit</b>	The maximum number of VLANs that can be learned by GVRP in the system.

---

### Release History

Release 6.2.1; command was introduced.

## Related Commands

<a href="#">gvrp</a>	Enables GVRP on the device globally.
<a href="#">gvrp transparent switching</a>	Enables transparent switching on the device.
<a href="#">gvrp maximum vlan</a>	Configures the maximum number of dynamic VLANs that can be learned by GVRP.

## MIB Objects

```
dot1qGvrpStatus  
alaGvrpTransparentSwitching  
alaGvrpMaxVlanLimit
```

---

## show gvrp configuration port

Displays the GVRP configuration status for all the ports.

**show gvrp configuration port**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show gvrp configuration port
```

```
  Port      GVRP Status
-----+-----
  1/1       Disabled
  1/2       Disabled
  1/3       Disabled
  1/4       Disabled
  1/5       Disabled
  1/6       Disabled
  1/7       Disabled
  1/8       Disabled
  1/9       Enabled
  1/10      Disabled
  1/11      Disabled
  1/12      Disabled
  1/13      Disabled
  1/14      Disabled
  1/15      Disabled
  1/16      Disabled
  1/17      Disabled
  1/18      Disabled
  1/19      Disabled
  1/20      Disabled
  1/21      Enabled
  1/22      Disabled
  1/23      Disabled
  1/24      Disabled
  1/25      Disabled
  1/26      Disabled
  1/27      Disabled
  1/28      Disabled
```



1/29	Disabled
1/30	Disabled
1/31	Enabled
1/32	Disabled
1/33	Disabled
1/34	Disabled
1/35	Disabled
1/36	Disabled
1/37	Disabled
1/38	Disabled
1/39	Disabled
1/40	Disabled
1/41	Disabled
1/42	Disabled
1/43	Disabled
1/44	Disabled
1/45	Disabled
1/46	Disabled
1/47	Disabled
1/48	Disabled
1/49	Disabled
1/50	Disabled

### *output definitions*

---

<b>Port</b>	Displays the slot/port number.
<b>GVRP Status</b>	Indicates if GVRP is <b>Enabled</b> or <b>Disabled</b> on the port.

---

### **Release History**

Release 6.2.1; command was introduced.

### **Related Commands**

<a href="#">gvrp port</a>	Enables GVRP on a specific port or an aggregate of ports on the switch.
<a href="#">show gvrp configuration linkagg/port</a>	Displays the GVRP configuration for a specific port or an aggregate of ports.

### **MIB Objects**

Dot1qportvltantable  
dot1qPortGvrpStatus

---



53	LEARN	TRUE	FALSE
54	LEARN	TRUE	FALSE
55	LEARN	FALSE	TRUE
56	LEARN	FALSE	TRUE
57	LEARN	FALSE	FALSE
58	LEARN	FALSE	FALSE
59	LEARN	FALSE	FALSE
60	LEARN	FALSE	FALSE

*output definitions*

---

<b>GVRP Enabled</b>	Indicates whether or not GVRP is globally enabled ( <b>Yes</b> or <b>No</b> ).
<b>Registrar Mode</b>	Indicates the registrar mode ( <b>NORMAL</b> , <b>FIXED</b> , or <b>FORBIDDEN</b> ) of the port.
<b>Applicant Mode</b>	Indicates the applicant mode ( <b>PARTICIPANT</b> , <b>NON-PARTICIPANT</b> , or <b>ACTIVE</b> ) of the port.
<b>Join Timer</b>	Displays the Join timer value.
<b>Leave Timer</b>	Displays the Leave timer value.
<b>LeaveAll Timer</b>	Displays the LeaveAll timer value.
<b>Legacy Bpdu</b>	Indicates the status of conventional/customer BPDU processing on network ports ( <b>ENABLED</b> or <b>DISABLED</b> ).
<b>VLAN Id</b>	The numerical VLAN ID.
<b>Static Registration</b>	Indicates if the port is restricted ( <b>RESTRICT</b> ) or not restricted ( <b>LEARN</b> ) from becoming a member of the static VLAN.
<b>Restricted Registration</b>	Indicates if the VLAN is restricted ( <b>TRUE</b> ) or not restricted ( <b>FALSE</b> ) from dynamic registration on the port.
<b>Restricted Applicant</b>	Indicates if the restricted applicant mode is enabled ( <b>TRUE</b> ) or not ( <b>FALSE</b> ).

---

**Release History**

Release 6.2.1; command was introduced.

## Related Commands

<b>gvrp port</b>	Enables GVRP on a specific port or an aggregate of ports on the switch.
<b>gvrp registration</b>	Configures the GVRP registration mode for a specific port or an aggregate of ports.
<b>gvrp applicant</b>	Configures the applicant mode of a specific port or an aggregate of ports on the switch.
<b>gvrp timer</b>	Configures the Join, Leave, or LeaveAll timer values for the switch ports.
<b>gvrp restrict-vlan-registration</b>	Restricts GVRP processing from dynamically registering the specified VLAN(s) on the switch.
<b>gvrp restrict-vlan-advertisement</b>	Restricts the advertisement of VLANs on a specific port or an aggregate of ports.
<b>gvrp static-vlan restrict</b>	Restricts a port from becoming a member of a statically created VLAN or a range of VLANs.
<b>show gvrp configuration port</b>	Displays the GVRP configuration status for all the ports.

## MIB Objects

```

Dot1qportvlantable
  dot1qPortGvrpLastPduOrigin
  dot1qPortGvrpStatus
alaGvrpPortConfigTable
  alaGvrpPortConfigRegistrarMode
  alaGvrpPortConfigApplicantMode
  alaGvrpPortConfigJoinTimer
  alaGvrpPortConfigLeaveTimer
  alaGvrpPortConfigLeaveAllTimer
  alaGvrpPortConfigRestrictedRegistrationBitmap
  alaGvrpPortConfigRegistrationToStaticVlan
  alaGvrpPortConfigPropagateDynamicNonGvrpVlan

```

## show gvrp timer

Displays the timer values configured for all the ports or a specific port.

```
show gvrp timer [[join | leave | leaveall] {linkagg agg_num | port slot/port}]
```

---

### Syntax Definitions

<b>join</b>	Displays the Join timer value.
<b>leave</b>	Displays the Leave timer value.
<b>leaveall</b>	Displays the LeaveAll timer value.
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

By default the timer values configured on all the ports are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **join**, **leave**, or **leaveall** parameter with this command to view the specific timer values configured on all the ports.
- Use the *agg\_num* or *slot/port* parameter with this command to display the timer values configured for a specific port.

### Examples

```
-> show gvrp timer
```

Legend : All timer values are in milliseconds

Port	Join Timer	Leave Timer	LeaveAll Timer
1/1	600	1800	30000
1/2	600	1800	30000
1/3	600	1800	30000
1/4	600	1800	30000
1/5	600	1800	30000
1/6	600	1800	30000
1/7	600	1800	30000
1/8	600	1800	30000
1/9	600	1800	30000
1/10	600	1800	30000
1/11	600	1800	30000
1/12	600	1800	30000
1/13	600	1800	30000
1/14	600	1800	30000
1/15	600	1800	30000

1/16	600	1800	30000
1/17	600	1800	30000
1/18	600	1800	30000
1/19	600	1800	30000
1/20	600	1800	30000
1/21	600	1800	30000
1/22	600	1800	30000
1/23	600	1800	30000
1/24	600	1800	30000
1/25	600	1800	30000
1/26	600	1800	30000
1/27	600	1800	30000
1/28	600	1800	30000
1/29	600	1800	30000
1/30	600	1800	30000
1/31	600	1800	30000
1/32	600	1800	30000
1/33	600	1800	30000
1/34	600	1800	30000
1/35	600	1800	30000
1/36	600	1800	30000
1/37	600	1800	30000
1/38	600	1800	30000
1/39	600	1800	30000
1/40	600	1800	30000
1/41	600	1800	30000
1/42	600	1800	30000
1/43	600	1800	30000
1/44	600	1800	30000
1/45	600	1800	30000
1/46	600	1800	30000
1/47	600	1800	30000
1/48	600	1800	30000
1/49	600	1800	30000
1/50	600	1800	30000

```
-> show gvrp timer port 1/21
Join Timer (msec)      : 600,
Leave Timer (msec)     : 1800,
LeaveAll Timer (msec)  : 30000
```

```
-> show gvrp timer join port 1/21
Join Timer (msec) : 600
```

```
-> show gvrp timer leave port 1/21
Leave Timer (msec) : 1800
```

```
-> show gvrp timer leaveall port 1/21
LeaveAll Timer (msec) : 30000
```

```
-> show gvrp timer join
Legend : All timer values are in milliseconds
Port    Join Timer
-----+-----
1/1     600
1/2     600
1/3     600
```

```
1/4      600
1/5      600
1/6      600
1/7      600
1/8      600
1/9      600
1/10     600
1/11     600
1/12     600
1/13     600
1/14     600
1/15     600
1/16     600
1/17     600
1/18     600
1/19     600
1/20     600
1/21     600
1/22     600
1/23     600
1/24     600
1/25     600
1/26     600
1/27     600
1/28     600
1/29     600
1/30     600
1/31     600
1/32     600
1/33     600
1/34     600
1/35     600
1/36     600
1/37     600
1/38     600
1/39     600
1/40     600
1/41     600
1/42     600
1/43     600
1/44     600
1/45     600
1/46     600
1/47     600
1/48     600
1/49     600
1/50     600
```

```
-> show gvrp timer leave
```

```
Legend : All timer values are in milliseconds
```

```
Port      Leave Timer
-----+-----
1/1       1800
1/2       1800
1/3       1800
1/4       1800
1/5       1800
1/6       1800
```

```
1/7      1800
1/8      1800
1/9      1800
1/10     1800
1/11     1800
1/12     1800
1/13     1800
1/14     1800
1/15     1800
1/16     1800
1/17     1800
1/18     1800
1/19     1800
1/20     1800
1/21     1800
1/22     1800
1/23     1800
1/24     1800
1/25     1800
1/26     1800
1/27     1800
1/28     1800
1/29     1800
1/30     1800
1/31     1800
1/32     1800
1/33     1800
1/34     1800
1/35     1800
1/36     1800
1/37     1800
1/38     1800
1/39     1800
1/40     1800
1/41     1800
1/42     1800
1/43     1800
1/44     1800
1/45     1800
1/46     1800
1/47     1800
1/48     1800
1/49     1800
1/50     1800
```

```
-> show gvrp timer leaveall
```

```
Legend : All timer values are in milliseconds
```

```
Port      LeaveAll Timer
-----+-----
1/1       30000
1/2       30000
1/3       30000
1/4       30000
1/5       30000
1/6       30000
1/7       30000
1/8       30000
1/9       30000
```



```
1/10 30000
1/11 30000
1/12 30000
1/13 30000
1/14 30000
1/15 30000
1/16 30000
1/17 30000
1/18 30000
1/19 30000
1/20 30000
1/21 30000
1/22 30000
1/23 30000
1/24 30000
1/25 30000
1/26 30000
1/27 30000
1/28 30000
1/29 30000
1/30 30000
1/31 30000
1/32 30000
1/33 30000
1/34 30000
1/35 30000
1/36 30000
1/37 30000
1/38 30000
1/39 30000
1/40 30000
1/41 30000
1/42 30000
1/43 30000
1/44 30000
1/45 30000
1/46 30000
1/47 30000
1/48 30000
1/49 30000
1/50 30000
```

#### *output definitions*

---

<b>Port</b>	Displays the slot/port number.
<b>Join Timer</b>	Displays the Join timer value in milliseconds.
<b>Leave Timer</b>	Displays the Leave timer value in milliseconds.
<b>LeaveAll Timer</b>	Displays the LeaveAll timer value in milliseconds.

---

#### **Release History**

Release 6.2.1; command was introduced.

## Related Commands

### **gvrp timer**

Configures the Join, Leave, or LeaveAll timer values for the switch ports.

## MIB Objects

```
alaGvrpPortConfigTable  
  alaGvrpPortConfigJoinTimer  
  alaGvrpPortConfigLeaveTimer  
  alaGvrpPortConfigLeaveAllTimer
```

---

# 11 MVRP Commands

MVRP (Multiple VLAN Registration Protocol) provides a mechanism for maintaining the contents of Dynamic VLAN Registration Entries for each VLAN, and for propagating the information they contain to other Bridges. MVRP uses MRP (Multiple Registration Protocol) as the underlying mechanism, for the maintenance and propagation of the VLAN information.

MVRP acts as an MRP application, sending and receiving MVRP information encapsulated in an Ethernet frame on a specific MAC address. MVRP allows both end stations and Bridges in a Bridged Local Area Network to issue and revoke declarations relating to membership of VLANs. Note that if MVRP is configured on a switch, GVRP cannot be configured on that switch.

A summary of the available commands is listed here:

---

- vlan registration-mode**
- mvrp**
- mvrp port**
- mvrp transparent-switching**
- mvrp port**
- mvrp maximum vlan**
- mvrp registration**
- mvrp applicant**
- mvrp timer join**
- mvrp timer join**
- mvrp timer leave**
- mvrp timer leaveall**
- mvrp timer periodic-timer**
- mvrp restrict-vlan-registration**
- mvrp restrict-vlan-advertisement**
- mvrp static-vlan-restrict**
- show mvrp configuration**
- show mvrp configuration**
- show mvrp configuration**
- show mvrp configuration**
- show mvrp port**
- show mvrp linkagg**
- show mvrp linkagg**
- show mvrp timer**
- show mvrp statistics**
- show mvrp last-pdu-origin**
- show vlan registration-mode**
- show mvrp vlan-restrictions**
- mvrp clear-statistics**
- mvrp clear-statistics**

---

## vlan registration-mode

Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.

**vlan registration-mode {gvrp | mvrp}**

---

### Syntax Definitions

*gvrp* Dynamic registration protocol mode is GVRP.

*mvrp* Dynamic registration protocol mode is MVRP.

### Defaults

parameter	default
gvrp  mvrp	mvrp

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Before configuring MVRP, change the VLAN registration mode to MVRP.
- When the mode is changed from MVRP to GVRP or GVRP to MVRP, all static and dynamic configurations of the previous mode is deleted.
- An INFO message “All [GVRP/MVRP] static and dynamic configurations has been deleted” is given to the user on changing the mode from GVRP to MVRP.
- On configuring the same mode, no INFO message is given to the user.
- While running in MVRP mode, all GVRP configurations is rejected and when in GVRP mode, all MVRP configuration is rejected.
- Even though the default mode of the switch is MVRP, when you are upgrading the image from a previous release which does not support MVRP, the GVRP commands is accepted by the switch. The VLAN registration mode is internally changed to GVRP.

### Examples

```
-> vlan registration-mode mvrp
INFO: All GVRP configurations and learnings have been deleted.
```

```
-> vlan registration-mode gvrp
INFO: All MVRP configurations and learnings have been deleted.
```

### Release History

Release 6.4.3; command was introduced.

### **Related Commands**

**show vlan registration-mode** Displays the VLAN registration operational mode.

### **MIB Objects**

alaVlanRegistrationProtocolType

---

## mvrp

Enables or disables MVRP globally on the switch.

**mvrp {enable | disable}**

---

### Syntax Definitions

<i>enable</i>	Enables MVRP globally on the switch.
<i>disable</i>	Disables MVRP globally on the switch.

### Defaults

By default, MVRP is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Disabling MVRP globally will delete all the MVRP learned VLANs.
- MVRP is supported only when the switch is operating in the flat Spanning Tree mode and it is not supported in the 1x1 mode.

### Examples

```
-> mvrp enable  
-> mvrp disable
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

<a href="#">vlan registration-mode</a>	Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.
<a href="#">show mvrp configuration</a>	Displays the global configuration for MVRP.

### MIB Objects

alaMvrpGlobalStatus

---

## mvrp port

Enables or disables MVRP on specific ports on the switch.

**mvrp port** *slot/port* [*- port2*] {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>enable</i>	Enables MVRP on a port.
<i>disable</i>	Disables MVRP on a port.

### Defaults

By default, mvrp is disabled on all the ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- MVRP can be enabled on switch ports regardless of whether it is globally enabled on the switch. However, for the port to become an active participant in the MVRP operation, MVRP should be enabled globally on the switch.
- When MVRP is globally enabled on the switch and is not enabled on the port, that port is excluded from the MVRP protocol operation.
- MVRP can be enabled only on fixed ports, 802.1 Q ports, aggregate ports, and VLAN Stacking Network ports. Other ports (mirroring ports, aggregable ports, mobile ports, VPLS Access ports, VLAN Stacking User ports) do not support MVRP.
- MVRP should not be enabled on ERP ring ports.

### Examples

```
-> mvrp port 1/2 enable
-> mvrp port 1/2 disable
-> mvrp port 1/1-10 enable
-> mvrp port 1/1-10 disable
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

### [show mvrp port](#)

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

### [show mvrp statistics](#)

Displays the MVRP statistics for all the ports, aggregates, or specific ports.

## MIB Objects

alaMvrpPortConfigTable  
alaMvrpPortStatus

---



## mvrp linkagg

Enables or disables MVRP on specific aggregates on the switch.

**mvrp linkagg** *agg\_num* [-*agg\_num2*] {**enable** | **disable**}

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>enable</i>	Enables MVRP on a port.
<i>disable</i>	Disables MVRP on a port.

### Defaults

By default, mvrp is disabled on all the ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- MVRP can be enabled on switch ports regardless of whether it is globally enabled on the switch. However, for the port to become an active participant in the MVRP operation, MVRP should be enabled globally on the switch.
- When MVRP is globally enabled on the switch and is not enabled on the port, that port is excluded from the MVRP protocol operation.
- MVRP can be enabled only on fixed ports, 802.1 Q ports, aggregate ports, and VLAN Stacking Network ports. Other ports (mirroring ports, aggregable ports, mobile ports, VPLS Access ports, VLAN Stacking User ports) do not support MVRP.
- To use the *agg\_num* parameter, the link aggregate group must be created.

### Examples

```
-> mvrp linkagg 10 enable
-> mvrp linkagg 10 disable
-> mvrp linkagg 2-5 enable
-> mvrp linkagg 1-5 disable
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

### [show mvrp port](#)

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

### [show mvrp statistics](#)

Displays the MVRP statistics for all the ports, aggregates, or specific ports.

## MIB Objects

alaMvrpPortConfigTable  
alaMvrpPortStatus

---

## mvrp transparent-switching

Enables or disables transparent switching on the switch. When transparent switching is enabled, the switch propagates MVRP information to other switches but does not participate in the MVRP protocol.

**mvrp transparent-switching {enable | disable}**

---

### Syntax Definitions

*enable* Enables transparent switching globally on a switch.

*disable* Disables transparent switching globally on a switch.

### Defaults

By default, transparent switching is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If MVRP is globally disabled and transparent switching is enabled, the switch floods the MVRP messages.
- If MVRP is globally disabled and transparent switching is disabled, the switch discards the MVRP messages.
- If MVRP is globally enabled, transparent switching has no effect on the functional behavior of the switch.

### Examples

```
-> mvrp transparent-switching enable  
-> mvrp transparent-switching disable
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show mvrp configuration](#) Displays the global configuration for MVRP.

### MIB Objects

alaMvrpTransparentSwitching

---

---

## mvrp maximum vlan

Configures the maximum number of dynamic VLANs that can be created by MVRP.

**mvrp maximum vlan** *vlanlimit*

---

### Syntax Definitions

*vlanlimit*                      The maximum number of VLANs to be created by MVRP. The valid range is 32–4094.

### Defaults

The default value is 256.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command can be used even when MVRP is not enabled on the switch. However, MVRP must be enabled on the switch for creating dynamic VLANs.
- If the VLAN limit to be set is less than the current number of dynamically learnt VLANs, then the new configuration will take effect only after the MVRP is disabled and enabled again on the switch. If this operation is not done, the VLANs learnt earlier is retained.

### Examples

```
-> mvrp maximum vlan 100
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show mvrp configuration](#)            Displays the global configuration for MVRP.  
[show vlan mvrp](#)                      Displays the list of VLANS learned through MVRP and their details.

### MIB Objects

alaMvrpMaxVlanLimit

---

## mvrp registration

Configures the MVRP registration mode for specific ports or aggregates.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} registration {normal | fixed | forbidden}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<b>normal</b>	Specifies that both registration and de-registration of VLANs are allowed. VLANs can be mapped either dynamically (through MVRP) or statically (through management application) on such a port.
<b>fixed</b>	Specifies that only static mapping of VLANs is allowed on the port but de-registration of previously created dynamic or static VLANs is not allowed.
<b>forbidden</b>	Specifies that dynamic VLAN registration or de-registration is not allowed on the port. Any dynamic VLAN created earlier will be deregistered.

### Defaults

---

parameter	default
normal   fixed   forbidden	normal

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 registration forbidden
-> mvrp port 1/5 registration normal
-> mvrp linkagg 10 registration fixed
-> mvrp linkagg 20 registration forbidden
-> mvrp port 2/5-10 registration normal
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

### [show mvrp port](#)

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

### [show mvrp linkagg](#)

Displays the MVRP configurations for all the link aggregates, including timer values, registration and applicant modes.

## MIB Objects

alaMvrpPortConfigTable

alaMvrpPortConfigRegistrarMode

---

## mvrp applicant

Configures the applicant mode of specific ports on the switch. The applicant mode determines whether MVRP PDU exchanges are allowed on a port depending on the Spanning Tree state of the port.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **applicant** {**participant** | **non-participant** | **active**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<b>participant</b>	Specifies that MVRP PDU exchanges are only allowed when the port is in the STP forwarding state.
<b>non-participant</b>	Specifies that MVRP PDU's are not sent in this mode and PDU's received are processed and learning happens as expected.
<b>active</b>	Specifies that MVRP PDU exchanges are allowed when the port is in the STP forwarding state or STP blocking state. This is applicable for both advertisement and registration.

### Defaults

parameter	default
<b>participant</b>   <b>non-participant</b>   <b>active</b>	<b>active</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 applicant active
-> mvrp port 1/3 applicant participant
-> mvrp port 1/4 applicant non-participant
-> mvrp linkagg 10 applicant active
-> mvrp linkagg 15 applicant participant
-> mvrp linkagg 20 applicant non-participant
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

### [show mvrp port](#)

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

### [show mvrp linkagg](#)

Displays the MVRP configurations for all the link aggregates, including timer values, registration and applicant modes.

## MIB Objects

alaMvrpPortConfigtable  
  alaMvrpPortConfigApplicantMode

---



## mvrp timer join

Specifies the join time interval between transmit opportunities for the dynamically registering VLANs on the switch.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **timer join** *timer-value*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>timer-value</i>	Specifies the value of the join timer in milliseconds. The valid range is 250 milliseconds to 1073741773 milliseconds.

### Defaults

---

parameter	default
<i>timer-value</i>	600 milliseconds

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 timer join 600
-> mvrp port 1/2-12 timer join 600
-> mvrp linkagg 3 timer join 600
-> mvrp linkagg 3-6 timer join 600
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show mvrp timer**

Displays the timer values configured for all the ports or a specific port.

**show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortConfigTable  
  alaMvrpPortConfigJoinTimer  
  alaMvrpPortConfigLeaveTimer  
  alaMvrpPortConfigLeaveAllTimer  
  alaMvrpPortConfigPeriodicTimer
```

---

## mvrp timer leave

Specifies the period of time that the switch has to wait in the Leave state before changing to the unregistered state.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **timer leave** *timer-value*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>timer-value</i>	Specifies the value of the Leave Timer in milliseconds. The valid range is 750 milliseconds to 2147483647 milliseconds.

### Defaults

---

parameter	default
<i>timer-value</i>	1800 milliseconds

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.
- Leave timer value must be greater than or equal to twice the Join timer value, plus six times the timer resolution (i.e. 16.66 milliseconds). Leave timer should be at least be greater than twice the join timer plus 100 milliseconds.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 timer leave 1800
-> mvrp port 1/2-12 timer leave 1800
-> mvrp linkagg 3 timer leave 1800
-> mvrp linkagg 3-6 timer leave 1800
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show mvrp timer**

Displays the timer values configured for all the ports or a specific port.

**show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortConfigTable  
  alaMvrpPortConfigJoinTimer  
  alaMvrpPortConfigLeaveTimer  
  alaMvrpPortConfigLeaveAllTimer  
  alaMvrpPortConfigPeriodicTime
```

---

## mvrp timer leaveall

Specifies the frequency with which the LeaveAll messages are communicated.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **timer leaveall** *timer-value*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>timer-value</i>	Specifies the value of the LeaveAll Timer in milliseconds. The valid range is 750 milliseconds to 2147483647 milliseconds.

### Defaults

---

parameter	default
<i>timer-value</i>	30000 milliseconds

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.
- Leaveall timer value should be greater than or equal to the Leave timer value. It is recommended to have the leaveall timer 15 times greater than the leave timer.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 timer leaveall 30000
-> mvrp port 1/2-12 timer leaveall 30000
-> mvrp linkagg 3 timer leaveall 30000
-> mvrp linkagg 3-6 timer leaveall 30000
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show mvrp timer**

Displays the timer values configured for all the ports or a specific port.

**show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortConfigTable  
  alaMvrpPortConfigJoinTimer  
  alaMvrpPortConfigLeaveTimer  
  alaMvrpPortConfigLeaveAllTimer  
  alaMvrpPortConfigPeriodicTimer
```

---

## mvrp timer periodic-timer

Specifies the MVRP periodic-timer time interval for the dynamically registering VLANs on the switch.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **timer periodic-timer** *timer-value*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>timer-value</i>	Specifies the value of the Periodic Timer in seconds. The valid range is between 1 to 2147483647 milliseconds.

### Defaults

---

parameter	default
<i>timer-value</i>	<i>1 second</i>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use default timer settings unless there is a compelling reason to change the settings. Modifying timers to inappropriate values might cause an imbalance in the operation of MVRP.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 timer periodic-timer 1
-> mvrp port 1/2 timer periodic-timer 1
-> mvrp linkagg 3 timer periodic-timer 1
-> mvrp linkagg 3-6 timer periodic-timer 1
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show mvrp timer**

Displays the timer values configured for all the ports or a specific port.

**show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortConfigTable  
  alaMvrpPortConfigJoinTimer  
  alaMvrpPortConfigLeaveTimer  
  alaMvrpPortConfigLeaveAllTimer  
  alaMvrpPortConfigPeriodicTimer
```

---



## mvrp periodic-transmission

Enables the periodic transmission status on a port or aggregate of ports.

```
mvrp {port slot/port [- port2] | linkagg agg_num [-agg_num2]} periodic-transmission {enable|disable}
```

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<b>enable</b>	Enables periodic transmission status on a port.
<b>disable</b>	Disables periodic transmission status on a port.

### Defaults

By default, periodic-transmission status would be disabled on all the ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 periodic-transmission enable
-> mvrp port 1/2 periodic-transmission disable
-> mvrp linkagg 10 periodic-transmission enable
-> mvrp linkagg 10 periodic-transmission disable
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

<a href="#">show mvrp port</a>	Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.
<a href="#">show mvrp linkagg</a>	Displays the MVRP configurations for all link aggregates, including timer values, registration and applicant modes.

### MIB Objects

```
alaMvrpPortConfigTable
  alaMvrpPortConfigPeriodicTransmissionStatus
```

---

## mvrp restrict-vlan-registration

Restricts MVRP processing from dynamically registering the specified VLAN or VLANs on the switch.

**mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **restrict-vlan-registration** **vlan** *vlan-list*

**no mvrp** {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} **restrict-vlan-registration** **vlan** *vlan-list*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>vlan-list</i>	The VLAN ID or the VLAN ID range (e.g., 1-10).

### Defaults

By default, MVRP dynamic VLAN registrations are not restricted.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to allow registration of dynamic VLAN IDs through MVRP processing.
- If the specified VLAN exists on the switch, the VLAN is mapped to the receiving port.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 restrict-vlan-registration vlan 5
-> no mvrp port 1/2 restrict-vlan-registration vlan 5
-> mvrp linkagg 10 restrict-vlan-registration vlan 6-10
-> no mvrp port 3/1 restrict-vlan-registration vlan 6-10
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

- show mvrp port** Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.
- show mvrp linkagg** Displays the MVRP configurations for all link aggregates, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortRestrictVlanConfigTable  
  alaMvrpPortRestrictRowStatus  
  alaMvrpPortRestrictVlanAttributeType  
  alaMvrpPortRestrictVlanID
```

---

## mvrp restrict-vlan-advertisement

Restricts the advertisement of VLANs on a specific port or an aggregate of ports.

**mvrp** {port *slot/port* [-*port2*] | linkagg *agg\_num* [-*agg\_num2*]} **restrict-vlan-advertisement**

**vlan** *vlan-list*

**no mvrp** {port *slot/port* [-*port2*] | linkagg *agg\_num* [-*agg\_num2*]} **restrict-vlan-advertisement**

**vlan** *vlan-list*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<i>vlan_list</i>	The list of VLAN IDs or the VLAN ID range (e.g., 1-10).

### Defaults

By default, MVRP VLAN advertisement is not restricted.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command affects the MVRP processing only if the applicant mode is set to participant or active.
- Use the **no** form of this command to allow the propagation of VLANs.
- To use the *agg\_num* parameter, the link aggregate group must be created and enabled.

### Examples

```
-> mvrp port 1/2 restrict-vlan-advertisement vlan 5
-> no mvrp port 1/2 restrict-vlan-advertisement vlan 5
-> mvrp linkagg 10 restrict-vlan-advertisement vlan 6-10
-> no mvrp port 1/2 restrict-vlan-advertisement vlan 6-10
-> no mvrp port 1/1-2 restrict-vlan-advertisement vlan 6-10
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

<b>mvrp applicant</b>	Configures the applicant mode of specific ports on the switch. The applicant mode determines whether MVRP PDU exchanges are allowed on a port depending on the Spanning Tree state of the port.
<b>mvrp timer join</b>	Configures the applicant mode of specific link aggregates on the switch. The applicant mode determines whether MVRP PDU exchanges are allowed on a port depending on the Spanning Tree state of the port.
<b>show mvrp port</b>	Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.
<b>show mvrp linkagg</b>	Displays the MVRP configurations for all the link aggregates, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortRestrictVlanConfigTable  
  alaMvrpPortRestrictRowStatus  
  alaMvrpPortRestrictVlanAttributeType  
  alaMvrpPortRestrictVlanID
```

---

## mvrp static-vlan-restrict

Restricts a port from becoming a member of a statically created VLAN or a range of VLANs.

**mvrp** {linkagg *agg\_num* [-*agg\_num2*] | port *slot/port* [- *port2*]} **static-vlan-restrict** vlan *vlan-list*

**no mvrp** {linkagg *agg\_num* [-*agg\_num2*] | port *slot/port* [- *port2*]} **static-vlan-restrict** vlan *vlan-list*

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>vlan_list</i>	The list of VLAN IDs or the VLAN ID range (e.g., 1-10).

### Defaults

By default, ports are assigned to the static VLAN based on MVRP PDU processing.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command applies only to static VLANs and does not apply to dynamic VLANs.
- Use the **no** form of this command to set the specified port and VLAN to the default value.
- Use the *agg\_num* or *slot/port* parameter with this command to display GVRP statistics for a specific port.

### Examples

```
-> mvrp port 1/2 static-vlan-restrict vlan 5
-> no mvrp port 1/2 static-vlan-restrict vlan 5
-> mvrp port 1/2 static-vlan-restrict vlan 6-9
-> no mvrp port 1/2 static-vlan-restrict vlan 6-9
-> mvrp linkagg 3 static-vlan-restrict vlan 4-5
-> no mvrp linkagg 3 static-vlan-restrict aggregate vlan 4-5
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

### **show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

### **show mvrp linkagg**

Displays the MVRP configurations for all the link aggregates, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortRestrictVlanConfigTable  
  alaMvrpPortRestrictRowStatus  
  alaMvrpPortRestrictVlanAttributeType  
  alaMvrpPortRestrictVlanID  
  alaMvrpPortConfigRegistrationToStaticVlan  
  alaMvrpPortConfigRegistrationToStaticVlanLearn  
  alaMvrpPortConfigRegistrationToStaticVlanRestrict
```

---

## show mvrp configuration

Displays the global configuration for MVRP.

**show mvrp configuration**

---

### Syntax Definitions

NA

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

NA

### Examples

```
-> show mvrp configuration
MVRP Enabled           : yes,
Transparent Switching Enabled : no,
Maximum VLAN Limit     : 256
```

### *output definitions*

---

<b>MVRP Enabled</b>	Indicates whether MVRP is globally enabled.
<b>Transparent Switching Enabled</b>	Indicates whether transparent switching is enabled ( <b>Yes</b> ) or disabled ( <b>No</b> ). When enabled, MVRP messages are flooded even if MVRP is disabled for the switch.
<b>Maximum VLAN Limit</b>	The maximum number of VLANs that can be learned by MVRP in the system.

---

### Release History

Release 6.4.3; command was introduced.



## Related Commands

<b>mvrp</b>	Enables or disables MVRP globally on the switch.
<b>vlan registration-mode</b>	Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.
<b>mvrp port</b>	Enables or disables transparent switching on the switch. When transparent switching is enabled, the switch propagates MVRP information to other switches but does not participate in the MVRP protocol.
<b>mvrp maximum vlan</b>	Configures the maximum number of dynamic VLANs that can be created by MVRP.

## MIB Objects

```
alaMvrpGlobalStatus  
alaMvrpTransparentSwitching  
alaMvrpMaxVlanLimit
```

---

## show mvrp port

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

**show mvrp port** {*slot/port* [-*port2*]} [**enabled** | **disabled**]

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

**enabled** To display only the enabled ports.

**disabled** To display only the disabled ports.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show mvrp port enabled

Port	Join Timer (msec)	Leave Timer (msec)	LeaveAll Timer (msec)	Periodic Timer (sec)	Registration Mode	Applicant Mode	Periodic Tx Status
1/1	600	1800	30000	2	fixed	active	enabled
1/2	600	1800	30000	2	fixed	active	enabled
1/7	600	1800	30000	2	fixed	active	enabled
1/8	600	1800	30000	2	fixed	active	enabled
2/24	600	1800	30000	2	fixed	active	enabled

-> show mvrp port disabled

Port	Join Timer (msec)	Leave Timer (msec)	LeaveAll Timer (msec)	Periodic Timer (sec)	Registration Mode	Applicant Mode	Periodic Tx Status
1/9	600	1800	30000	2	fixed	active	enabled
1/10	600	1800	30000	2	fixed	active	enabled
2/1	600	1800	30000	2	fixed	active	enabled
2/2	600	1800	30000	2	fixed	active	enabled
...							
2/24	600	1800	30000	2	fixed	active	enabled

```
-> show mvrp port
```

Port	Status	Join Timer (msec)	Leave Timer (msec)	LeaveAll Timer (msec)	Periodic Timer (sec)	Registration Mode	Applicant Mode	Periodic Tx Status
1/1	disabled	600	1800	30000	2	fixed	participant	enabled
1/2	enabled	600	1800	30000	2	fixed	participant	enabled
1/3	enabled	600	1800	30000	2	fixed	active	enabled
1/4	enabled	600	1800	30000	2	fixed	active	enabled
2/24	enabled	600	1800	30000	2	fixed	active	enabled

```
-> show mvrp port 1/1-3
```

Port	Status	Join Timer (msec)	Leave Timer (msec)	LeaveAll Timer (msec)	Periodic Timer (sec)	Registration Mode	Applicant Mode	Periodic Tx Status
1/1	disabled	600	1800	30000	2	fixed	participant	enabled
1/2	enabled	600	1800	30000	2	fixed	participant	enabled
1/3	enabled	600	1800	30000	2	fixed	participant	enabled

```
-> show mvrp port 1/1
```

```
MVRP Enabled : no,
Registrar Mode : normal,
Applicant Mode : participant,
Join Timer (msec) : 600,
Leave Timer (msec) : 1800,
LeaveAll Timer (msec) : 30000,
Periodic Timer (sec) : 1,
Periodic Tx Status : enabled
```

```
-> show mvrp port 1/1 enabled
ERROR: MVRP is disabled on port 1/1
```

### *output definitions*

<b>Port</b>	Displays the slot/port number.
<b>Join Timer</b>	Displays the value of Join Timer in milliseconds.
<b>Leave Timer</b>	Displays the value of the Leave Timer in milliseconds.
<b>LeaveALL Timer</b>	Displays the value of the LeaveAll Timer in milliseconds.
<b>Periodic Timer</b>	Displays the value of the Periodic Timer in seconds.
<b>Registration Mode</b>	Indicates the registration mode of the port. <ul style="list-style-type: none"> <li>• <b>Normal:</b> Registrar responds normally to incoming MRP messages.</li> <li>• <b>Fixed:</b> Registrar ignores all MRP messages and remains in the IN state for all the dynamic VLAN-port associations.</li> <li>• <b>Forbidden:</b> Registrar ignores all MRP messages and remains in MT State.</li> </ul>

*output definitions (continued)*


---

<b>Applicant Mode</b>	Indicates the applicant mode of the port. <ul style="list-style-type: none"> <li>• <b>Participant:</b> MVRP PDU exchanges are only allowed when the port is in the STP forwarding state.</li> <li>• <b>Non-participant:</b> MVRP PDU's are not sent in this mode and PDU's received are processed and learning happens as expected.</li> <li>• <b>Active:</b> MVRP PDU exchanges are allowed when the port is in the STP forwarding state or STP blocking state.</li> </ul>
<b>Periodic Tx Status</b>	The transmission status of MVRP, <b>enabled</b> or <b>disabled</b> .

---

**Release History**

Release 6.4.3; command was introduced.

**Related Commands**

<a href="#">mvrp port</a>	Enables or disables MVRP on specific ports on the switch.
<a href="#">mvrp transparent-switching</a>	Enables or disables MVRP on specific aggregates on the switch
<a href="#">vlan registration-mode</a>	Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.

**MIB Objects**

```
alaMvrpPortConfigTable
  alaMvrpPortStatus
  alaMvrpPortConfigRegistrarMode
  alaMvrpPortConfigApplicantMode
  alaMvrpPortConfigJoinTimer
  alaMvrpPortConfigLeaveTimer
  alaMvrpPortConfigLeaveAllTimer
  alaMvrpPortConfigPeriodicTimer
  alaMvrpPortConfigPeriodicTransmissionStatus
```

---

## show mvrp linkagg

Displays the MVRP configurations for linkaggs, including timer values, registration and applicant modes.

**show mvrp linkagg** [*agg\_num* [-*agg\_num2*]] [**enabled** | **disabled**]

---

### Syntax Definitions

*agg\_num*                                    The number corresponding to the aggregate group.

**enabled**                                    To display only the enabled ports.

**disabled**                                   To display only the disabled ports.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show mvrp linkagg 1-3
```

Port	Status	Join Timer (msec)	Leave Timer (msec)	LeaveAll Timer (msec)	Periodic Timer (sec)	Registration Mode	Applicant Mode	Periodic Tx Status
0/1	enabled	600	1800	30000	2	fixed	participant	enabled
0/2	enabled	600	1800	30000	2	fixed	participant	enabled
0/3	enabled	600	1800	30000	2	fixed	participant	enabled

```
-> show mvrp linkagg 1
MVRP Enabled           : yes,
Registrar Mode         : normal,
Applicant Mode         : participant,
Join Timer (msec)      : 600,
Leave Timer (msec)      : 1800,
LeaveAll Timer (msec)   : 30000,
Periodic Timer (sec)   : 1,
Periodic Tx Status     : enabled
```

```
-> show mvrp linkagg 1 disabled
ERROR: MVRP is enabled on linkagg 0/1
```

---

**Note.** In command output shown below, the MVRP status is not displayed as the command is only for enabled ports/linkagg.

---

```
-> show mvrp linkagg 10 enabled
Registrar Mode      : normal,
Applicant Mode     : participant,
Join Timer (msec)  : 600,
Leave Timer (msec)  : 1800,
LeaveAll Timer (msec) : 30000,
Periodic Timer (sec) : 1,
Periodic Tx status  : disabled
```

### *output definitions*

---

<b>Port</b>	Displays the slot/port number.
<b>Join Timer</b>	Displays the value of Join Timer in milliseconds.
<b>Leave Timer</b>	Displays the value of the Leave Timer in milliseconds.
<b>LeaveALL Timer</b>	Displays the value of the LeaveAll Timer in milliseconds.
<b>Periodic Timer</b>	Displays the value of the Periodic Timer in seconds.
<b>Registration Mode</b>	Indicates the registration mode of the port. <ul style="list-style-type: none"> <li>• <b>Normal:</b> Registrar responds normally to incoming MRP messages.</li> <li>• <b>Fixed:</b> Registrar ignores all MRP messages and remains in the IN state for all the dynamic VLAN-port associations.</li> <li>• <b>Forbidden:</b> Registrar ignores all MRP messages and remains in MT State.</li> </ul>
<b>Applicant Mode</b>	Indicates the applicant mode of the port. <ul style="list-style-type: none"> <li>• <b>Participant:</b> MVRP PDU exchanges are only allowed when the port is in the STP forwarding state.</li> <li>• <b>Non-participant:</b> MVRP PDU's are not sent in this mode and PDU's received are processed and learning happens as expected.</li> <li>• <b>Active:</b> MVRP PDU exchanges are allowed when the port is in the STP forwarding state or STP blocking state.</li> </ul>
<b>Periodic Tx Status</b>	The transmission status of MVRP, <b>enabled</b> or <b>disabled</b> .

---

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<a href="#">mvrp port</a>	Enables or disables MVRP on specific ports on the switch.
<a href="#">mvrp transparent-switching</a>	Enables or disables MVRP on specific aggregates on the switch
<a href="#">vlan registration-mode</a>	Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.

## **MIB Objects**

alaMvrpPortConfigTable

- alaMvrpPortStatus
- alaMvrpPortConfigRegistrarMode
- alaMvrpPortConfigApplicantMode
- alaMvrpPortConfigJoinTimer
- alaMvrpPortConfigLeaveTimer
- alaMvrpPortConfigLeaveAllTimer
- alaMvrpPortConfigPeriodicTimer
- alaMvrpPortConfigPeriodicTransmissionStatus

---

## show mvrp timer

Displays the timer values configured for all the ports or a specific port.

```
show mvrp {port slot/port [- port2] | linkagg agg_num [-agg_num2]} timer {join | leave | leaveall |
periodic-timer}
```

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>agg_num</i>	The number corresponding to the aggregate group.
<b>join</b>	To display only the join timer.
<b>leave</b>	To display only the leave timer.
<b>leaveall</b>	To display only the leaveall timer.
<b>periodic-timer</b>	To display only the periodic-timer.

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **join**, **leave**, **leaveall**, or **periodic-timer** parameter with this command to view the specific timer values configured on all the ports.
- Use the *agg\_num* or *slot/port* parameter with this command to display the timer values configured for a specific port.

### Examples

```
-> show mvrp timer
Port      Join Timer      Leave Timer      LeaveAll Timer      Periodic Timer
      (msec)          (msec)          (sec)              (msec)
-----+-----+-----+-----+-----
1/1        600             1800             30000               2
1/2        600             1800             30000               5
1/3        600             1800             30000               1
1/4        600             1800             30000               1
-> show mvrp port 1/21 timer
Join Timer (msec)      : 600,
Leave Timer (msec)     : 1800,
LeaveAll Timer (msec)  : 30000,
Periodic-Timer (sec)  : 1

-> show mvrp port 1/21 timer join
Join Timer (msec)     : 600
```



```
-> show mvrp port 1/21 timer leave
Leave Timer (msec)      : 1800

-> show mvrp port 1/21 timer leaveall
LeaveAll Timer (msec)   : 30000

-> show mvrp port 1/21 timer periodic-timer
Periodic-Timer (sec)   : 1

-> show mvrp timer join
Legend : All timer values are in milliseconds
Port      Join Timer
-----+-----
1/1        600
1/2        600
1/3        600

-> show mvrp timer leaveall
Legend : All timer values are in milliseconds
Port      LeaveAll Timer
-----+-----
1/1        1800
1/2        1800
1/3        1800

-> show mvrp timer leaveall
Legend : All timer values are in milliseconds
Port      LeaveAll Timer
-----+-----
1/1        30000
1/2        30000
1/3        30000

-> show mvrp timer periodic-timer
Port      Periodic Timer
-----+-----
1/1        1
1/2        1
1/3        1
```

### *output definitions*

---

<b>Port</b>	Displays the slot/port number.
<b>Join Timer</b>	Displays the value of Join Timer in milliseconds.
<b>Leave Timer</b>	Displays the value of the Leave Timer in milliseconds.
<b>LeaveALL Timer</b>	Displays the value of the LeaveAll Timer in milliseconds.
<b>Periodic Timer</b>	Displays the value of the Periodic Timer in seconds.

---

### **Release History**

Release 6.4.3; command was introduced.

## Related Commands

<b>mvrp timer join</b>	Specifies the join time interval between transmit opportunities for the dynamically registering VLANs on the switch.
<b>mvrp timer leave</b>	Specifies the period of time that the switch has to wait in the Leave state before changing to the unregistered state.
<b>mvrp timer leaveall</b>	Specifies the frequency with which the LeaveAll messages are communicated.
<b>mvrp timer periodic-timer</b>	Specifies the MVRP periodic-timer time interval for the dynamically registering VLANs on the switch.
<b>show mvrp port</b>	Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

```
alaMvrpPortConfigTable  
  alaMvrpPortConfigJoinTimer  
  alaMvrpPortConfigLeaveTimer  
  alaMvrpPortConfigLeaveAllTimer  
  alaMvrpPortConfigPeriodicTimer
```

---

## show mvrp statistics

Displays the MVRP statistics for all the ports, aggregates, or specific ports.

```
show mvrp {port slot/port [- port2] | linkagg agg_num [-agg_num2] } statistics
```

---

### Syntax Definitions

*slot/port*                                The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num*                                 The number corresponding to the aggregate group.

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If no port or link aggregate is specified the MVRP statistics are displayed for all ports.
- Use the *agg\_num* or *slot/port* parameter with this command to display the MVRP statistics for a specific port.

### Examples

```
-> show mvrp port 1/21 statistics
Port 1/21:
New Received           : 0,
Join In Received      : 1526,
Join Empty Received   : 8290,
Leave Received         : 0,
In Received           : 1,
Empty Received        : 0,
Leave All Received     : 283,
New Transmitted       : 826,
Join In Transmitted   : 1532,
Jon Empty Transmitted : 39,
Leave Transmitted      : 0,
In Transmitted        : 0,
Empty Transmitted     : 296,
LeaveAll Transmitted   : 23,
Failed Registrations  : 0,
Total Mrp PDU Received : 1160,
Total Mrp PDU Transmitted : 957,
Total Mrp Msgs Received : 10100,
Total Mrp Msgs Transmitted : 2693,
Invalid Msgs Received  : 0
```

```

-> show mvrp statistics
Port 1/1:
New Received           : 0,
Join In Received       : 1526,
Join Empty Received    : 8290,
Leave Received          : 0,
In Received            : 1,
Empty Received         : 0,
Leave All Received      : 283,
New Transmitted        : 826,
Join In Transmitted    : 1532,
Join Empty Transmitted : 39,
Leave Transmitted       : 0,
In Transmitted         : 0,
Empty Transmitted      : 296,
LeaveAll Transmitted    : 23,
Failed Registrations   : 0,
Total Mrp PDU Received : 1160,
Total Mrp PDU Transmitted : 957,
Total Mrp Msgs Received : 10100,
Total Mrp Msgs Transmitted : 2693,
Invalid Msgs Received  : 0

```

```

Port 1/2:
New Received           : 0,
Join In Received       : 1526,
Join Empty Received    : 8290,
Leave Received          : 0,
In Received            : 1,
Empty Received         : 0,
Leave All Received      : 283,
New Transmitted        : 826,
Join In Transmitted    : 1532,
Join Empty Transmitted : 39,
Leave Transmitted       : 0,
In Transmitted         : 0,
Empty Transmitted      : 296,
LeaveAll Transmitted    : 23,
Failed Registrations   : 0,
Total Mrp PDU Received : 1160,
Total Mrp PDU Transmitted : 957,
Total Mrp Msgs Received : 10100,
Total Mrp Msgs Transmitted : 2693,
Invalid Msgs Received  : 0

```

### *output definitions*

---

<b>New Received</b>	The number of new MVRP messages received on the switch.
<b>Join In Received</b>	The number of MVRP Join In messages received on the switch
<b>Join Empty Received</b>	The number of MVRP Join Empty messages received on the switch.
<b>Leave In Received</b>	The number of MVRP Leave In messages received on the switch.
<b>In Received</b>	The total MVRP messages received on the switch.
<b>Empty Received</b>	The number of MVRP Empty messages received on the switch.
<b>Leave All Received</b>	The number of MVRP Leave All messages received on the switch.
<b>New Transmitted</b>	The number of new MVRP messages sent by the switch.

*output definitions (continued)*

---

<b>Join In Transmitted</b>	The number of MVRP Join In messages sent by the switch
<b>Join Empty Transmitted</b>	The number of MVRP Join Empty messages sent by the switch.
<b>Leave Transmitted</b>	The number of MVRP Leave messages sent by the switch.
<b>In Transmitted</b>	The number of MVRP In messages sent by the switch.
<b>Empty Transmitted</b>	The number of MVRP empty messages sent by the switch.
<b>LeaveAll Transmitted</b>	The number of Leave All messages sent by the switch.
<b>Failed Registrations</b>	The number of failed registrations.
<b>Total Mrp PDU Received</b>	The number of total MRP PDUs received by the switch.
<b>Total Mrp Msgs Received</b>	The number of total MRP messages received by the switch.
<b>Total Mrp Msgs Transmitted</b>	The number of total MRP messages sent by the switch.
<b>Invalid Msgs Received</b>	The number of invalid messages received by the switch.

---

**Release History**

Release 6.4.3; command was introduced.

**Related Commands**

<a href="#">show mvrp configuration</a>	Clears MVRP statistics for all the ports, an aggregate of ports, or a specific port.
<a href="#">show mvrp port</a>	Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.
<a href="#">show mvrp linkagg</a>	Displays the MVRP configuration for a specific port or an aggregate of ports.

**MIB Objects**

```
alaMvrpPortStatsTable
  alaMvrpPortStatsNewReceived,
  alaMvrpPortStatsJoinInReceived,
  alaMvrpPortStatsJoinEmptyReceived,
  alaMvrpPortStatsLeaveReceived,
  alaMvrpPortStatsInReceived,
  alaMvrpPortStatsEmptyReceived,
  alaMvrpPortStatsLeaveAllReceived,
  alaMvrpPortStatsNewTransmitted,
  alaMvrpPortStatsJoinInTransmitted,
  alaMvrpPortStatsJoinEmptyTransmitted,
  alaMvrpPortStatsLeaveTransmitted,
  alaMvrpPortStatsInTransmitted,
  alaMvrpPortStatsEmptyTransmitted,
  alaMvrpPortStatsLeaveAllTransmitted,
  alaMvrpPortStatsTotalPDURceived,
  alaMvrpPortStatsTotalPDUTransmitted,
  alaMvrpPortStatsTotalMsgsReceived,
  alaMvrpPortStatsTotalMsgsTransmitted,
  alaMvrpPortStatsInvalidMsgsReceived,
  alaMvrpPortFailedRegistrations
```

---

## show mvrp last-pdu-origin

Displays the source MAC address of the last MVRP message received on specific ports or aggregates.

**show mvrp {port slot/port [- port2] | linkagg agg\_num [-agg\_num2]} last-pdu-origin**

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num* The number corresponding to the aggregate group.

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

None

### Examples

```
-> show mvrp port 1/1-3 last-pdu-origin
```

```
Port      Last PDU Origin
-----+-----
1/1       00:d0:95:ee:f4:64
1/2       00:d0:95:ee:f4:65
1/3       00:d0:95:ee:f4:66
```

```
->show mvrp port 1/21 last-pdu-origin
```

```
Port      Last PDU Origin
-----+-----
1/1       00:d0:95:ee:f4:64
```

### output definitions

---

<b>Port</b>	Displays the slot/port number.
<b>Last PDU origin</b>	The source MAC address of the last PDU message received on the specific port.

---

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show mvrp linkagg**

Displays the MVRP configuration for a specific port or an aggregate of ports.

**show mvrp port**

Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.

## MIB Objects

alaMvrpPortStatsTable  
alaMvrpPortLastPduOrigin

---

---

## show vlan registration-mode

Displays the VLAN registration operational mode.

**show vlan registration-mode**

---

### Syntax Definitions

NA

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

None

### Examples

```
-> show vlan registration-mode
VLAN dynamic registration mode : mvrp
```

#### *output definitions*

---

<b>VLAN dynamic registration mode</b>	Displays the VLAN dynamic registration mode, mvrp or <b>gvrp</b> .
---------------------------------------	--------------------------------------------------------------------

---

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[vlan registration-mode](#) Configures VLAN dynamic registration mode to either GVRP or MVRP and deletes all static configuration of previous mode along with the dynamic data.

### MIB Objects

alaVlanDynamicRegistrationProtocolType

---



## show mvrp vlan-restrictions

Displays the VLAN MVRP configuration on a specific port or an aggregate of ports.

**show mvrp {port *slot/port* [- *port2*] | linkagg *agg\_num* [-*agg\_num2*]} vlan-restrictions**

---

### Syntax Definitions

<i>agg_num</i>	The number corresponding to the aggregate group.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the *agg\_num* or *slot/port* parameter with this command to display the MVRP statistics for a specific port.

### Examples

```
-> show mvrp port 1/21 vlan-restrictions
```

VLAN Id	Static Registration	Restricted Registration	Restricted Applicant
1	LEARN	FALSE	FALSE
2	LEARN	FALSE	FALSE
3	LEARN	FALSE	FALSE
4	LEARN	FALSE	FALSE
5	LEARN	FALSE	FALSE
6	LEARN	FALSE	FALSE
7	LEARN	FALSE	FALSE
11	RESTRICT	FALSE	FALSE
12	RESTRICT	FALSE	FALSE
53	LEARN	TRUE	FALSE
55	LEARN	FALSE	TRUE

*output definitions*


---

<b>VLAN ID</b>	The VLAN identification number for a preconfigured VLAN that handles the MVRP traffic for this port.
<b>Static Registration</b>	Indicates if the port is restricted ( <b>RESTRICT</b> ) or not restricted ( <b>LEARN</b> ) from becoming a member of the static VLAN.
<b>Restricted Registration</b>	Indicates if the VLAN is restricted ( <b>TRUE</b> ) or not restricted ( <b>FALSE</b> ) from dynamic registration on the port.
<b>Restricted Applicant</b>	Indicates if the VLAN is restricted for advertisement from the port ( <b>TRUE</b> ) or not ( <b>FALSE</b> ).

---

**Release History**

Release 6.4.3; command was introduced.

**Related Commands**

<b>show mvrp port</b>	Displays the MVRP configurations for all the ports, including timer values, registration and applicant modes.
<b>show mvrp linkagg</b>	Displays the MVRP configuration for a specific port or an aggregate of ports.

**MIB Objects**

```

alaMvrpPortConfigTable
  alaMvrpPortConfigRestrictedRegistrationBitmap
  alaMvrpPortConfigRestrictedApplicantBitmap
  alaMvrpPortConfigRegistrationToStaticVlan

```

---

## show vlan mvrp

Displays the list of VLANs learned through MVRP and their details.

**show vlan mvrp** [**vlan-id** | **vlan-range**]

---

### Syntax Definitions

**vlan-id** VLAN ID number you want to display (1-4094)  
**vlan-range** The VLAN ID range (e.g. 1-10)

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

None

### Examples

-> show vlan mvrp

```

                                stree    mble
vlan  type admin oper 1x1  flat  auth  ip  ipx  tag  name
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
5      mvrp  on   on   on   on   off   NA  off  off  MVRP1
6      mvrp  on   on   off  off  off   NA  off  off  MVRP12

```

### output definitions

---

<b>VLAN</b>	The VLAN ID. Use the <b>vlan</b> command to create or remove VLANs.
<b>Type</b>	The type of VLAN ( <b>std</b> , <b>vstk</b> , <b>gvrp</b> , <b>mvrp</b> , or <b>ipmv</b> )
<b>Admin</b>	VLAN administrative status: <b>on</b> enables VLAN functions to operate; <b>off</b> disables VLAN functions without deleting the VLAN. Use the <b>vlan</b> command to change the VLAN administrative status.
<b>Oper</b>	VLAN operational status: <b>on</b> (enabled) or <b>off</b> (disabled). The operational status remains disabled until an active port is assigned to the VLAN. When the operational status is enabled, then VLAN properties (e.g. router interfaces, Spanning Tree) are applied to ports and traffic flow. A VLAN must have an enabled administrative status before it can become operationally enabled.
<b>stree 1x1</b>	Specifies that the MVRP status for the VLAN applies when the switch is running in the 1x1 MVRP mode.
<b>stree Flat</b>	Specifies that the MVRP status for the VLAN applies when the switch is running in the flat MVRP mode.

*output definitions (continued)*


---

<b>Auth</b>	VLAN Authentication status: <b>on</b> (enabled) or <b>off</b> (disabled). Use the <b>vlan authentication</b> command to change the VLAN Authentication status.
<b>IP</b>	IP router interface status: <b>on</b> (IP interface exists for the VLAN) or <b>off</b> (no IP router interface exists for the VLAN). Use <b>the ip interface command</b> to define an IP router interface for a VLAN.
<b>mble Tag</b>	Mobile tagging status: <b>on</b> (enabled); <b>off</b> (disabled). Configured through the <b>vlan mobile-tag</b> command.
<b>Name</b>	The user-defined text description for the VLAN. By default, the VLAN ID is specified for the VLAN description.

---

**Release History**

Release 6.4.3; command was introduced.

**Related Commands**

**mvrp maximum vlan** Configures the maximum number of dynamic VLANs that can be created by MVRP.

**MIB Objects**

```

vlanMgrVlan
vlanTable
  vlanNumber
  vlanDescription
  vlanAdmStatus
  vlanOperStatus
  vlanStatus
  vlanStpStatus
  vlanAuthentStatus
  vlanIpAddress
  vlanIpMask
  vlanIpEnacp
  vlanIpForward
  vlanIpStatus
  vlanTagMobilePortStatus

```

---

## mvrp clear-statistics

Clears MVRP statistics for all the ports, an aggregate of ports, or a specific port.

**mvrp** [**port** *slot/port* [-*port2*] | **linkagg** *agg\_num* [-*agg\_num2*]] **clear-statistics**

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num* The number corresponding to the aggregate group.

### Defaults

If no ports are specified, the MVRP statistics are deleted for all the ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *agg\_num* or *slot/port* parameter with this command to clear MVRP statistics for a specific port.

### Examples

```
-> mvrp clear-statistics
-> mvrp port 1/2 clear-statistics
-> mvrp linkagg 10 clear-statistics
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show mvrp statistics](#) Displays the MVRP statistics for all the ports, aggregates, or specific ports.

### MIB Objects

```
alaMvrpGlobalClearStats
  alaMvrpPortStatsTable
  alaMvrpPortStatsClearStats
```

---



# 12 802.1AB Commands

Alcatel-Lucent's 802.1AB is an IEEE standard for exchanging information with neighboring devices and maintaining a database of the information. The information is exchanged using the LLDPDU (Link Layer Discovery Protocol Data Unit) in TLV (Time, Length, Value) format. This chapter details configuring and monitoring 802.1AB on a switch.

Alcatel-Lucent's version of 802.1AB complies with the IEEE 802.1AB-2005 Station and Media Access Control Discovery and ANSI-TIA 1057-2006 Link Layer Discovery Protocol for Media End Point Devices.

MIB information for the 802.1AB commands is as follows:

*Filename:* IEEE\_LLDP\_Base.mib

*Module:* LLDP-MIB

*Filename:* IEEE\_LLDP\_Dot1.mib

*Module:* LLDP-EXT-DOT1-MIB

*Filename:* IEEE\_LLDP\_Dot3.mib

*Module:* LLDP-EXT-DOT3-MIB

*Filename:* ANSI\_TIA\_LLDP\_MED.mib

*Module:* LLDP-EXT-DOT3-MIB

Link Layer Discovery Protocol (LLDP) Security Mechanism in AOS prevents rogue LLDP agent from being connected to OmniSwitch. This ensures secured access to the device and the network.

LLDP Security Mechanism ensures having only one trusted LLDP agent on a network port. When more than one LLDP agent is learned on a port, the port is moved to violation state.

MIB information for the LLDP commands is as follows:

*Filename:* AlcatelINDLLDP.mib

*Module:* LLDP (IEEE802.1ab)

A summary of the available commands is listed here.

---

<b>LLDP</b>	<b>lldp destination mac-address</b> <b>lldp transmit fast-start-count</b> <b>lldp transmit interval</b> <b>lldp transmit hold-multiplier</b> <b>lldp transmit delay</b> <b>lldp reinit delay</b> <b>lldp network-policy</b> <b>lldp med network-policy</b> <b>lldp notification interval</b> <b>lldp lldpdu</b> <b>lldp notification</b> <b>lldp tlv management</b> <b>lldp tlv dot1</b> <b>lldp tlv dot3 mac-phy</b> <b>lldp tlv med</b> <b>show lldp config</b> <b>show lldp network-policy</b> <b>show lldp med network-policy</b> <b>show lldp system-statistics</b> <b>show lldp statistics</b> <b>show lldp local-system</b> <b>show lldp local -port</b> <b>show lldp local-management-address</b> <b>show lldp remote-system</b> <b>show lldp remote-system med</b>
<b>LLDP Security Mechanism</b>	<b>lldp trust-agent</b> <b>lldp trust-agent violation-action</b> <b>show lldp trusted remote-agent</b> <b>show lldp trust-agent</b>

---

Configuration procedures for 802.1AB are explained in the “Configuring 802.1AB” chapter of the *OmniSwitch AOS Release 6 Network Configuration Guide*.



## lldp destination mac-address

Sets the lldp destination mac-address sent in LLPDUs.

**lldp destination mac-address {nearest-bridge | nearest-edge}**

---

### Syntax Definitions

**nearest-bridge** Specifies the destination mac-address as 01:80:C2:00:00:0E.  
**nearest-edge** Specifies the destination mac-address as 01:20:DA:02:01:73.

### Defaults

---

parameter	default
mac-address	nearest-bridge

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **nearest-edge** MAC address is used in conjunction with the Auto Download Configuration feature to advertise the management VLAN.

### Examples

```
-> lldp destination mac-address nearest-edge  
-> lldp destination mac-address nearest-bridge
```

### Release History

Release 6.4.4; command introduced.

### Related Commands

[show lldp local-system](#) Displays local system information.

### MIB Objects

lldpDestMac

---

## lldp transmit fast-start-count

Configures the fast start count for an LLDP Media Endpoint Device (MED). The fast start count specifies the number of LLDPDUs to be sent as soon as a MED is detected by the switch. The LLDPDUs contain the LLDP MED Network Policy TLVs.

**lldp transmit fast-start-count** *num*

---

### Syntax Definitions

*num* Specifies the number of LLDPDUs to send when a MED is detected. The valid range is 1–10.

### Defaults

parameter	default
<i>num</i>	3

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The LLDP MED fast start is only applicable when the MED is detected by the switch.

### Examples

```
-> lldp transmit fast-start-count 4
```

### Release History

Release 6.4.3; command introduced.

### Related Commands

<a href="#">lldp network-policy</a>	Configures a MED Network Policy on the switch for a specific application type.
<a href="#">lldp med network-policy</a>	Associates an existing MED Network Policy with one or more LLDP ports.
<a href="#">show lldp local-system</a>	Displays local system information.

### MIB Objects

lldpXMedFastStartRepeatCount

---

## lldp transmit interval

Sets the transmit time interval for LLDPDUs. This is the amount of time the switch waits between each transmission of an LLDPDU.

**lldp transmit interval** *seconds*

---

### Syntax Definitions

*seconds*                                      The transmit interval value, in seconds. The valid range is 5–32768.

### Defaults

---

parameter	default
<i>seconds</i>	30

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command applies only to LLDP-enabled ports.
- LLDP also multiplies the transmit time interval by the transmit hold multiplier to determine the time to live (TTL) value that is advertised in the LLDPDU.

### Examples

```
-> lldp transmit interval 40
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

**lldp transmit hold-multiplier**      Sets the transmit hold multiplier value. This value is used to calculate the Time To Live (TTL) value that is advertised in an LLDPDU.

**show lldp local-system**                Displays local system information.

### MIB Objects

lldpConfiguration  
  lldpMessageTxInterval

---

## lldp transmit hold-multiplier

Sets the transmit hold multiplier value. This value is used to calculate the Time To Live (TTL) value that is advertised in an LLDPDU.

**lldp transmit hold-multiplier** *num*

---

### Syntax Definitions

*num* The transmit hold multiplier value. The valid range is 2–10.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>num</i>	4

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command applies only to LLDP-enabled ports.
- LLDP multiples the transmit hold multiplier by the transmit interval value to determine the TTL value that is advertised in an LLDPDU.

### Examples

```
-> lldp transmit hold-multiplier 6
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

- [lldp transmit interval](#) Sets the transmit time interval for LLDPDUs. This is the amount of time the switch waits between each transmission of an LLDPDU.
- [show lldp local-system](#) Displays local system information.

### MIB Objects

```
lldpConfiguration  
  lldpMessageTxHoldMultiplier
```

---

## lldp transmit delay

Sets the minimum amount of time that must elapse between successive LLDPDUs that are transmitted as the result of a value or status change in the LLDP local systems MIB.

**lldp transmit delay** *seconds*

---

### Syntax Definitions

*seconds*                                    The transmit delay value, in seconds. The valid range is 1–8192.

### Defaults

parameter	default
<i>seconds</i>	2

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command applies only to LLDP-enabled ports.
- The following formula determines the recommended transmit delay value:  
 $1 \leq \text{transmit delay} \leq (0.25 * \text{transmit interval})$ .

### Examples

```
-> lldp transmit delay 20
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

- [lldp transmit interval](#)                    Sets the transmit time interval for LLDPDUs. This is the amount of time the switch waits between each transmission of an LLDPDU.
- [show lldp local-system](#)                Displays local system information.

### MIB Objects

lldpConfiguration  
  lldpTxDelay

---

## lldp reinit delay

Sets the amount of time that must elapse before an LLDP port is re-initialized after the status for the port was disabled.

**lldp reinit delay** *seconds*

---

### Syntax Definitions

*seconds*                                   The re-initialize value, in seconds. The valid range is 1–10.

### Defaults

parameter	default
<i>seconds</i>	2

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command applies only to LLDP-enabled ports.

### Examples

```
-> lldp reinit delay 4
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

<a href="#">lldp transmit delay</a>	Sets the minimum time interval between successive LLDPDUs that are transmitted as the result of a value or status change in the LLDP local systems MIB.
<a href="#">show lldp local-system</a>	Displays local system information.

### MIB Objects

```
lldpConfiguration
  lldpReinitDelay
```

---

## lldp notification interval

Sets the amount of time that must elapse before an LLDP notification about a remote systems MIB change is generated.

**lldp notification interval** *seconds*

---

### Syntax Definitions

*seconds* The notification time interval, in seconds. The valid range is 5–3600.

### Defaults

parameter	default
<i>seconds</i>	5

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command applies only to LLDP-enabled ports that also have the LLDP notification status enabled.
- Within a given notification time interval, generating more than one notification event is not allowed.

### Examples

```
-> lldp notification interval 25
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

**lldp notification** Enables or disables the LLDP notification status for one or more switch ports. LLDP notifications are sent when there is a change to the remote systems MIB.

**show lldp local-system** Displays local system information.

### MIB Objects

lldpConfiguration  
lldpNotificationInterval

---

## lldp lldpdu

Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.

**lldp** {*slot/port* | *slot* / **chassis**} **lldpdu** {**tx** | **rx** | **tx-and-rx** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>chassis</b>	All ports on the switch.
<b>tx</b>	Transmits LLDPDUs.
<b>rx</b>	Receives LLDPDUs.
<b>tx-and-rx</b>	Transmits and receives LLDPDUs.
<b>disable</b>	Disables the LLDPDU status.

### Defaults

parameter	default
<b>tx</b>   <b>rx</b>   <b>tx-and-rx</b>   <b>disable</b>	<b>tx-and-rx</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the LLDPDU status is disabled, LLDPDUs are not transmitted and any that are received are dropped.
- Using the *slot* or **chassis** parameter with this command overrides the existing status configuration for any individual ports on the specified slot number or for all ports on the switch.

### Examples

```
-> lldp 1/2 lldpdu tx-and-rx
-> lldp 3 lldpdu rx
-> lldp chassis lldpdu disable
```

### Release History

Release 6.3.1; command introduced.



## Related Commands

<b>lldp notification</b>	Enables or disables the LLDP notification status for one or more switch ports. LLDP notifications are sent when there is a change to the remote systems MIB.
<b>show lldp local -port</b>	Displays information about local system ports.
<b>show lldp config</b>	Displays the general LLDP configuration information for LLDP ports.

## MIB Objects

```
lldpPortConfigTable  
  lldpPortConfigPortNum  
  lldpPortConfigAdminStatus
```

---

## lldp notification

Enables or disables the LLDP notification status for one or more switch ports. LLDP notifications are sent when there is a change to the remote systems MIB.

**lldp** {*slot/port* | *slot* / **chassis**} **notification** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>chassis</b>	All switch ports.
<b>enable</b>	Enables the notification of local system MIB changes.
<b>disable</b>	Disables the notification.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The LLDPDU administrative status must be in the receive state before using this command.
- Using the *slot* or **chassis** parameter with this command overrides the existing notification status configuration for any individual ports on the specified slot number or for all ports on the switch.

### Examples

```
-> lldp 1/2 notification enable
-> lldp 1 notification disable
```

### Release History

Release 6.3.1; command introduced.

## Related Commands

### **lldp notification interval**

Sets the time interval that must elapse before a notification about the local system MIB change is generated.

### **lldp lldpdu**

Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.

## MIB Objects

lldpPortConfigTable

    lldpPortConfigPortNum

    lldpPortConfigNotificationEnable

---

## lldp network-policy

Configures a local Network Policy on the switch for a specific application type.

**lldp network-policy** *policy\_id* - [*policy\_id2*] **application** {**voice** | **voice-signaling** | **guest-voice** | **guest-voice-signaling** | **softphone-voice** | **video-conferencing** | **streaming-video** | **video-signaling**} **vlan** {**untagged** | **priority-tag** | *vlan-id*} [**l2-priority** *802.1p\_value*] [**dscp** *dscp\_value*]

**no lldp network-policy** *policy\_id* - [*policy\_id2*]

---

### Syntax Definitions

<i>policy_id</i> - [ <i>policy_id2</i> ]	A network policy identifier (0-31) which is associated to a port.
<b>voice</b>	Specifies a voice application type.
<b>voice-signaling</b>	Specifies a voice-signaling application type.
<b>guest-voice</b>	Specifies a guest-voice application type.
<b>guest-voice-signaling</b>	Specifies a guest-voice-signaling application type.
<b>softphone-voice</b>	Specifies a softphone-voice application type.
<b>video-conferencing</b>	Specifies a video-conferencing application type.
<b>streaming-video</b>	Specifies a streaming-video application type.
<b>video-signaling</b>	Specifies a video-signaling application type.
<b>untagged</b>	Specifies that a VLAN port is untagged.
<b>priority-tag</b>	Specifies the internal priority that would be assigned to the VLAN.
<i>vlan_id</i>	VLAN identifier. Valid range is 1–4094.
<i>802.1p_value</i>	The Layer-2 priority value assigned to the VLAN. Valid range is 0–7.
<i>dscp_value</i>	Priority value assigned to the DSCP (Differentiated Service Code Point) header. Valid range is 0–63.

### Defaults

parameter	default
<i>802.1p_value</i>	0
<i>dscp_value</i>	0

- By default the VLAN ID is configured in the voice network profile.
- By default the *802.1p\_value* is 5 for voice application.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove the configured network policy from the system.
- When a network policy is deleted, all the associated values and port bindings are also deleted.
- A maximum of 32 network policies can be configured on a single VLAN.
- Once a policy is created, the application type, VLAN ID, 802.1p, and DSCP values can be modified.
- If a network policy ID is bound to a port, it cannot be modified.
- Use a hyphen to specify a range of Policy IDs and a space to separate multiple Policy IDs in the command.
- The range for Policy IDs is supported only with the **no** form of this command.

## Examples

```
-> lldp network-policy 10 application voice vlan 20
-> lldp network-policy 11 application guest-voice-signaling vlan untagged
12-priority 3
-> lldp network-policy 20 application voice vlan priority-tag dscp 39
-> lldp network-policy 20 application voice-signaling vlan 23 12-priority 2 dscp 43
-> no lldp network-policy 10
-> no lldp network-policy 10-20
```

## Release History

Release 6.4.3; command introduced.

## Related Commands

### lldp tlv med

Configures whether or not LLDP-MED TLVs are included in transmitted LLDPDUs.

### show lldp network-policy

Displays the network policy details for a given policy ID.

### show lldp med network-policy

Displays the network policy configured on a slot or port. If no option is specified, network policies configured on all ports of the chassis are displayed.

## MIB Objects

```
aLldpXMedLocMediaPolicyTable
  alaLldpXMedLocMediaPolicyId
  alaLldpXMedLocMediaPolicyAppType
  alaLldpXMedLocMediaPolicyVlanType
  alaLldpXMedLocMediaPolicyVlanID
  alaLldpXMedLocMediaPolicyPriority
  alaLldpXMedLocMediaPolicyDscp
  alaLldpXMedLocMediaPolicyUnknown
  alaLldpXMedLocMediaPolicyTagged
  alaLldpXMedLocMediaPolicyRowStatus
```

---

## lldp med network-policy

Associates an existing network policy to a port, slot, or chassis.

**lldp** {*slot/port* | *slot* | **chassis**} **med network-policy** *policy\_id* - [*policy\_id2*]

**no lldp** {*slot/port* | *slot* | **chassis**} **med network-policy** *policy\_id* - [*policy\_id2*]

---

### Syntax Definition

<i>slot/port</i>	The slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>chassis</b>	All switch ports.
<i>policy_id</i> - [ <i>policy_id2</i> ]	A network policy identifier (0–31).

### Defaults

NA

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disassociate a network policy from a port.
- The network policy should already be configured in the system before associating it with a port.
- A maximum of 8 network policies can be associated to a port.
- Two or more network policy IDs with the same application type cannot be associated to a port.

### Examples

```
-> lldp chassis med network-policy 22
-> lldp 1 med network-policy 1-4 5 6
-> lldp 2/3 med network-policy 12
-> no lldp 2/3 med network-policy 12
```

### Release History

Release 6.4.3; command introduced.

## Related Commands

- lldp tlv med** Configures whether or not LLDP-MED TLVs are included in transmitted LLDPDUs.
- show lldp network-policy** Displays the MED Network Policy details for a given policy ID.
- show lldp med network-policy** Displays the network policy configured on a slot or port. If no option is specified, network policies configured on all ports of the chassis are displayed.

## MIB Objects

```
alaLldpXMedLocMediaPolicyPortTable  
  alaLldpXMedLocMediaPolicyPortIfIndex  
  alaLldpXMedLocMediaPolicyId  
  alaLldpXMedLocMediaPolicyPortRowStatus
```

---

## lldp tlv management

Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.

**lldp** {*slot/port* | *slot* / **chassis**} **tlv management** {**port-description** | **system-name** | **system-description** | **system-capabilities** | **management-address**} {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>port-description</b>	Enables or disables the transmission of port description TLV in LLDPDU.
<b>system-name</b>	Enables or disables the transmission of system name TLV in LLDPDU.
<b>system-description</b>	Enables or disables transmission of system description TLV in LLDPDU.
<b>system-capabilities</b>	Enables or disables transmission of system capabilities TLV in LLDPDU.
<b>management-address</b>	Enables or disables transmission of management address on per port.
<b>enable</b>	Enables management TLV LLDPDU transmission.
<b>disable</b>	Disables management TLV LLDPDU transmission.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- Using the *slot* or **chassis** parameter with this command overrides the existing configuration for any individual ports on the specified slot number or for all ports on the switch.

### Examples

```
-> lldp 1/2 tlv management port-description enable
-> lldp 2 tlv management management-address enable
-> lldp 3 tlv management system-name disable
```



## Release History

Release 6.3.1; command introduced.

## Related Commands

<b>lldp lldpdu</b>	Specifies the switch to control the transmission and the reception of LLDPDUs for a particular chassis, a slot, or a port.
<b>show lldp local-system</b>	Displays local system information.
<b>show lldp local -port</b>	Displays local port information.
<b>show lldp remote-system</b>	Displays port information of remote system.

## MIB Objects

```
lldpPortConfigTable
  lldpLocPortPortNum
  lldpPortConfigTLVsTxEnable
lldpConfigManAddrTable
  lldpConfigManAddrPortsTxEnable
```

---

## lldp tlv dot1

Specifies the switch to control per port 802.1 TLVs to be incorporated in the LLDPDUs.

**lldp** {*slot/port* | *slot* / **chassis**} **tlv dot1** {**port-vlan** | **vlan-name**} {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>port-vlan</b>	Enables or disables transmission of port VLAN TLV in LLDPDU.
<b>vlan-name</b>	Enables or disables transmission of VLAN name TLV in LLDPDU.
<b>enable</b>	Enables 802.1 TLV LLDPDU transmission.
<b>disable</b>	Disables 802.1 TLV LLDPDU transmission.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- Using the *slot* or **chassis** parameter with this command overrides the existing configuration for any individual ports on the specified slot number or for all ports on the switch.
- If one TLV is included then the other TLV is automatically included when you use this command.

### Examples

```
-> lldp 5/1 tlv dot1 port-vlan enable
-> lldp 3 tlv dot1 vlan-name enable
-> lldp 3 tlv dot1 vlan-name disable
```

### Release History

Release 6.3.1; command introduced.

## Related Commands

<a href="#">lldp tlv management</a>	Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.
<a href="#">show lldp statistics</a>	Displays per port statistics.
<a href="#">show lldp local -port</a>	Displays per port information.

## MIB Objects

```
lldpPortConfigTable
  lldpPortConfigPortNum
lldpXdot1ConfigPortVlanTable
  lldpXdot1ConfigPortVlanTxEnable
lldpXdot1ConfigVlanNameTable
  lldpXdot1ConfigVlanNameTxEnable
```

---

## lldp tlv dot3 mac-phy

Configures whether or not 802.3 TLVs are included in transmitted LLDPDUs.

```
lldp {slot/port | slot / chassis} tlv dot3 mac-phy {enable | disable}
```

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>chassis</b>	All ports on the switch.
<b>enable</b>	Enables the transmission of 802.3 TLVs in LLDPDUs.
<b>disable</b>	Disables the transmission of 802.3 TLVs in LLDPDUs.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The ports specified with this command must already be configured to transmit LLDPDUs.
- Using the *slot* or **chassis** parameter with this command overrides the existing configuration for any individual ports on the specified slot number or for all ports on the switch.

### Examples

```
-> lldp 2/4 tlv dot3 mac-phy enable
-> lldp 2 tlv dot3 mac-phy disable
```

### Release History

Release 6.3.1; command introduced.

## Related Commands

<b>lldp lldpdu</b>	Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.
<b>lldp tlv management</b>	Configures whether or not management TLVs are included in transmitted LLDPDUs.
<b>lldp tlv dot1</b>	Configures whether or not 802.1 TLVs are included in transmitted LLDPDUs.
<b>show lldp statistics</b>	Displays per port statistics.

## MIB Objects

```
lldpPortConfigTable  
  lldpPortConfigPortNum  
lldpXdot3PortConfigTable  
  lldpXdot3PortConfigTLVsTxEnable
```

---

## lldp tlv med

Configures whether or not LLDP-MED TLVs are included in transmitted LLDPDUs.

**lldp** {*slot/port* | *slot* / **chassis**} **tlv med** {**power** | **capability** | **network policy**} {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>chassis</b>	All ports on the switch.
<b>power</b>	Includes the extended POE TLV in transmitted LLDPDUs.
<b>capability</b>	Includes the Capabilities TLV in transmitted LLDPDUs.
<b>network policy</b>	Includes the Network Policy TLV in transmitted LLDPDUs.
<b>enable</b>	Enables the transmission of LLDP-MED TLV in LLDPDUs.
<b>disable</b>	Disables the transmission of LLDP-MED TLV in LLDPDUs.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The ports specified with this command must already be configured to transmit LLDPDUs.
- Using the *slot* or **chassis** parameter with this command overrides the existing configuration for any individual ports on the specified slot number or for all ports on the switch.
- The **lldp tlv med power** version of this command applies only to PoE units.
- Before enabling the Power MED TLV, use the **lanpower start** command to activate PoE on a port or on all ports in a specific slot.

### Examples

```
-> lldp 4/4 tlv med power enable
-> lldp 4/3 tlv med capability enable
-> lldp 4 tlv med power disable
-> lldp 4 tlv med network-policy enable
-> lldp chassis tlv med network-policy enable
```

## Release History

Release 6.3.1; command introduced.  
Release 6.4.3; **network policy** option added.

## Related Commands

<b>lldp lldpdu</b>	Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.
<b>lldp tlv management</b>	Configures whether or not management TLVs are included in transmitted LLDPDUs.
<b>lldp tlv dot1</b>	Configures whether or not 802.1 TLVs are included in transmitted LLDPDUs.
<b>lldp tlv dot3 mac-phy</b>	Configures whether or not 802.3 TLVs are included in transmitted LLDPDUs.
<b>show lldp med network-policy</b>	Displays the MED Network Policy configuration.

## MIB Objects

```
lldpPortConfigTable  
    lldpPortConfigPortNum  
lldpXMedPortConfigTable  
    lldpXMedPortConfigTLVsTxEnable
```

---

## show lldp config

Displays the general LLDP configuration information for LLDP ports.

**show lldp** {*slot* / *slot/port*} **config**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

### Defaults

By default, a list of all LLDP ports with their configuration parameters is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* or *slot* parameter to display information for a specific port or for all ports on a specific module.

### Examples

-> show lldp config

Slot/Port	Admin Status	Notify Trap	Std TLV Mask	Mgmt Address	802.1 TLV	802.3 Mask	MED Mask
2/1	Rx + Tx	Disabled	0x00	Disabled	Disabled	0x00	0x00
2/2	Rx + Tx	Disabled	0x00	Disabled	Disabled	0x00	0x00
2/3	Rx + Tx	Disabled	0x00	Disabled	Disabled	0x00	0x00
2/4	Rx + Tx	Disabled	0x00	Disabled	Disabled	0x00	0x00
2/5	Rx + Tx	Disabled	0x00	Disabled	Disabled	0x00	0x00

### output definitions

---

<b>Slot/Port</b>	The LLDP slot and port number.
<b>Admin Status</b>	Indicates the Administrative status of the LLDP port. The options are - <b>Disabled</b> , <b>Rx</b> , <b>Tx</b> , and <b>Rx+Tx</b> .
<b>Notify Trap</b>	Indicates if the Notify Trap feature is disabled or enabled on a particular port
<b>Std TLV Mask</b>	The standard TLV mask set for the port.
<b>Mgmt Address</b>	Indicates whether transmission of the per port IPv4 management address is enabled or disabled.
<b>802.1 TLV</b>	Indicates whether 802.1 TLV status is enabled or disabled on the LLDP port.



*output definitions*

---

<b>802.3 Mask</b>	The standard 802.3 mask set for the port.
<b>MED Mask</b>	The standard MED mask set for the port.

---

**Release History**

Release 6.4.3; command introduced.

**Related Commands**

<b>lldp lldpdu</b>	Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.
<b>lldp notification</b>	Enables or disables the LLDP notification status for one or more switch ports. LLDP notifications are sent when there is a change to the remote systems MIB.
<b>lldp tlv management</b>	Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.
<b>lldp tlv dot3 mac-phy</b>	Configures whether or not 802.3 TLVs are included in transmitted LLDPDUs.

**MIB Objects**

```
lldpPortConfigTable
  lldpPortConfigPortNum
  lldpPortConfigAdminStatus
  lldpPortConfigNotificationEnable
  lldpLocPortPortNum
  lldpPortConfigTLVsTxEnable
lldpConfigManAddrTable
  lldpConfigManAddrPortsTxEnable
lldpXdot3PortConfigTable
  lldpXdot3PortConfigTLVsTxEnable
```

---

## show lldp network-policy

Displays the MED Network Policy details for a given policy ID.

**show lldp network-policy** [*policy\_id*]

---

### Syntax Definitions

*policy\_id* Policy identifier for a network policy definition. Valid range is between 0 and 31.

### Defaults

By default, all configured policies are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Network policy should be configured on the system before using this command.
- Enter a policy ID with this command to display information for a specific policy.

### Examples

```
-> show lldp network-policy
Legend: 0 Priority Tagged Vlan
        - Untagged Vlan
```

Network Policy ID	Application Type	Vlan Id	Layer2 Priority	DSCP Value
1	voice	4000	7	33
12	guest-voice	-	-	44
21	streaming-voice	0	4	11
31	guest-voice-signaling	23	2	1

```
-> show lldp network-policy 1
Legend: 0 Priority Tagged Vlan
        - Untagged Vlan
```

Network Policy ID	Application Type	Vlan Id	Layer2 Priority	DSCP Value
1	voice	4000	7	33

*output definitions*

---

<b>Network Policy ID</b>	Policy identifier for a network policy definition.
<b>Application Type</b>	Indicates the type of application configured on the port or VLAN.
<b>VLAN ID</b>	The VLAN ID assigned to the port on which the network policy is configured.
<b>Layer2 Priority</b>	Layer 2 priority to be used for the specified application type.
<b>DSCP Value</b>	DSCP value to be used to provide Diffserv node behavior for the specified application type.

---

**Release History**

Release 6.4.3; command introduced.

**Related Commands**

[lldp network-policy](#) Configures a local network policy on a switch for an application type.

**MIB Objects**

```
alaLldpXMedLocMediaPolicyTable  
  alaLldpXMedLocMediaPolicyId  
  alaLldpXMedLocMediaPolicyAppType  
  alaLldpXMedLocMediaPolicyVlanType  
  alaLldpXMedLocMediaPolicyVlanId  
  alaLldpXMedLocMediaPolicyPriority  
  alaLldpXMedLocMediaPolicyDscp  
  alaLldpXMedLocMediaPolicyUnknown  
  alaLldpXMedLocMediaPolicyTagged
```

---

## show lldp med network-policy

Displays the network policy configured on a slot or port. If no option is specified, network policies configured on all ports of the chassis are displayed.

**show lldp** [*slot* / *slot/port*] **med network-policy**

---

### Syntax Definitions

<i>slot</i>	Specifies the slot number on a specific module or chassis.
<i>slot/port</i>	Specifies the slot number for the module and physical port number on that module (for example 3/1 specifies port 1 of slot 3).

### Defaults

By default, all ports with associated policies are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Network policy should be configured on the system before using this command.
- Enter a slot or slot/port number with this command to display information for a specific slot or port.

### Examples

```
-> show lldp med network-policy
```

slot/port	Network Policy ID
1/1	1 3 5 7 21 23 30 31
1/2	1 2 3 4 7 8 9 10
.	
.	
.	
2/1	1 3 5
.	
.	

```
-> show lldp 1/1 med network-policy
```

Legend: 0 Priority Tagged Vlan  
- Untagged Vlan

Slot/ Port	Network Policy ID	Application Type	Vlan Id	Layer2 Priority	DSCP Value
1/1	1	guest-voice-signaling	-	-	0

*output definitions*

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Network Policy ID</b>	Policy identifier for a network policy definition.
<b>Application Type</b>	Indicates the type of application configured on the port or VLAN.
<b>VLAN ID</b>	The VLAN ID assigned to the port on which the network policy is configured.
<b>Layer2 Priority</b>	Layer 2 priority to be used for the specified application type.

---

**Release History**

Release 6.4.3; command introduced.

**Related Commands**

<a href="#">lldp tlv med</a>	Configures whether or not LLDP-MED TLVs are included in transmitted LLDPDUs.
<a href="#">lldp network-policy</a>	Configures a local network policy on a switch for an application type.

**MIB Objects**

```
alaLldpXMedLocMediaPolicyPortTable  
  alaLldpXMedLocMediaPolicyPortIfIndex  
  alaLldpXMedLocMediaPolicyId
```

---

## show lldp system-statistics

Displays system-wide statistics.

**show lldp system-statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lldp system-statistics
Local LLDP Agent System Statistics:
  Remote Systems Last Change = 0 days 0 hours 3 minutes and 10 seconds,
  Remote Systems MIB Inserts = 2,
  Remote Systems MIB Deletes = 0,
  Remote Systems MIB Drops = 0,
  Remote Systems MIB Age Outs = 0
```

#### *output definitions*

---

<b>Remote Systems Last Change</b>	The last change recorded in the tables associated with the remote system.
<b>Remote Systems MIB Inserts</b>	The total number of complete inserts in the tables associated with the remote system.
<b>Remote Systems MIB Deletes</b>	The total number of complete deletes in tables associated with the remote system.
<b>Remote Systems MIB Drops</b>	The total number of LLDPDUs dropped because of insufficient resources.
<b>Remote Systems MIB Age Outs</b>	The total number of complete age-outs in the tables associated with the remote system.

---

### Release History

Release 6.3.1; command introduced.

## Related Commands

### **lldp notification**

Enables or disables the LLDP notification status for one or more switch ports. LLDP notifications are sent when there is a change to the remote systems MIB.

### **lldp notification interval**

Sets the amount of time that must elapse before an LLDP notification about a remote systems MIB change is generated.

## MIB Objects

lldpStatistics

lldpStatsRemTablesLastChangeTime

lldpStatsRemTablesInserts

lldpStatsRemTablesDeletes

lldpStatsRemTablesDrops

lldpStatsRemTablesAgeouts

---

## show lldp statistics

Displays per port statistics.

**show lldp** [*slot/slot/port*] **statistics**

---

### Syntax Definitions

<i>slot</i>	The slot number for a specific module.
<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

### Defaults

By default, statistics are displayed for all LLDP ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter a slot or slot/port number to display statistics for a specific slot or port.
- If the statistics are zero they are not displayed.

### Examples

```
-> show lldp statistics
```

Slot/Port	Tx	LLDPDU Rx	Errors	Discards	TLV Unknown	Device Discards	Ageouts
1/23	52	0	0	0	0	0	0
2/47	50	50	0	0	0	0	0
2/48	50	50	0	0	0	0	0

#### output definitions

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>LLDPDU Tx</b>	The total number of LLDPDUs transmitted on the port.
<b>LLDPDU Rx</b>	The total number of valid LLDPDUs received on the port.
<b>LLDPDU Errors</b>	The total number of invalid LLDPDUs discarded on the port.
<b>LLDPDU Discards</b>	The total number of LLDPDUs discarded on the port.
<b>TLV Unknown</b>	The total number of unrecognized LLDP TLVs on the port.
<b>TLV Discards</b>	The total number of LLDP TLVs discarded on the port.
<b>Device Ageouts</b>	The total number of complete age-outs on the port.

---



## Release History

Release 6.3.1; command introduced.

## Related Commands

### **lldp lldpdu**

Configures the LLDPDU status for one or more switch ports. The status determines if the specified switch ports will transmit, receive, transmit and receive, or drop LLDPDUs.

### **lldp tlv management**

Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.

## MIB Objects

lldpStatsTxPortTable

    lldpStatsTxPortNum

    lldpStatsTxPortFramesTotal

lldpStatsRxPortTable

    lldpStatsRxPortNum

    lldpStatsRxPortFramesDiscardedTotal

    lldpStatsRxPortFramesErrors

    lldpStatsRxPortFramesTotal

    lldpStatsRxPortTLVsDiscardedTotal

    lldpStatsRxPortTLVsUnrecognizedTotal

    lldpStatsRxPortAgeoutsTotal

---

## show lldp local-system

Displays local system information.

**show lldp local-system**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lldp local-system
Local LLDP Agent System Data:
  Chassis ID Subtype      = 4 (MAC Address),
  Chassis ID              = 00:d0:95:e9:c9:2e,
  System Name             = Kite2_Stack_of_2,
  System Description      = 6.3.1.636.R01 Development, September 07, 2007.,
  Capabilities Supported  = Bridge, Router,
  Capabilities Enabled    = Bridge, Router,
  LLDPDU Transmit Interval = 30 seconds,
  TTL Hold Multiplier     = 4,
  LLDPDU Transmit Delay   = 2 seconds,
  Reinitialization Delay  = 2 seconds,
  MIB Notification Interval = 5 seconds,
  Fast Start Count        = 4,
  Management Address Type = 1 (IPv4),
  Management IP Address   = 10.255.11.100,
```

#### *output definitions*

---

<b>Chassis ID Subtype</b>	The subtype that describe chassis ID.
<b>Chassis ID</b>	The chassis ID (MAC address).
<b>System Name</b>	The name of the system.
<b>System Description</b>	The description of the system.
<b>Capabilities Supported</b>	The capabilities of the system.
<b>Capabilities Enabled</b>	The enabled capabilities of the system.
<b>LLDPDU Transmit Interval</b>	The LLDPDU transmit interval.
<b>TTL Hold Multiplier</b>	The hold multiplier used to calculate TTL.

*output definitions (continued)*


---

<b>LLDPDU Transmit Delay</b>	The minimum transmit time between successive LLDPDUs.
<b>Reinitialization Delay</b>	The minimum time interval before the reinitialization of local port objects between port status changes.
<b>MIB Notification Interval</b>	The minimum time interval between consecutive notifications of local system MIB change.
<b>Fast Start Count</b>	Specifies the number of LLDPDUs to be sent as soon as a MED is detected by system.
<b>Management Address Type</b>	The type of management address used in LLDPDU.
<b>Management IP Address</b>	The management IP address. This will be the Loopback0 IP address if configured, otherwise it is the first IP interface configured on the switch.

---

**Release History**

Release 6.3.1; command introduced.

Release 6.4.3; **Fast Start Count** field added to output.

**Related Commands**

<b>lldp transmit fast-start-count</b>	Configures the fast start count for an LLDP Media Endpoint Device (MED). The fast start count specifies the number of LLDPDUs to be sent as soon as a MED is detected by the switch. The LLDPDUs contain the LLDP MED Network Policy TLVs.
<b>lldp reinit delay</b>	Sets the amount of time that must elapse before an LLDP port is re-initialized after the status for the port was disabled.
<b>lldp transmit hold-multiplier</b>	Sets the transmit hold multiplier value. This value is used to calculate the Time To Live (TTL) value that is advertised in an LLDPDU.
<b>lldp transmit delay</b>	Sets the minimum amount of time that must elapse between successive LLDPDUs that are transmitted as the result of a value or status change in the LLDP local systems MIB.

**MIB Objects**

```
lldpLocalSystemData
  lldpLocChassisIdSubtype
  lldpLocChassisId
  lldpLocSysName
  lldpLocSysDesc
  lldpLocSysCapSupported
  lldpLocSysEnabled
lldpPortConfigTable
  lldpMessageTxInterval
  lldpMessageTXHoldMultiplier
  lldpTxDelay
  lldpReinitDelay
  lldpNotificationInterval
lldpLocManAddrTable
  lldpLocManAddrSubtype
  lldpLocManAddr
```

lldpXMedFastStartRepeatCount

---

## show lldp local-port

Displays local LLDP port information.

**show lldp** [*slot/port* | *slot*] **local-port**

---

### Syntax Definitions

*slot/port* Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

*slot* The slot number for a specific module.

### Defaults

By default, a list of all LLDP ports is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *slot/port* or *slot* parameter to display information for a specific port or for all ports on a specific module.

### Examples

```
-> show lldp local-port
Local Slot 1/Port 1 LLDP Info:
  Port ID           = 1001 (Locally assigned),
  Port Description  = Alcatel 1/1 6.3.1.636.R01,
Local Slot 1/Port 2 LLDP Info:
  Port ID           = 1002 (Locally assigned),
  Port Description  = Alcatel 1/2 6.3.1.636.R01,
.
.
.
Local Slot 2/Port 48 LLDP Info:
  Port ID           = 2048 (Locally assigned),
  Port Description  = Alcatel 2/48 6.3.1.636.R01,
```

#### *output definitions*

---

<b>Port ID</b>	The port ID (Port MAC).
<b>Port Description</b>	The description of the port (which includes the port number and the AOS version).

---

### Release History

Release 6.3.1; command introduced.

## Related Commands

### [lldp tlv management](#)

Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.

### [lldp tlv dot1](#)

Specifies the switch to control per port 802.1 TLVs to be incorporated in the LLDPDUs.

## MIB Objects

```
lldpLocPortTable  
  lldpLocPortNum  
  lldpLocPortIdsubtype  
  lldpLocPortId  
  lldpLocPortDesc
```

---

## show lldp local-management-address

Displays the local management address information.

```
show lldp local-management-address
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show lldp local-management-address
Local LLDP Agent Management Address:
  Management Address Type      = 1 (IPv4),
  Management IP Address        = 10.255.11.100
```

#### *output definitions*

---

<b>Management Address Type</b>	The address type used to define the interface number (IPv4 or IPv6).
<b>Management IP Address</b>	The management IP address. The Loopback0 IP address is configured for the management IP address to be transmitted.

---

### Release History

Release 6.3.1; command introduced.

### Related Commands

<a href="#">lldp tlv management</a>	Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.
<a href="#">show lldp local-system</a>	Displays local system information.

### MIB Objects

```
lldpLocManAddrTable
  lldpLocManAddrLen
  lldpLocManAddrIfSubtype
  lldpLocManAddrIfId
```

---

## show lldp remote-system

Displays remote system information for a single port or all ports on a slot.

**show lldp** [*slot/port* | *slot*] **remote-system**

---

### Syntax Definitions

*slot/port* Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

*slot* The slot number for a specific module.

### Defaults

By default, a list of all LLDP ports is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* or *slot* parameter to display information for a specific port or for all ports on a specific module.

### Examples

```
-> show lldp remote-system
Remote LLDP Agents on Local Slot/Port 1/22:
  Remote ID 1:
    Chassis ID Subtype      = 4 (MAC Address),
    Chassis ID              = 00:d0:95:ea:7c:3a,
    Port ID Subtype         = 3 (MAC address),
    Port ID                 = 00:d0:95:ea:7c:45,
    Port Description        = (null),
    System Name             = (null),
    System Description      = (null),
    Capabilities Supported  = Bridge, Router,
    Capabilities Enabled    = Bridge, Router,
    MED Device Type         = Network Connectivity,
    MED Capabilities        = Capabilities | Power via MDI-PSE (09),
    MED Extension TLVs Present = Network Policy, Inventory Management,
    Remote port MAC/PHY AutoNeg = Supported, Enabled, Capability 0x6c01,
    Mau Type=1000BaseTFD - Four-pair Category 5 UTP, full duplex mode
```

#### *output definitions*

---

<b>Remote LLDP Agents on Local Slot/Port</b>	The Slot number to which the remote system entry is associated and the physical port number on that module.
<b>Chassis ID Subtype</b>	The sub type that describes chassis ID.
<b>Chassis ID</b>	The chassis ID (MAC address).
<b>Port ID Subtype</b>	The sub type that describes port ID



*output definitions (continued)*

---

<b>Port ID</b>	The port ID (Port MAC).
<b>Port Description</b>	The description of the port (which includes the port number and the AOS version).
<b>System Name</b>	The name of the system.
<b>System Description</b>	The description of the system.
<b>Capabilities Supported</b>	The capabilities of the system such as bridge or router.
<b>Capabilities Enabled</b>	The enabled capabilities of the system.
<b>MED Device Type</b>	The type of device such as Network Connectivity or Endpoint Device.
<b>MED Capabilities</b>	MED capabilities supported.
<b>MED Extension TLVs Present</b>	MED Extension TLVs present.
<b>Remote port MAC/PHY AutoNeg</b>	The MAC/PHY settings of the remote port such as speed, duplex, and auto-negotiation.

---

**Release History**

Release 6.3.1; command introduced.

Release 6.3.4; **remote-system** parameter was introduced.

**Related Commands**

<a href="#">show lldp local -port</a>	Displays per port information.
<a href="#">show lldp local-system</a>	Displays local system information.

**MIB Objects**

```
lldpRemTable
  lldpRemLocalPortNum
  lldpRemChassisIdSubtype
  lldpRemChassisId
  lldpRemPortIdSubtype
  lldpRemPortId
  lldpRemPortDesc
  lldpRemSysName
  lldpRemSysDesc
  lldpRemSysCapSupported
  lldpRemSysCapEnabled
  lldpRemManAddrIfSubtype
  lldpRemManAddrIfId
```

---

## show lldp remote-system med

Displays remote system MED information for a single port or all ports on a slot.

**show lldp** [*slot/port* | *slot*] **remote-system** [**med** {**network-policy** | **inventory**}]

---

### Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
<b>network-policy</b>	Display network-policy TLVs from remote Endpoint Devices
<b>inventory</b>	Display inventory management TLVs from remote Endpoint Devices

### Defaults

By default, a list of all LLDP ports is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* or *slot* parameter to display information for a specific port or for all ports on a specific module.

### Examples

```
-> show lldp 1/22 remote-system med network-policy
Slot/ Remote  Application      Unknown   Tagged   Vlan   Layer2   DSCP
Port  ID      Type             Policy Flag Flag    Id      Priority  Value
-----+-----+-----+-----+-----+-----+-----+-----
1/22  1       Voice(01)        Defined   Untagged 345     4         34
1/22  2       Guest Voice(4)   Defined   Untagged 50      3         46
```

#### output definitions

---

<b>Slot/Port</b>	The Slot number to which the remote system entry is associated and the physical port number on that module.
<b>Remote ID</b>	The Index of the Remote Device.
<b>Application Type</b>	The Application type of the peer entity. 1. Voice 2. Voice Signaling 3. Guest Voice 4. Guest Voice Signaling 5. Softphone Voice 6. Video Conferencing 7. Streaming Video 8. Video Signaling

*output definitions (continued)*


---

<b>Unknown Policy Flag</b>	Whether the network policy for the specified application type is currently defined or unknown.
<b>Tagged Flag</b>	Whether the specified application type is using a <b>tagged</b> or an <b>untagged</b> VLAN.
<b>VLAN ID</b>	The VLAN identifier (VID) for the port.
<b>Layer 2 Priority</b>	Layer 2 priority to be used for the specified application type.
<b>DSCP Value</b>	DSCP value to be used to provide Diffserv node behavior for the specified application type.

---

```
-> show lldp 1/22 remote-system med inventory
Remote LLDP Agents on Local Slot/Port 1/22:
```

```
Chassis 80:40:c9:e6:80:40, Port 00:80:9f:56:09:d9:
  Remote ID                = 2,
  Hardware Revision        = "3GV23014ADCA070415",
  Firmware Revision        = "NOE 4.20.60",
  Software Revision        = "NOE 4.20.60",
  Serial Number            = "H0400408605787",
  Manufacturer Name        = "Alcatel-Lucent Enterprise",
  Model Name               = "IP Touch 4068 FE",
  Asset ID                 = "00:80:9f:56:09:d9",
```

*output definitions*


---

<b>Remote ID</b>	The Index of the Remote Device.
<b>MED Hardware Revision</b>	The Hardware Revision of the endpoint
<b>MED Firmware Revision</b>	The Firmware Revision of the endpoint.
<b>MED Software Revision</b>	The Software Revision of the endpoint.
<b>MED Manufacturer Name</b>	The Manufacturer Name of the endpoint.
<b>MED Model Name</b>	The Model Name of the endpoint.
<b>MED Asset ID</b>	The Asset ID of the endpoint.

---

**Release History**

Release 6.3.4; command introduced.

**Related Commands**

<b>show lldp local -port</b>	Displays per port information.
<b>show lldp local-system</b>	Displays local system information.

**MIB Objects**

```
lldpXMedRemMediaPolicyTable
  lldpXMedRemMediaPolicyAppType
  lldpXMedRemMediaPolicyDscp
  lldpXMedRemMediaPolicyPriority
  lldpXMedRemMediaPolicyTagged
  lldpXMedRemMediaPolicyUnknown
  lldpXMedRemMediaPolicyVlanID
```

```
lldpXMedRemInventoryTable  
  lldpXMedRemAssetID  
  lldpXMedRemFirmwareRev  
  lldpXMedRemHardwareRev  
  lldpXMedRemMfgName  
  lldpXMedRemModelName  
  lldpXMedRemSerialNum  
  lldpXMedRemSoftwareRev
```

---

## lldp trust-agent

Enables or disables the security mechanism globally (chassis level) or for a slot or a single port. By enabling LLDP security mechanism on a port, LLDP CMM task brings the LLDP status of the port as trusted and monitors the port for any LLDP security violation.

**lldp** {*slot/port* | *slot* | **chassis**} **trust-agent** {**enable** | **disable**} [**chassis-id-subtype** {**chassis-component** | **interface-alias** | **port-component** | **mac-address** | **network-address** | **interface-name** | **locally-assigned** | **any**}]

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for the module (for example, 3 specifies slot 3)
<b>chassis</b>	Specifies all the ports in the chassis.
<b>enable</b>	Enables LLDP security mechanism.
<b>disable</b>	Disables LLDP security mechanism.
<b>chassis-component</b>	The chassis component is used for validating the remote agent.
<b>interface-alias</b>	The alias configured for the interface is used for validating the remote agent.
<b>port-component</b>	The port component is used for validating the remote agent.
<b>mac-address</b>	The MAC address is used for validating the remote agent.
<b>network-address</b>	The network address is used for validating the remote agent.
<b>interface-name</b>	The interface name is used for validating the remote agent.
<b>locally-assigned</b>	The locally assigned component is used for validating the remote agent, that is the chassis information, which can be locally assigned (the local configuration)
<b>any</b>	The remote agent with any chassis ID sub type is accepted as a trust agent.

### Defaults

'any' - If the chassis ID sub type is not configured for validating the remote agent, by default, the first remote agent is accepted as a trust agent considering any of the chassis ID sub types.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- By enabling security on chassis/slot level, the ports that come under the respective level are monitored for any LLDP security violation.
- If the chassis ID sub type is not configured for validating the remote agent, then the LLDP learns the first remote agent with available chassis ID TLV (Time, Length, Value) received in the PDU.
- After a link up is received on a LLDP security enabled port, LLDP CMM waits for three times the LLDP timer interval (30 seconds). If no LLDP PDU is received after link up that has no remote agent, the port is moved to a violation state.
- If a trusted remote agent already exists, and if no LLDP remote agent is learned even after three times the LLDP timer interval (30 seconds), the port is moved to a violation state. If a new LLDP remote agent is learned after the link toggle, then the port is moved to a violation state.
- If the same chassis ID and port ID already exist in the trusted remote agent database but on a different port, then the port remote agent is learned and the port is moved to a violation state. If a new LLDP remote agent is learned on a port that has a trusted LLDP remote agent, then the port is moved to a violation state.

## Examples

```
-> lldp chassis trust-agent enable
-> lldp chassis trust-agent chassis-id-subtype chassis-component
```

## Release History

Release 6.4.4; command introduced.

## Related Commands

<a href="#">lldp trust-agent violation-action</a>	Sets the action to be performed when a violation is detected.
<a href="#">show lldp trusted remote-agent</a>	Displays information on trusted remote-agents.
<a href="#">show lldp trust-agent</a>	Displays information on local LLDP agent or port.

## MIB Objects

```
alaLldpTrustAdminStatus
  alaLldpTrustChassisIdSubType
```

---

## lldp trust-agent violation-action

Sets the action to be performed when a violation is detected.

**lldp** {*slot/port/ slot* | **chassis**} **trust-agent violation-action** {**trap-and-shutdown** | **trap** | **shutdown**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for the module (for example, 3 specifies slot 3)
<b>chassis</b>	All switch ports.
<b>trap-and-shutdown</b>	Shuts down the port and sends a trap notification when a violation is detected.
<b>trap</b>	Sends a trap notification when a violation is detected.
<b>shutdown</b>	Shuts down the port when a violation is detected.

### Defaults

By default, trust agent violation action is set to 'trap'.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the port is in a shutdown state, clear the violation on the port by using the command “**interfaces slot[/port[-port2]] clear-violation-all**”
- Clearing the violation on a port does not clear the trusted remote agent existing on that port. To clear the trusted remote agent, disable the LLDP security mechanism on the port.
- If the port is in a shutdown state due to violation and the port link is toggled, only the link goes up. The port still remains in the violation state and the trusted remote agent existing on that port is not cleared.

### Examples

```
-> lldp chassis trust-agent violation-action trap
-> lldp 3 trust-agent violation-action shutdown
```

### Release History

Release 6.4.4; command introduced.

**Related Commands****lldp trust-agent**

Sets the status of trust admin status for a port.

**show lldp trusted remote-agent**

Displays information on trusted remote-agents.

**show lldp trust-agent**

Displays information on local LLDP agent or port.

**MIB Objects**`alaLldpTrustAction`

---



## show lldp trusted remote-agent

Displays information on trusted remote-agents.

**show lldp** [*num* | *slot/port*] **trusted remote-agent**

---

### Syntax Definitions

<i>num</i>	The slot number for the module (for example, 3 specifies slot 3)
<i>slot/port</i>	The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the slot/port or slot parameter to display information for a specific port or for all ports on a specific module.
- LLDP trust agent must be enabled globally on the chassis or individually on a port in order to get the **show lldp trusted remote-agent** command output.

### Examples

```
-> lldp chassis trust-agent enable
-> lldp chassis trust-agent chassis-id-subtype mac-address
-> show lldp trusted remote-agent
```

```
Trusted Remote LLDP Agents on Local Slot/Port: 1/7
  Chassis ID Subtype      = 4 (MAC Address),
  Chassis ID              = 00:e0:b1:7a:e6:3c,
  Port ID Subtype         = 7 (Locally assigned),
  Port ID                  = 1017
```

#### *output definitions*

---

<b>Trusted Remote LLDP Agents on Local Slot/Port</b>	The slot number to which the remote trusted agent is associated and the physical port number on that module.
<b>Chassis ID Subtype</b>	The sub type that describes the chassis ID.
<b>Chassis ID</b>	The chassis ID (MAC address).
<b>Port ID Subtype</b>	The sub type that describes port ID.
<b>Port ID</b>	The port ID (Port MAC).

---

## Release History

Release 6.4.4; command introduced.

## Related Commands

[lldp trust-agent](#)

Sets the status of trust admin status for a port.

[lldp trust-agent violation-action](#)

Sets the action to be performed when a violation is detected.

[show lldp trust-agent](#)

Displays information on local LLDP agent/port.

## MIB Objects

N/A

---

## show lldp trust-agent

Displays information of the local LLDP agent or port.

**show lldp** [*slot* | *slot/port*] **trust-agent**

---

### Syntax Definitions

*slot* The slot number for the module (for example, 3 specifies slot 3)

*slot/port* The slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the *slot/port* or *num* (slot number) values to display information for a specific port or for all ports on a specific module.
- LLDP trust agent must be enabled globally on the chassis or individually on a port in order to get the **show lldp trust-agent** command output correctly.
- If LLDP security is disabled this command correctly displays the 'Admin Status' as 'Disabled'; however the other output parameters will display their default values.

### Examples

```
-> lldp chassis trust-agent enable
```

```
-> lldp chassis trust-agent chassis-id-subtype chassis-component
```

```
-> show lldp trust-agent
```

Slot/Port	Admin Status	Violation Action	Violation Status	Chassis Subtype
1/1	Enabled	Trap Only	Trusted	1(Chassis Component)
1/2	Enabled	Trap Only	Trusted	1(Chassis Component)
1/3	Enabled	Trap Only	Trusted	1(Chassis Component)
1/4	Disabled	Shutdown	Violated	1(Chassis Component)
1/5	Enabled	Shutdown	Trusted	1(Chassis Component)
1/6	Enabled	Trap-and-Shutdown	Trusted	1(Chassis Component)
1/7	Disabled	Trap-and-Shutdown	Violated	1(Chassis Component)
1/8	Enabled	Trap Only	Trusted	1(Chassis Component)
1/9	Enabled	Trap Only	Trusted	1(Chassis Component)
1/10	Enabled	Trap Only	Trusted	1(Chassis Component)

*output definitions*


---

<b>Slot/Port</b>	The LLDP slot and port number.
<b>Admin Status</b>	Indicates the administrative status of the LLDP port, <b>Enabled</b> or <b>Disabled</b>
<b>Violation Action</b>	Indicates the action performed when a violation is detected. The options are - <b>Trap Only</b> , <b>Trap-and-Shutdown</b> , and <b>Shutdown Only</b> .
<b>Violation Status</b>	The violation status of the port, <b>Trusted</b> or <b>Violated</b>
<b>Chassis Subtype</b>	The sub type that describes the chassis ID.

---

**Release History**

Release 6.4.4; command introduced.

**Related Commands**

<a href="#">lldp trust-agent</a>	Sets the status of trust admin status for a port.
<a href="#">lldp trust-agent violation-action</a>	Sets the action to be performed when a violation is detected.
<a href="#">show lldp trusted remote-agent</a>	Displays information on trusted remote-agents.

**MIB Objects**

N/A

---

# 13 Interswitch Protocol Commands

Alcatel-Lucent Interswitch Protocols (AIP) are used to discover and advertise adjacent switch information. Only one protocol is supported:

- Alcatel-Lucent Mapping Adjacency Protocol (AMAP), used to discover the topology of OmniSwitches and Omni Switch/Routers (Omni S/R).

This chapter includes descriptions of AMAP commands.

MIB information for AMAP commands is as follows:

*Filename:* alcatelIND1InterswitchProtocol.MIB  
*Module:* ALCATEL-IND1-INTERSWITCH-PROTOCOL-MIB

A summary of the available commands is listed here:

---

<b>Mapping Adjacency Protocol</b>	<b>amap</b>
	<b>amap discovery time</b>
	<b>amap common time</b>
	<b>show amap</b>

---

## amap

Enables or disables the Alcatel-Lucent Mapping Adjacency Protocol (AMAP) on the switch. AMAP discovers adjacent switches by sending and responding to Hello update packets on active Spanning Tree ports.

**amap {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables AMAP.
<b>disable</b>	Disables AMAP.

### Defaults

By default, AMAP is enabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Adjacent switches are defined as those having a Spanning Tree path between them and no other switch between them on the same Spanning Tree path that has AMAP enabled.

### Examples

```
-> amap disable  
-> amap enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>amap discovery time</b>	Sets the discovery transmission time interval used by active Spanning Tree ports in the discovery transmission state.
<b>amap common time</b>	Sets the common transmission time interval used by active Spanning Tree ports in the common transmission state.
<b>show amap</b>	Displays adjacent switches and associated MAC addresses, ports, VLANs, and IP addresses.

### MIB Objects

aipAMAPstate

---

## amap discovery time

Sets the discovery transmission time interval. In the discovery transmission state, an active port sends AMAP Hello packets to detect adjacent switches. The discovery transmission time specifies the number of seconds to wait between each Hello packet transmission.

**amap discovery** [**time**] *seconds*

---

### Syntax Definitions

*seconds* Discovery transmission time value, in seconds (1–65535). Do not use commas in the value.

### Defaults

By default, the discovery transmission time is set to 30 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use of the **time** command keyword is optional.
- When AMAP is enabled, all active Spanning Tree ports start out in the discovery transmission state.
- Ports that receive Hello packets before three discovery transmission times expire, send a Hello reply and transition to the common transmission state.
- Ports that do not receive Hello packets before three discovery transmission times expire, revert to the passive reception state.
- Ports in the passive reception state do not send Hello packets and do not use any timer to determine how long to wait for Hello packets.
- The discovery transmission time value is also used by ports in the common transmission state to determine how long to wait for Hello packets (see [page 13-5](#)).

### Examples

```
-> amap discovery 1200
-> amap discovery time 600
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>amap</b>	Enables (default) or disables AMAP on a switch.
<b>amap common time</b>	Sets the common transmission time interval used by active Spanning Tree ports in the common transmission state.
<b>show amap</b>	Displays adjacent switches and associated MAC addresses, ports, VLANs, and IP addresses.

**MIB Objects**

aipAMAPdisctime

---



## amap common time

Sets the common phase transmission time interval. In the common transmission state, an active port sends AMAP Hello packets to determine adjacent switch failures and disconnects. The common transmission time specifies the number of seconds to wait between each Hello packet transmission.

**amap common** [**time**] *seconds*

---

### Syntax Definitions

*seconds* Common transmission time value in seconds (1–65535). Do not use commas in the value.

### Defaults

By default, the common transmission time is set to 300 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use of the **time** command keyword is optional.
- To avoid synchronization with adjacent switches, the common transmission time is jittered randomly by plus or minus ten percent. For example, if the default time is used (300 seconds), the jitter is plus or minus 30 seconds.
- The common transmission time value is only used by ports in the common transmission state.
- If a Hello packet is received from an adjacent switch before the common transmission time has expired, the switch sends a Hello reply and restarts the common transmission timer.
- A port reverts to the discovery transmission state if a Hello response is not received after the discovery time interval (see [page 13-3](#)) has expired.

### Examples

```
-> amap common 1200
-> amap common time 600
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>amap</b>	Enables (default) or disables AMAP on a switch.
<b>amap discovery time</b>	Sets the discovery transmission time interval used by the active Spanning Tree ports in the discovery transmission state.
<b>show amap</b>	Displays adjacent switches and associated MAC addresses, ports, VLANs, and IP addresses.

**MIB Objects**

aipAMAPcommontime

---

## show amap

Displays adjacent switches and associated MAC addresses, ports, VLANs, IP addresses, and system names.

**show amap**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Remote switches that stop sending Hello packets and are connected to an AMAP switch via a hub may take up to two times the common transmission time to age out of the AMAP database, and no longer appear in this show command display.

### Examples

```
-> show amap
AMAP is currently enabled,
AMAP Common Phase Timeout Interval (seconds) = 300,
AMAP Discovery Phase Timeout Interval (seconds) = 30
```

```
Remote Host Description = falconCmm
Remote Host Base MAC = 00:00:00:00:00:00
Local Interface = 1/2, VLAN = 200
Remote Interface = 3/1, VLAN = 200
Remote IP Address Configured = 1
2.0.0.10
```

```
Remote Host Description = falconCmm
Remote Host Base MAC = 00:d0:95:6b:09:40
Local Interface = 3/1, VLAN = 1
Remote Interface = 6/1, VLAN = 1
Remote IP Address Configured = 1
2.0.0.11
```

### *output definitions*

---

<b>AMAP is currently</b>	The AMAP status: <b>enabled</b> (default) or <b>disabled</b> . Use the <b>amap</b> command to change the AMAP status for the switch.
<b>AMAP Common Phase Timeout Interval (seconds)</b>	The number of seconds to wait between each Hello packet transmission during the common phase. Use the <b>amap common time</b> command to change this value.

---

*output definitions (continued)*

---

<b>AMAP Discovery Phase Time-out Interval (seconds)</b>	The number of seconds to wait between each Hello packet transmission during the discovery phase. Use the <b>amap discovery time</b> command to change this value.
<b>Remote Host Description</b>	The system name for the adjacent switch.
<b>Remote Host Base MAC</b>	The chassis base MAC address for the adjacent switch.
<b>Local Interface</b>	The local switch port/VLAN that received the AMAP packet.
<b>Remote Interface</b>	The adjacent switch port/VLAN that sent the AMAP packet.
<b>Remote IP Address Configured</b>	The number of IP addresses configured on the adjacent switch. The actual IP address values are listed below this field.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>amap</b>	Enables (default) or disables AMAP on a switch.
<b>amap discovery time</b>	Sets the discovery transmission time interval used by active Spanning Tree ports in the discovery transmission state.
<b>amap common time</b>	Sets the common transmission time interval used by the active Spanning Tree ports in the common transmission state.

---

# 14 IP Commands

This chapter details Internet Protocol (IP) commands for the switch. IP is a network-layer (Layer 3) protocol that contains addressing information and some control information that enables packets to be forwarded. IP is documented in RFC 791 and is the primary network-layer protocol in the Internet protocol suite. Along with the Transmission Control Protocol (TCP), IP represents the heart of the Internet protocols.

IP is enabled on the switch by default and there are few options that can, or need to be, configured. This chapter provides instructions for basic IP configuration commands. It also includes commands for several Layer 3 and Layer 4 protocols that are associated with IP:

- Address Resolution Protocol (ARP)—Used to match the IP address of a device with its physical (MAC) address.
- Internet Control Message Protocol (ICMP)—Specifies the generation of error messages, test packets, and informational messages related to IP. ICMP supports the [ping](#) command used to determine if hosts are online.
- Transmission Control Protocol (TCP)—A major data transport mechanism that provides reliable, connection-oriented, full-duplex data streams. While the role of TCP is to add reliability to IP, TCP relies upon IP to do the actual delivering of datagrams.
- User Datagram Protocol (UDP)—A secondary transport-layer protocol that uses IP for delivery. UDP is not connection-oriented and does not provide reliable end-to-end delivery of datagrams. But some applications can safely use UDP to send datagrams that do not require the extra overhead added by TCP.
- Web Cache Communication Protocol (WCCP)—It provides a mechanism to transparently redirect traffic flows to a cluster of cache servers. The WCCPv2 enabled routers would redirect the traffic on configured protocol (TCP/UDP) ports to the cache engine instead of the intended hosts directly.

The IP commands also include protection from Denial of Service (DoS) attacks. The goal of this feature is to protect a switch from well-known DoS attacks and to notify the administrator or manager when an attack is underway. Also, notifications can be sent when port scans are being performed.

---

**Note.** Packets can be forwarded using IP if all devices are on the same VLAN, or if IP interfaces are created on multiple VLANs to enable routing of packets. However, IP routing requires one of the IP routing protocols: Routing Information Protocol (RIP) or Open Shortest Path First (OSPF). See the following chapters for the appropriate CLI commands: [Chapter 17, “RIP Commands,”](#) [Chapter 22, “OSPF Commands.”](#) For more information on VLANs and RIP see the applicable chapter(s) in the Configuration Guide. For more information on OSPF, see the “Configuring OSPF” chapter in the *OmniSwitch AOS Release 6 Advanced Routing Configuration Guide*.

---

MIB information for the IP commands is as follows:

*Filename:* IpForward.mib  
*Module:* IpForward

*Filename:* Ip.mib  
*Module:* Ip

*Filename:* AlcatelIND1Ip.mib  
*Module:* alcatelIND1IPMIB

*Filename:* AlcatelIND1Iprm.mib  
*Module:* alcatelIND1IPRMMIB

A summary of the available commands is listed here:

---

<b>IP</b>	<ul style="list-style-type: none"><li><b>ip interface</b></li><li><b>ip managed-interface</b></li><li><b>ip interface dhcp-client</b></li><li><b>ip interface tunnel</b></li><li><b>ip router primary-address</b></li><li><b>ip router router-id</b></li><li><b>ip static-route</b></li><li><b>ip route-pref</b></li><li><b>ip default-ttl</b></li><li><b>ping</b></li><li><b>tracert</b></li><li><b>ip directed-broadcast</b></li><li><b>ip service</b></li><li><b>show ip traffic</b></li><li><b>show ip interface</b></li><li><b>show ip managed-interface</b></li><li><b>show ip route-pref</b></li><li><b>show ip router database</b></li><li><b>show ip emp-route</b></li><li><b>show ip config</b></li><li><b>show ip protocols</b></li><li><b>show ip service</b></li></ul>
<b>IP Route Map Redistribution</b>	<ul style="list-style-type: none"><li><b>ip redistrib</b></li><li><b>ip access-list</b></li><li><b>ip access-list address</b></li><li><b>ip route-map action</b></li><li><b>ip route-map match ip address</b></li><li><b>ip route-map match ipv6 address</b></li><li><b>ip route-map match ip-nexthop</b></li><li><b>ip route-map match ipv6-nexthop</b></li><li><b>ip route-map match tag</b></li><li><b>ip route-map match ipv4-interface</b></li><li><b>ip route-map match ipv6-interface</b></li><li><b>ip route-map match metric</b></li><li><b>ip route-map match route-type</b></li><li><b>ip route-map set metric</b></li><li><b>ip route-map set metric-type</b></li><li><b>ip route-map set tag</b></li><li><b>ip route-map set community</b></li><li><b>ip route-map set local-preference</b></li><li><b>ip route-map set level</b></li><li><b>ip route-map set ip-nexthop</b></li><li><b>ip route-map set ipv6-nexthop</b></li><li><b>show ip redistrib</b></li><li><b>show ip access-list</b></li><li><b>show ip route-map</b></li></ul>
<b>Multiple Virtual Routing and Forwarding (VRF)</b>	<ul style="list-style-type: none"><li><b>vrf</b></li><li><b>show vrf</b></li></ul>
<b>ARP</b>	<ul style="list-style-type: none"><li><b>arp</b></li><li><b>clear arp-cache</b></li><li><b>ip dos arp-poison restricted-address</b></li><li><b>arp filter</b></li><li><b>clear arp filter</b></li><li><b>show arp</b></li><li><b>show arp summary</b></li><li><b>show ip dynamic-proxy-arp</b></li><li><b>show ip dos arp-poison</b></li></ul>

---

---

<b>ICMP</b>	<b>icmp type</b> <b>icmp unreachable</b> <b>icmp echo</b> <b>icmp timestamp</b> <b>icmp addr-mask</b> <b>icmp messages</b> <b>show icmp control</b> <b>show icmp statistics</b>
<b>TCP</b>	<b>show tcp statistics</b> <b>show tcp ports</b>
<b>UDP</b>	<b>show udp statistics</b> <b>show udp ports</b>
<b>Denial of Service (DoS)</b>	<b>ip dos scan close-port-penalty</b> <b>ip dos scan tcp open-port-penalty</b> <b>ip dos scan udp open-port-penalty</b> <b>ip dos scan threshold</b> <b>ip dos trap</b> <b>ip dos scan decay</b> <b>show ip dos config</b> <b>show ip dos statistics</b>
<b>Web Cache Communication Protocol (WCCP)</b>	<b>ip wccp admin-state</b> <b>ip wccp service-group web-cache md5</b> <b>ip wccp service-group web-cache restrict</b> <b>clear ip wccp</b> <b>show ip wccp status</b> <b>show ip wccp services</b> <b>show ip wccp cache-engines</b> <b>show ip wccp restricts</b> <b>show ip wccp service-group</b> <b>show ip wccp service-group</b> <b>show ip wccp service-group detail</b> <b>show ip wccp service-group view</b> <b>show ip wccp service-group statistics</b>

---



## ip interface

Configures an IP interface to enable IP routing on a VLAN. Without an IP interface, traffic is bridged within the VLAN or across connections to the same VLAN on other switches.

**ip interface** *name* [**address** *ip\_address*] [**mask** *subnet\_mask*] [**admin** [**enable** | **disable**]] [**vlan** *vid*] [**forward** | **no forward**] [**local-proxy-arp** | **no local-proxy-arp**] [**eth2** | **snap**] [**primary** | **no primary**]

**no ip interface** *name*

---

### Syntax Definitions

<i>name</i>	Text string up to 20 characters. Use quotes around string if description contains multiple words with spaces between them (e.g. “Alcatel-Lucent Marketing”). Note that this value is case sensitive.
<i>ip_address</i>	An IP host address (e.g. 10.0.0.1, 171.15.0.20) to specify the IP router network.
<i>subnet_mask</i>	A valid IP address mask (e.g., 255.0.0.0, 255.255.0.0) to identify the IP subnet for the interface.
<b>enable</b>	Enables the administrative status for the IP interface.
<b>disable</b>	Disables the administrative status for the IP interface.
<i>vid</i>	An existing VLAN ID number (1–4094).
<b>forward</b>	Enables forwarding of IP frames to other subnets.
<b>no forward</b>	Disables forwarding of IP frames. The router interface still receives frames from other hosts on the same subnet.
<b>local-proxy-arp</b>	Enables Local Proxy ARP on the specified interface.
<b>no local-proxy-arp</b>	Disables Local Proxy ARP on the specified interface.
<b>eth2</b>	Specifies Ethernet-II encapsulation.
<b>snap</b>	SNAP encapsulation.
<b>primary</b>	Designates the specified IP interface as the primary interface for the VLAN.
<b>no primary</b>	Removes the configured primary IP interface designation for the VLAN. The first interface bound to the VLAN becomes the primary by default.

## Defaults

parameter	default
<i>ip_address</i>	0.0.0.0
<i>subnet_mask</i>	IP address class
<b>enable   disable</b>	<b>enable</b>
<i>vid</i>	none (unbound)
<b>forward   no forward</b>	<b>forward</b>
<b>local-proxy-arp   no local-proxy-arp</b>	<b>no local-proxy-arp</b>
<b>eth2   snap</b>	<b>eth2</b>
<b>primary   no primary</b>	First interface bound to a VLAN.

## Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove an IP interface.
- IP multinetting is supported. As a result, it is possible to configure up to eight IP interfaces per VLAN. Each interface is configured with a different subnet, thus allowing traffic from each configured subnet to coexist on the same VLAN.
- Note that when Local Proxy ARP is enabled for any one IP router interface associated with a VLAN, the feature is applied to the entire VLAN. It is not necessary to enable it for each interface. However, if the IP interface that has this feature enabled is moved to another VLAN, Local Proxy ARP is enabled for the new VLAN and must be enabled on another interface for the old VLAN.
- When Local Proxy ARP is enabled, all traffic is routed instead of bridged within the VLAN. ARP requests return the MAC address of the IP router interface. Note that the same MAC address is assigned to each interface configured for a VLAN.
- Local Proxy ARP takes precedence over any switch-wide ARP or Proxy ARP function. It is not necessary to have Proxy ARP configured in order to use Local Proxy ARP. The two features are independent of each other.
- By default, the first interface bound to a VLAN becomes the primary interface for that VLAN. Use the **primary** keyword with this command to configure a different IP interface as the primary.
- To create an IP interface for network management purposes, specify **Loopback0** (case sensitive) as the name of the interface. The Loopback0 interface is not bound to any VLAN, so it will always remain operationally active. The Loopback0 address can be configured in the same subnet as an existing IP interface.

## Examples

```
-> ip interface "Marketing"
-> ip interface "Payroll address" 18.12.6.3 vlan 255
-> ip interface "Human Resources" 10.200.12.101 vlan 500 no forward snap
-> ip interface "Distribution" 11.255.14.102 vlan 500 local-proxy-arp primary
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**show ip interface** Displays the status and configuration of IP interfaces.

## MIB Objects

```
alaIpInterfaceTable  
  alaIpInterfaceName  
  alaIpInterfaceAddress  
  alaIpInterfaceMask  
  alaIpInterfaceAdminState  
  alaIpInterfaceDeviceType  
  alaIpInterfaceVlanID  
  alaIpInterfaceIpForward  
  alaIpInterfaceEncap  
  alaIpInterfaceLocalProxyArp  
  alaIpInterfacePrimCfg  
  alaIpInterfaceOperState  
  alaIpInterfaceOperReason  
  alaIpInterfaceRouterMac  
  alaIpInterfaceBcastAddr  
  alaIpInterfacePrimAct
```

---

## ip managed-interface

Specifies the source IP address for the outgoing packets sent by the applications.

**ip managed-interface** {*Loopback0* | *interface-name*} **application** [**ldap-server**] [**tacacs**] [**radius**] [**snmp**] [**sflow**] [**ntp**] [**syslog**] [**dns**] [**telnet**] [**ftp**] [**ssh**] [**tftp**] [**all**]

**no ip managed-interface** {*Loopback0* | *interface-name*} **application** [**ldap-server**] [**tacacs**] [**radius**] [**snmp**] [**sflow**] [**ntp**] [**syslog**] [**dns**] [**telnet**] [**ftp**] [**ssh**] [**tftp**] [**all**]

---

### Syntax Definitions

<i>Loopback0</i>	Specifies the Loopback0 IP address, if configured.
<i>Interface-name</i>	Specifies the name of the interface.
ldap-server	Configures the source IP address to be used by the LDAP Server.
tacacs	Configures the source IP address to be used by TACACS.
radius	Configures the source IP address to be used by RADIUS.
snmp	Configures the source IP address to be used by SNMP.
sflow	Configures the source IP address to be used by sFlow.
ntp	Configures the source IP address to be used by NTP.
syslog	Configures the source IP address to be used by Syslog.
dns	Configures the source IP address to be used by DNS.
telnet	Configures the source IP address to be used by TELNET.
ftp	Configures the source IP address to be used by FTP.
ssh	Configures the source IP address to be used by SSH.
tftp	Configures the source IP address to be used by TFTP.
all	Configures the source IP address to be used by all the application protocols.

## Defaults

<b>Application</b>	<b>Default behavior (selecting the source IP address)</b>
<i>LDAP-SERVER</i>	Loopback0, if configured or the outgoing interface
<i>TACACS</i>	Outgoing interface
<i>RADIUS</i>	Loopback0, if configured or the outgoing interface
<i>SNMP</i>	Loopback0, if configured or the outgoing interface
<i>sFlow</i>	Loopback0, if configured or the outgoing interface
<i>NTP</i>	Loopback0, if configured or the outgoing interface
<i>Syslog</i>	Outgoing interface
<i>DNS</i>	Outgoing interface
<i>Telnet</i>	Outgoing interface
<i>FTP</i>	Outgoing interface
<i>SSH</i>	Outgoing interface
<i>TFTP</i>	Outgoing interface

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use this command to configure the source IP address to be used by the application to send the outgoing packets.
- Use the **no** form of this command to revert to it's default behavior of choosing the source IP address.
- Use **all** in this command to configure a common source IP address to those applications that use the default source IP address.
- This command supports only the default VRF.

## Examples

```
-> ip managed-interface loopback0 application ntp  
-> no ip managed-interface loopback0 application ntp
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<code>show ip managed-interface</code>	Displays the application name and the corresponding interface name.
<code>show ip interface</code>	Displays the configuration and status of IP interfaces.
<code>ip interface</code>	Configures an IP interface to enable IP routing on a VLAN.

## MIB Objects

```
alaIpManagedIntfTable  
  AlaIpManagedIntfAppIndex  
  alaIpManagedIntfEntry  
  alaIpManagedIntfName  
  alaIpManagedRowStatus
```

---

## ip interface dhcp-client

Configures a DHCP client IP interface that is to be assigned an IP address from a DHCP server.

```
ip interface dhcp-client [vlan vid] [release | renew] [option-60 opt60_string] [admin {enable | disable}]
```

```
no ip interface dhcp-client
```

---

### Syntax Definitions

<b>dhcp-client</b>	Reserved IP interface name indicating this interface should use DHCP to obtain an IP address from a DHCP server.
<i>vid</i>	An existing VLAN ID number (1–4094).
<b>release</b>	Releases the DHCP server assigned IP address.
<b>renew</b>	Renews the DHCP server assigned IP address.
<i>opt60_string</i>	The option-60 field value to be included in DHCP discover/request packets.
<b>enable</b>	Enables the administrative status for the IP interface.
<b>disable</b>	Disables the administrative status for the IP interface.

### Defaults

---

parameter	default
<i>opt60_string</i>	OmniSwitch-xxxx (xxxx = Platform i.e. 6850)
<b>enable   disable</b>	enable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the dhcp-client IP interface.
- Only one DHCP client IP interface can be assigned per switch but it can belong to any VLAN and any VRF instance.
- If the system name has not been configured, it will be updated using the option-12 field. If the option-12 string is greater than 19 characters the remaining characters will be truncated.
- The minimum lease time accepted on the dhcp-client interface is 5 minutes.

### Examples

```
-> ip interface dhcp-client vlan 100
```

```
-> ip interface dhcp-client admin enable
-> ip interface dhcp-client release
-> ip interface dhcp-client renew
-> ip interface dhcp-client option-60 OmniSwitch
-> no ip interface dhcp-client
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

[show ip interface](#) Displays the status and configuration of IP interfaces.

## MIB Objects

```
alaIpInterfaceTable
  alaIpInterfaceDhcpStatus
  alaIpInterfaceDhcpIpRelease
  alaIpInterfaceDhcpIpRenew
  alaIpInterfaceDhcpOption60String
```

---



## ip interface tunnel

Configures the end points for the GRE and IPIP tunnels.

```
ip interface name tunnel [source ip_address] [destination ip_address] [protocol {ipip | gre}]
```

---

### Syntax Definitions

<i>name</i>	Text string up to 20 characters. Use quotes around string if description contains multiple words with spaces between them (e.g. "Alcatel-Lucent Marketing"). Note that this value is case sensitive.
<b>source</b> <i>ip_address</i>	Source IP address of the tunnel.
<b>destination</b> <i>ip_address</i>	Destination IP address of the tunnel.
<b>ipip</b>	Specifies the tunneling protocol as IPIP.
<b>gre</b>	Specifies the tunneling protocol as GRE.

### Defaults

---

parameter	default
<b>ipip</b>   <b>gre</b>	<b>ipip</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You can configure an interface as either a vlan or tunnel interface.
- The maximum number of GRE tunnel interfaces that can be configured on a switch is 8.
- The maximum number of IPIP tunnel interfaces that can be configured on a switch is 127 (16 on an OmniSwitch 6400).

### Examples

```
-> ip interface "tnl-1" tunnel source 23.23.23.1 destination 155.2.2.2 protocol gre
-> ip interface "tnl-1" tunnel source 23.23.23.1 destination 155.2.2.2 protocol
ipip
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; **tunnel** parameter added.

## Related Commands

**show ip interface** Displays the status and configuration of IP interfaces.

## MIB Objects

```
alaIpInterfaceTable  
  alaIpInterfaceName  
  alaIpInterfaceTunnelSrc  
  alaIpInterfaceTunnelDst  
  alaIpInterfaceDeviceType
```

---

## ip router primary-address

Configures the router primary IP address. By default, the router primary address is derived from the first IP interface that becomes operational on the router.

**ip router primary-address** *ip\_address*

---

### Syntax Definitions

*ip\_address*                      32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The router primary address should be a valid IP unicast host address.
- The router primary IP address is used by BGP to derive its unique BGP Identifier, if the router router-id is not a valid IP unicast address.
- It is recommended that the primary address be explicitly configured on dual CMM chassis or stacked routers.

### Examples

```
-> ip router primary-address 172.22.2.115
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip router router-id](#)                      Configures the router ID for the router.

### MIB Objects

```
alaDcrTmConfig  
  alaDrcTmIpRouterPrimaryAddress
```

---

## ip router router-id

Configures the router ID for the router. By default, the router primary address of the router is used as the router ID. However, if a primary address has not been explicitly configured, the router ID defaults to the address of the first IP interface that becomes operational.

**ip router router-id** *ip\_address*

---

### Syntax Definitions

*ip\_address*                      32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The router ID can be any 32-bit number.
- If the router ID is not a valid IP unicast host address, the BGP identifier is derived from the router primary address.
- It is recommended that the router ID be explicitly configured on dual CMM chassis or stacked routers.
- The router ID is used by OSPF and BGP to uniquely identify the router in the network.

### Examples

```
-> ip router router-id 172.22.2.115
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip router primary-address](#)      Configures the router primary IP address.

### MIB Objects

alaDcrTmConfig  
  alaDrcTmIpRouterId

---

## ip static-route

Creates/deletes an IP static route or recursive static route. Static routes are user-defined; they carry a higher priority than routes created by dynamic routing protocols. That is, static routes always have priority over dynamic routes, regardless of the metric value.

**ip static-route** *ip\_address* [**mask** *mask*] {**gateway** | **follows**} *ip\_address* [**metric** *metric*]

**no ip static-route** *ip\_address* [**mask** *mask*] {**gateway** | **follows**} *ip\_address* [**metric** *metric*]

---

### Syntax Definitions

<i>ip_address</i>	Destination IP address of the static route.
<i>mask</i>	Subnet mask corresponding to the destination IP address.
<b>gateway</b> <i>ip_address</i>	IP address of the next hop used to reach the destination IP address.
<b>follows</b> <i>ip_address</i>	The recursive static route follows this IP address. The recursive route will use the same gateway/nexthop that is used to reach this host address.
<i>metric</i>	Metric or cost (hop count) for the static route. You can set a priority for the static route by assigning a metric value. The lower the metric value, the higher the priority. Valid range is 1–65535.

### Defaults

parameter	default
<i>metric</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Static routes do not age out of the routing tables; however, they can be deleted. Use the **no** form of this command to delete a static route.
- Use the **follows** parameter to create a recursive static route. The route to this IP address can be dynamically learned.
- A static route is not active unless the gateway it is using is active.
- The subnet mask is not required if you want to use the natural subnet mask. By default, the switch imposes a natural mask on the IP address.
- Use the **ip static-route** command to configure default route. For example, to create a default route through gateway 171.11.2.1, you would enter: **ip static-route 0.0.0.0 mask 0.0.0.0 gateway 171.11.2.1**.

## Examples

```
-> ip static-route 171.11.1.1 gateway 171.11.2.1
-> ip static-route 0.0.0.0 mask 0.0.0.0 gateway 171.11.2.1
-> ip static-route 0.0.0.0 mask 0.0.0.0 follows 171.14.2.1
```

## Release History

Release 6.1; command was introduced.

Release 6.4.3; **follows** parameter was added.

## Related Commands

<a href="#">show ip route</a>	Displays the IP Forwarding table.
<a href="#">show ip router database</a>	Displays the IP router database contents.

## MIB Objects

```
alaIprmStaticRoute
  alaIprmStaticRouteDest
  alaIprmStaticRouteMask
  alaIprmStaticRouteNextHop
  alaIprmStaticRouteMetric
  alaIprmStaticRouteStatus
  alaIprmStaticRouteType
  alaIprmStaticRouteBfdStatus
```

---

## ip route-pref

Configures the route preference of a router.

**ip route-pref** {static | ospf | rip | ebgp | ibgp} *value*

---

### Syntax Definitions

<b>static</b>	Configures the route preference of static routes.
<b>ospf</b>	Configures the route preference of OSPF routes.
<b>rip</b>	Configures the route preference of RIP routes.
<b>ebgp</b>	Configures the route preference of external BGP routes.
<b>ibgp</b>	Configures the route preference of internal BGP routes.
<i>value</i>	Route preference value.

### Defaults

<b>parameter</b>	<b>default</b>
<b>static</b> <i>value</i>	2
<b>ospf</b> <i>value</i>	110
<b>rip</b> <i>value</i>	120
<b>ebgp</b> <i>value</i>	190
<b>ibgp</b> <i>value</i>	200

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Route preference of local routes cannot be changed.

### Examples

```
-> ip route-pref ebgp 20  
-> ip route-pref rip 60
```

### Release History

Release 6.1.1; command was introduced.

Release 6.1.3; **bgp** parameter deprecated; **ebgp** and **ibgp** parameters added.

## Related Commands

### `show ip route-pref`

Displays the configured route-preference of a router.

## MIB Objects

`alaIprmRtPrefTable`

`alaIprmRtPrefLocal`

`alaIprmRtPrefStatic`

`alaIprmRtPrefOspf`

`alaIprmRtPrefRip`

`alaIprmRtPrefEbgp`

`alaIprmRtPrefIbgp`

---



## ip default-ttl

Configures the Time To Live value (TTL) for IP packets. The TTL value is the maximum number of hops an IP packet will travel before being discarded.

**ip default-ttl** *hops*

---

### Syntax Definitions

*hops* TTL value, in hops. Valid range is 1–255.

### Defaults

parameter	default
<i>hops</i>	64

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This value represents the default value inserted into the TTL field of the IP header for datagrams originating from this switch whenever a TTL value is not supplied by the transport layer protocol.

### Examples

```
-> ip default-ttl 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip config](#) Displays IP configuration parameters.

### MIB Objects

IpDefaultTTL

---

## ping

Tests whether an IP destination can be reached from the local switch. This command sends an ICMP echo request to a destination and then waits for a reply. To ping a destination, enter the **ping** command and enter either the destination IP address or hostname. The switch pings the destination using the default frame count, packet size, interval, and timeout parameters (6 frames, 64 bytes, 1 second, and 5 seconds respectively). You can also customize any or all of these parameters as described in the command.

```
ping {ip_address | hostname} [source-interface ip_interface] [[sweep-range start_size | end_size / diff_size] | [count count] [size packet_size] [interval seconds] [timeout seconds] [tos tos_val] [dont-fragment] [data-pattern hex_string]
```

---

### Syntax Definitions

<i>ip_address</i>	IP address of the system to ping.
<i>hostname</i>	DNS name of the system to ping.
<i>ip_interface</i>	IP interface name of the source interface.
<i>start_size</i>	Size of the first echo packet that is sent. The valid range is from 4 to 60000.
<i>end_size</i>	Maximum size of the echo packet that is sent. The range is greater than the start size and less than 60000.
<i>diff_size</i>	The increment factor of size for the next echo packet. The diff size must be greater than 0 and less than end size.
<i>count</i>	Number of packets to be transmitted. The range is between 1 and 4294967295 (0xFFFFFFFF).
<i>packet_size</i>	Size of the data portion of the packet sent for this ping, in bytes. The valid range is 1–60000.
<b>interval</b> <i>seconds</i>	The time interval in seconds with which the ICMP packets are sent out. The range is between 1 and the maximum integer value (4294967295).
<b>timeout</b> <i>seconds</i>	Number of seconds the program has to wait for a response before timing out. The range is between 1 and the maximum integer value (4294967295).
<i>tos_val</i>	Specifies the type of service for the probe. The valid range is between 0 and 255.
<b>dont-fragment</b>	Specifies whether the Don't Fragment (DF) bit is to be set on the ping packet. The value 1 sets the Don't Fragment bit in the packet and 0 unsets the same.
<i>hex_string</i>	Specifies the data pattern in a plain string of two characters. Different data patterns are used to troubleshoot framing errors and clocking problems on serial lines. For example, <b>ab</b> , <b>xy</b> , <b>12</b> and so on.

## Defaults

parameter	default
<i>ip_interface</i>	Outgoing IP interface as per route lookup
<i>start_size</i>	4
<i>end_size</i>	> 4
<i>diff_size</i>	5
<i>count</i>	6
<i>packet_size</i>	64 bytes (default 6)
<b>interval</b> <i>seconds</i>	1
<b>timeout</b> <i>seconds</i>	1
<i>tos_val</i>	0
<b>dont-fragment</b>	0
<i>hex_string</i>	Repeating sequence of ASCII characters from 0x4 to 0xff

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- If you change the default values they will only apply to the current ping. The next time you use the ping command, the default values will be used unless you again enter different values.
- When specifying the source-interface, specify either the name of any operational interface or the Loopback0 interface. The IP address of the source interface must be reachable from the destination.
- When you specify the *sweep-range* in the **ping** command, you cannot configure the *count* and *size* parameters.
- The Don't Fragment (DF) bit must not be larger than the MTU of the IP interface.
- The command does not support Loose, Strict, and route record options.
- The command is VRF aware and is available only from CLI. It does not support IPv6.

## Examples

```
-> ping 20.1.1.2 source-interface Loopback0 interval 2 data-pattern ab sweep-range  
500 1000 100 tos 7 dont-fragment
```

```
PING 20.1.1.2: 500 data bytes  
508 bytes from 20.1.1.2: icmp_seq=0. time=69. ms  
608 bytes from 20.1.1.2: icmp_seq=1. time=70. ms  
708 bytes from 20.1.1.2: icmp_seq=2. time=69. ms  
808 bytes from 20.1.1.2: icmp_seq=3. time=69. ms  
908 bytes from 20.1.1.2: icmp_seq=4. time=69. ms
```

## Release History

Release 6.4.1; command was introduced.

Release 6.4.3; **source-interface**, **sweep-range**, **dont-fragment**, and **data-pattern** parameters were added.

## Related Commands

### [traceroute](#)

Finds the path taken by an IP packet from the local switch to a specified destination.

---

## traceroute

Finds the path taken by an IP packet from the local switch to a specified destination. This command is used to discover the paths that packets take to a remote destination, as well as where routing breaks down.

**traceroute** {*ip\_address* | *hostname*} [**source-interface** *ip\_interface*] [**min-hop** *min\_hop\_count*] [**max-hop** *max\_hop\_count*] [**probes** *probe\_count*] [**time-out** *seconds*] [**port-number** *port\_number*]

---

### Syntax Definitions

<i>ip_address</i>	IP address of the host whose route you want to trace.
<i>hostname</i>	DNS name of the host whose route you want to trace.
<i>ip_interface</i>	IP interface name of the source interface.
<i>min_hop_count</i>	Minimum hop count for the first traceroute packet. The value must be greater than 0 and less than the max hop count.
<i>max_hop_count</i>	Maximum hop count for the destination address. The range is between 1 and the maximum integer value (4294967295).
<i>probe_count</i>	The number of probes to be sent at each TTL level hop-count. The range is between 1 and the maximum integer value (4294967295).
<i>seconds</i>	The period in seconds to wait for the response of each probe packet.
<i>port_number</i>	The destination port number used for probing packets. The value must be greater than 1024. This value is incremented by one in each probe. The valid range is between 1024 and 65535.

### Defaults

parameter	default
<i>min_hop_count</i>	1
<i>max_hop_count</i>	30
<i>probe_count</i>	3
<i>seconds</i>	5 seconds
<i>port_number</i>	33334

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When using this command, enter the name of the destination as part of the command line (either the IP address or host name).
- When specifying the source-interface, specify either the name of any operational interface or Loopback0 interface. The IP address of the source interface must be reachable from the destination.
- Use the optional **max-hop** parameter to set a maximum hop count to the destination. If the trace reaches this maximum hop count without reaching the destination, the trace stops.
- The command is VRF aware and is available only from CLI. It does not support IPv6.

## Examples

```
-> traceroute 135.254.170.199 max-hop 5 min-hop 1 port-number 1025 source-inter-  
face Loopback0 timeout 5
```

```
traceroute to 135.254.170.199, 5 hops max, 40 byte packets  
 1  10.135.33.1  2 ms  2 ms  11 ms  
 2  135.250.9.97  6 ms  6 ms  4 ms  
 3  135.250.9.153 4 ms  4 ms  3 ms  
 4  135.254.170.199 3 ms  3 ms  3 ms
```

## Release History

Release 6.4.1; command was introduced.

Release 6.4.3; **source-interface**, **min-hop**, **probes**, **time-out**, and **port-number** parameters were added.

## Related Commands

[show ip route](#) Displays the IP Forwarding table.

---

## ip directed-broadcast

Enables or disables IP directed broadcasts routed through the switch. An IP directed broadcast is an IP datagram that has all zeros or all 1's in the host portion of the destination address. The packet is sent to the broadcast address of a subnet to which the sender is not directly attached.

**ip directed-broadcast {on | off}**

---

### Syntax Definitions

N/A

### Defaults

The default value is **off**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Directed broadcasts are used in denial-of-service “smurf” attacks. In a smurf attack, a continuous stream of ping requests are sent from a falsified source address to a directed broadcast address, resulting in a large stream of replies, which can overload the host of the source address. By default, the switch drops directed broadcasts. Typically, directed broadcasts should not be enabled.

### Examples

```
-> ip directed-broadcast off
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip interface</a>	Displays the status and configuration of IP interfaces.
<a href="#">show ip managed-interface</a>	Displays the IP Forwarding table.
<a href="#">show ip config</a>	Displays IP configuration parameters.

### MIB Objects

```
alaIpDirectedBroadcast
```

---

## ip service

Enables (opens) or disables (closes) well-known TCP/UDP service ports (i.e., SSH, telnet, FTP, etc.). Selectively enabling or disabling these types of ports provides an additional method for protecting against denial of service (DoS) attacks.

**ip service** {**all** | *service\_name* | **port** *service\_port*}

**no ip service** {**all** | *service\_name* | **port** *service\_port*}

---

### Syntax Definitions

<b>all</b>	Configures access to all TCP/UDP ports.
<i>service_name</i>	The name of the TCP/UDP service to enable or disable. (Refer to the table in the “Usage Guidelines” section below for a list of supported service names.)
<i>service_port</i>	A TCP/UDP service port number. Configures access by port number rather than by service name. (Refer to the table in the “Usage Guidelines” section below for a list of supported service names.)

### Defaults

All TCP/UDP ports are open by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command only applies to TCP/UDP service ports opened by default. It does not affect ports that are opened by applications, such as RIP, BGP, etc.
- Use the **all** option with this command to configure access to all well-known TCP/UDP service ports.
- To designate which port to enable or disable, specify either the name of a service or the well-known port number associated with that service. Note that specifying a name and a port number in a single command line is not supported.
- When using service names, it is possible to specify more than one service in a single command line by entering each service name separated by a space. See the examples below.
- When specifying a service port number, note that the **port** keyword is required and that only one port number is allowed in a single command.
- The following table lists the **ip service** command options for specifying TCP/UDP services and also includes the well-known port number associated with each service:

<b>service name</b>	<b>port</b>
<b>ftp</b>	21
<b>ssh</b>	22



<b>service name</b>	<b>port</b>
<b>telnet</b>	23
<b>http</b>	80
<b>secure-http</b>	443
<b>avlan-http</b>	260
<b>avlan-secure-http</b>	261
<b>avlan-telnet</b>	259
<b>udp-relay</b>	67
<b>network-time</b>	123
<b>snmp</b>	161
<b>avlan-http-proxy</b>	262

### Examples

```
-> ip service all
-> ip service ftp telnet snmp
-> ip service port 261
-> no ip service ftp snmp
-> no ip service all
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### [show ip service](#)

Displays a list of all well-known TCP/UDP ports and their current status (enabled or disabled).

### MIB Objects

```
alaIpServiceTable
  alaIpServiceType
  alaIpServicePort
  alaIpServiceStatus
alaIpPortServiceTable
  alaIpPortServicePort
  alaIpPortServiceStatus
```

---

## ip redist

Controls the conditions for redistributing IPv4 routes between different protocols.

```
ip redist {local | static | rip | ospf | isis | bgp} into {rip | ospf | isis | bgp} route-map route-map-name
[status {enable | disable}]
```

```
no ip redist {local | static | rip | ospf | isis | bgp} into {rip | ospf | bgp} [route-map route-map-name]
```

---

### Syntax Definitions

<b>local</b>	Redistributes local routes.
<b>static</b>	Redistributes static routes.
<b>rip</b>	Specifies RIP as the source or destination (into) protocol.
<b>ospf</b>	Specifies OSPF as the source or destination (into) protocol.
<b>isis</b>	Specifies IS-IS as the source or destination (into) protocol.
<b>bgp</b>	Specifies BGP as the source or destination (into) protocol.
<i>route-map-name</i>	Name of an existing route map that will control the redistribution of routes between the source and destination protocol.
<b>enable</b>	Enables the administrative status of the redistribution configuration.
<b>disable</b>	Disables the administrative status of the redistribution configuration.

### Defaults

parameter	default
enable   disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a route map redistribution configuration. Note that if a route map name is not specified, all route maps associated with the redistribution configuration are removed.
- The source and destination protocols must be loaded and enabled before redistribution occurs.
- If the metric calculated for the redistributed route, as described above, is greater than 15 (RIP\_UNREACHABLE) or greater than the metric of an existing pure RIP route, the new route is not redistributed.
- Use the **ip route-map** commands described in this chapter to create a route map. Refer to the “Configuring IP” chapter in the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about how to create a route map.

## Examples

```
-> ip redist rip into bgp route-map rip-to-bgp1
-> ip redist rip into bgp route-map rip-to-bgp2
-> no ip redist rip into bgp route-map rip-to-bgp2
-> ip redist ospf into rip route-map ospf-to-rip
-> ip redist ospf into rip route-map ospf-to-rip disable
```

## Release History

Release 6.1.3; command was introduced.

Release 6.2.1; **isis** parameter support added.

## Related Commands

[show ip redist](#)

Displays the route map redistribution configuration.

[ip route-map action](#)

Creates a route map for redistribution and sets the status of the route map to permit or deny.

## MIB Objects

```
alaRouteMapRedistProtoTable
  alaRouteMapRedistSrcProtoId
  alaRouteMapRedistDestProtoId
  alaRouteMapRedistRouteMapIndex
  alaRouteMapRedistStatus
  alaRouteMapRedistAddressType
  alaRouteMapRedistRowStatus
```

---

## ip access-list

Creates an access list for adding multiple IPv4 addresses to route maps.

**ip access-list** *access-list-name*

**no ip access-list** *access-list-name*

---

### Syntax Definitions

*access-list-name*                      Name of the access list (up to 20 characters).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to delete the access list.

### Examples

```
-> ip access-list access1  
-> no ip access-list access1
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[ip access-list address](#)                      Adds IPv4 addresses to the specified IPv4 access list.

[show ip access-list](#)                      Displays the details of the access list.

### MIB Objects

```
alaRouteMapAccessListNameTable  
  alaRouteMapAccessListName  
  alaRouteMapAccessListNameIndex  
  alaRouteMapAccessListNameAddressType  
  alaRouteMapAccessListNameRowStatus
```

---

## ip access-list address

Adds multiple IPv4 addresses to the specified IPv4 access list.

```
ip access-list access-list-name address address/prefixLen [action {permit | deny}]  
[redist-control {all-subnets | no-subnets | aggregate}]
```

```
no ip access-list access-list-name address address/prefixLen
```

---

### Syntax Definitions

<i>access-list-name</i>	Name of the access list.
<i>address/prefixLen</i>	IP address/prefix length to be added to the access list.
<b>permit</b>	Permits the IP address for redistribution.
<b>deny</b>	Denies the IP address for redistribution.
<b>all-subnets</b>	Redistributes or denies all the subnet routes that match the network portion of the IP address as specified by the mask length
<b>no-subnets</b>	Redistributes or denies only those routes that exactly match the IP address and the mask length.
<b>aggregate</b>	Redistributes an aggregate route if there are one or more routes that match or are subnets of this address.

### Defaults

---

parameter	default
<b>permit</b>   <b>deny</b>	<b>permit</b>
<b>all-subnets</b>   <b>no-subnets</b>   <b>aggregate</b>	<b>all-subnets</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the address from the access list.
- The *access-list-name* should exist before you add multiple addresses to it.
- The **action** parameters (**permit** and **deny**) determine if a route that matches the **redist-control** configuration for the IP address is allowed or denied redistribution.
- The **redist-control** parameters (**all-subnets**, **no-subnets**, and **aggregate**) defines the criteria used to determine if a route matches an address in the access list.
- Note that configuring the combination of **redist-control aggregate** with **action deny** is not allowed.

- Use this command multiple times with the same access list name to add multiple addresses to the existing access list.

## Examples

```
-> ip access-list access1 address 10.0.0.0/8 action permit
-> ip access-list access1 address 11.1.0.0/16 action permit
-> ip access-list access1 address 10.1.1.0/24 redistrib-control aggregate
-> no ip access-list access1 address 10.0.0.0/8
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ip access-list</a>	Creates an access list for adding multiple IPv4 addresses to route maps.
<a href="#">show ip access-list</a>	Displays the contents of an IPv4 access list.

## MIB Objects

```
alaRouteMapAccessListTable
  alaRouteMapAccessListIndex
  alaRouteMapAccessListAddress
  alaRouteMapAccessListAddressType
  alaRouteMapAccessListPrefixLength
  alaRouteMapAccessListAction
  alaRouteMapAccessListRedistControl
  alaRouteMapAccessListRowStatus
```

---

## ip route-map action

Creates a route map for redistribution and sets the status of the route map to permit or deny.

**ip route-map** *route-map-name* [**sequence-number** *number*] **action** {**permit** | **deny**}

**no ip route-map** *route-map-name* [**sequence-number** *number*]

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<b>permit</b>	Permits route redistribution.
<b>deny</b>	Denies route redistribution.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>number</i>	50
<b>permit</b>   <b>deny</b>	<b>permit</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the entire route map by specifying only the *route-map-name*.
- Use the **no** form of this command to delete a specific sequence in the route map by specifying the **sequence-number**.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- Use this command to change the status of an existing route map to permit or deny.

### Examples

```
-> ip route-map routel sequence-number 10 action permit
-> no ip route-map routel
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

**show ip route-map**                      Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapSequenceTable  
  alaRouteMapSequenceIndex  
  alaRouteMapSequenceNumber  
  alaRouteMapSequenceAction  
  alaRouteMapSequenceRowStatus
```

---



## ip route-map match ip address

Matches the route with the specified IPv4 address or an address defined in the specified IPv4 access list.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ip-address** {*access-list-name* | *ip\_address/prefixLen*} [**redist-control** {**all-subnets** | **no-subnets** | **aggregate**}] [**permit** | **deny**]

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ip-address** {*access-list-name* | *ip\_address/prefixLen*} [**redist-control** {**all-subnets** | **no-subnets** | **aggregate**}] [**permit** | **deny**]

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>access-list-name</i>	The name of an IPv4 access list that contains IPv4 addresses to match.
<i>ip_address/prefixLen</i>	The destination IP address along with the prefix length of the routes to be redistributed.
<b>all-subnets</b>	Redistributes all the subnet routes that match the network portion of the IP address as specified by the mask length.
<b>no-subnets</b>	Redistributes only those routes that exactly match the IP address and the mask length.
<b>aggregate</b>	Redistributes an aggregate route if there are one or more routes that match the IP address.
<b>permit</b>	Permits a route based on the IP address or prefix constrained by redist-control.
<b>deny</b>	Denies a route based on the IP address or prefix constrained by redist-control.

### Defaults

parameter	default
<i>number</i>	50
<b>permit</b>   <b>deny</b>	<b>permit</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ip-address redist-control** parameter in the route map.
- Specify either the name of an existing IPv4 access list or an IPv4 address/prefix length with this command.

- Note that configuring the combination of **redist-control aggregate** with **deny** is not allowed.
- Multiple addresses in the same route map sequence are matched using the longest prefix match.
- If the best matching address is type **deny**, then the route is not redistributed. If the best matching address is type **permit** and the route map action is **deny**, the route is not redistributed.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name*, **sequence-number**, and *access-list-name* (if used) should exist before you configure this **match** criteria.

## Examples

```
-> ip route-map 3 match ip-address 10.1.1.1/8 redist-control no-subnets deny
-> no ip route-map 3 match ip-address 10.1.1.1 redist-control no-subnets deny
-> ip route-map route1 sequence-number 10 match ip-address list1
-> no ip route-map route1 sequence-number 10 match ip-address list1
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">ip access-list</a>	Creates an access list for adding multiple IPv4 addresses to route maps.
<a href="#">ip access-list address</a>	Adds IPv4 addresses to the specified IPv4 access list.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

## ip route-map match ipv6 address

Matches the route with the specified IPv6 address or an address defined in the specified IPv6 access list.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-address** { *access-list-name* | *ipv6\_address/prefixLen* [**redist-control** { **all-subnets** | **no-subnets** | **aggregate**}] [**permit** | **deny**]

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-address** *ipv6\_address/prefixLen* [**redist-control** { **all-subnets** | **no-subnets** | **aggregate**}] [**permit** | **deny**]

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>access-list-name</i>	The name of an IPv4 access list that contains IPv4 addresses to match.
<i>ipv6_address/prefixLen</i>	The destination IPv6 address along with the prefix length of the routes to be redistributed.
<b>all-subnets</b>	Redistributes all the subnet routes that match the network portion of the IP address as specified by the mask length.
<b>no-subnets</b>	Redistributes only those routes that exactly match the IP address and the mask length.
<b>aggregate</b>	Redistributes an aggregate route if there are one or more routes that match the IPv6 address.
<b>permit</b>	Permits a route based on the IPv6 address or prefix constrained by <b>redist-control</b> .
<b>deny</b>	Denies a route based on the IPv6 address or prefix constrained by <b>redist-control</b> .

### Defaults

parameter	default
<i>number</i>	50
<b>permit</b>   <b>deny</b>	<b>permit</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ipv6-address redist-control** parameter in the route map.
- Specify either the name of an existing IPv6 access list or an IPv6 address/prefix length with this command.

- Note that configuring the combination of **redist-control aggregate** with **deny** is not allowed.
- Multiple addresses in the same route map sequence are matched using the longest prefix match.
- If the best matching address is type **deny**, then the route is not redistributed. If the best matching address is type **permit** and the route map action is **deny**, the route is not redistributed.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

## Examples

```
-> ip route-map 3 match ipv6-address 2001::1/64 redist-control no-subnets deny
-> no ip route-map 3 match ipv6-address 2001::1/64 redist-control no-subnets deny
-> ip route-map routel sequence-number 10 match ipv6-address list1
-> no ip route-map routel sequence-number 10 match ipv6-address list1
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">ipv6 access-list</a>	Creates an access list for adding multiple IPv6 addresses to route maps.
<a href="#">ipv6 access-list address</a>	Adds IPv6 addresses to the specified IPv6 access list.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

## ip route-map match ip-nexthop

Matches any routes that have a next-hop router address permitted by the specified access list name or the IP address specified in the route map.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ip-nexthop**  
{*access-list-name* | *ip\_address/prefixLen* [**permit** | **deny**]}

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ip-nexthop**  
{*access-list-name* | *ip\_address/prefixLen* [**permit** | **deny**]}

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>access-list-name</i>	The access list that matches the route nexthop IP address.
<i>ip_address/prefixLen</i>	The IP address along with the prefix length that matches any nexthop IP address within the specified subnet.
<b>permit</b>	Permits a route based on the IP nexthop.
<b>deny</b>	Denies a route based on the IP nexthop.

### Defaults

parameter	default
<i>number</i>	50
<b>permit</b>   <b>deny</b>	<b>permit</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ip-nexthop** parameter in the route map.
- If the best matching nexthop is type **deny**, then the route is not redistributed. If the best matching nexthop is type **permit** and the route map action is **deny**, the route is not redistributed.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name*, **sequence-number**, and *access-list-name* should exist before you configure this **match** criteria.

## Examples

```
-> ip route-map routel sequence-number 10 match ip-nexthop list1
-> no ip route-map routel sequence-number 10 match ip-nexthop list1
-> ip route-map routel sequence-number 10 match ip-nexthop 10.0.0.0/8
-> no ip route-map routel sequence-number 10 match ip-nexthop 10.0.0.0/8
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ip access-list</a>	Creates an access list for adding multiple IPv4 addresses to route maps.
<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

---

## ip route-map match ipv6-nexthop

Matches any routes that have an IPv6 next-hop router address permitted by the specified access list name or the IPv6 address specified in the route map.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-nexthop**  
{*access-list-name* | *ipv6\_address/prefixLen* [**permit** | **deny**]}

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-nexthop**  
{*access-list-name* | *ipv6\_address/prefixLen* [**permit** | **deny**]}

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>access-list-name</i>	The access list that matches the route nexthop IPv6 address.
<i>ipv6_address/prefixLen</i>	The IPv6 address along with the prefix length that matches any nexthop IPv6 address within the specified subnet.
<b>permit</b>	Permits a route based on the IPv6 nexthop.
<b>deny</b>	Denies a route based on the IPv6 nexthop.

### Defaults

<b>parameter</b>	<b>default</b>
<i>number</i>	50
<b>permit</b>   <b>deny</b>	<b>permit</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ipv6-nexthop** parameter in the route map.
- If the best matching nexthop is type **deny**, then the route is not redistributed. If the best matching nexthop is type **permit** but the route map action is **deny**, the route is not redistributed.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name*, **sequence-number**, and *access-list-name* should exist before you configure this **match** criteria.

## Examples

```
-> ip route-map routel sequence-number 10 match ipv6-nexthop list1
-> no ip route-map routel sequence-number 10 match ipv6-nexthop list1
-> ip route-map routel sequence-number 10 match ipv6-nexthop 2001::/64
-> no ip route-map routel sequence-number 10 match ipv6-nexthop 2001::/64
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ipv6 access-list</a>	Creates an access list for adding multiple IPv6 addresses to route maps.
<a href="#">ipv6 access-list address</a>	Adds IPv6 addresses to the specified IPv6 access list.
<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

---



## ip route-map match tag

Matches the tag value specified in the route map with the one that the routing protocol learned the route on.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match tag** *tag-number*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match tag** *tag-number*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>tag-number</i>	The tag number.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match tag** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

### Examples

```
-> ip route-map routel sequence-number 10 match tag 4  
-> no ip route-map routel sequence-number 10 match tag 4
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

**MIB Objects**

alaRouteMapTable  
  alaRouteMapIndex  
  alaRouteMapSequence  
  alaRouteMapType  
  alaRouteMapValue  
  alaRouteMapRowStatus

---

## ip route-map match ipv4-interface

Matches the IPv4 interface name specified in the route map with the one that the routing protocol learned the route on.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv4-interface** *interface-name*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv4-interface** *interface-name*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>interface-name</i>	Specifies the interface name of the route's outgoing interface.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ipv4-interface** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

### Examples

```
-> ip route-map routel sequence-number 10 match ipv4-interface int4  
-> no ip route-map routel sequence-number 10 match ipv4-interface int4
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

**MIB Objects**

alaRouteMapTable

  alaRouteMapIndex

  alaRouteMapSequence

  alaRouteMapType

  alaRouteMapValue

  alaRouteMapRowStatus

---

## ip route-map match ipv6-interface

Matches the IPv6 interface name specified in the route map with the one that the routing protocol learned the route on.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-interface** *interface-name*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match ipv6-interface** *interface-name*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>interface-name</i>	Specifies the interface name of the route's outgoing interface.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match ipv6-interface** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

### Examples

```
-> ip route-map routel sequence-number 10 match ipv6-interface int6
-> no ip route-map routel sequence-number 10 match ipv6-interface int6
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

**MIB Objects**

alaRouteMapTable

  alaRouteMapIndex

  alaRouteMapSequence

  alaRouteMapType

  alaRouteMapValue

  alaRouteMapRowStatus

---

## ip route-map match metric

Matches the metric value specified in the route map with the actual metric value of the route.

**ip route-map** *route-map-name* [**sequence-number** *number*] **match metric** *metric* [**deviation** *deviation*]

**no ip route-map** *route-map-name* [**sequence-number** *number*] **match metric** *metric* [**deviation** *deviation*]

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>metric</i>	The metric value that matches a specified metric.
<i>deviation</i>	The deviation value. If deviation is included, the route metric can have any value within the range (metric-deviation to metric+deviation).

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>number</i>	50

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match metric** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

### Examples

```
-> ip route-map routel sequence-number 10 match metric 4  
-> no ip route-map routel sequence-number 10 match metric 4
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable  
  alaRouteMapIndex  
  alaRouteMapSequence  
  alaRouteMapType  
  alaRouteMapValue  
  alaRouteMapRowStatus
```

---



## ip route-map match route-type

Matches the specified route type with actual route type of the route.

```
ip route-map route-map-name [sequence-number number] match route-type {internal | external  
[type1 | type2] | level1 | level2}
```

```
no ip route-map route-map-name [sequence-number number] match route-type {internal | external  
[type1 | type2] | level1 | level2}
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<b>internal</b>	Matches OSPF/BGP internal routes.
<b>external</b>	Matches OSPF/BGP external routes.
<b>type1</b>	Matches OSPF external Type-1 routes, which gives the full metric calculation for the complete path including internal as well as external cost.
<b>type2</b>	Matches OSPF external Type-2 routes, which gives the external redistribution metric only to the ASBR.
<b>level1</b>	Matches IS-IS Level-1 routes only.
<b>level2</b>	Matches IS-IS Level-2 routes only.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **match route-type** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **match** criteria.

## Examples

```
-> ip route-map 111 sequence-number 50 match route-type internal
-> no ip route-map 111 sequence-number 50 match route-type internal
```

## Release History

Release 6.1.3; command was introduced.

Release 6.2.1; **level1** and **level2** parameter support added.

## Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

---

## ip route-map set metric

Configures the metric value of the route being distributed.

```
ip route-map route-map-name [sequence-number number] set metric metric  
[effect {add | subtract | replace | none}]
```

```
no ip route-map route-map-name [sequence-number number] set metric metric  
[effect {add | subtract | replace | none}]
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>metric</i>	Configures the metric value of the route being distributed. A value of 0 is not allowed.
<b>add</b>	Adds the configured metric value to the actual metric value.
<b>subtract</b>	Subtracts the configured metric value from the actual metric value.
<b>replace</b>	Replaces the actual metric value with the configured metric value.
<b>none</b>	Redistributes the actual metric value. The configured metric value is ignored. Use any value except 0.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>number</i>	50

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set metric** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 111 sequence-number 50 set metric 30 effect add  
-> no ip route-map 111 sequence-number 50 set metric 30 effect add
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### [ip route-map action](#)

Creates a route map for redistribution and sets the status of the route map to permit or deny.

### [show ip route-map](#)

Displays the configured IP route maps.

## MIB Objects

alaRouteMapTable

    alaRouteMapIndex

    alaRouteMapSequence

    alaRouteMapType

    alaRouteMapValue

    alaRouteMapRowStatus

---

## ip route-map set metric-type

Configures the metric type for the redistributed route.

```
ip route-map route-map-name [sequence-number number] set metric-type  
{internal | external [type1 | type2]}
```

```
no ip route-map route-map-name [sequence-number number] set metric-type  
{internal | external [type1 | type2]}
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<b>internal</b>	Sets the metric type to internal for routes redistributed into BGP.
<b>external</b>	Sets the metric type to external for routes redistributed into BGP.
<b>type1</b>	Sets the metric type to external type1 for routes redistributed into OSPF, which gives the full metric calculation for the complete path including internal as well as external cost.
<b>type2</b>	Sets the metric type to external type2 for routes redistributed into OSPF, which gives the external redistribution metric only to the ASBR.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set metric-type** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 111 sequence-number 50 set metric-type internal  
-> no ip route-map 111 sequence-number 50 set metric-type internal
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### [ip route-map action](#)

Creates a route map for redistribution and sets the status of the route map to permit or deny.

### [show ip route-map](#)

Displays the configured IP route maps.

## MIB Objects

alaRouteMapTable

    alaRouteMapIndex

    alaRouteMapSequence

    alaRouteMapType

    alaRouteMapValue

    alaRouteMapRowStatus

---

## ip route-map set tag

Configures the tag value of the route being distributed.

**ip route-map** *route-map-name* [**sequence-number** *number*] **set tag** *tag-number*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **set tag** *tag-number*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>tag-number</i>	Configures the tag number.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set tag** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 111 sequence-number 50 set tag 23
-> no ip route-map 111 sequence-number 50 set tag 23
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

**MIB Objects**

alaRouteMapTable

  alaRouteMapIndex

  alaRouteMapSequence

  alaRouteMapType

  alaRouteMapValue

  alaRouteMapRowStatus

---



## ip route-map set community

Configures the community name of the route being redistributed into BGP.

**ip route-map** *route-map-name* [**sequence-number** *number*] **set community** *community-string*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **set community** *community-string*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>community-string</i>	Defines a community for an aggregate route. Community names range from 0 to 70 characters.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set community** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 111 sequence-number 50 set community 29  
-> no ip route-map 111 sequence-number 50 set community 29
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

**MIB Objects**

alaRouteMapTable

  alaRouteMapIndex

  alaRouteMapSequence

  alaRouteMapType

  alaRouteMapValue

  alaRouteMapRowStatus

---

## ip route-map set local-preference

Configures the local preference value for a route being distributed into BGP.

**ip route-map** *route-map-name* [**sequence-number** *number*] **set local-preference** *value*

**no ip route-map** *route-map-name* [**sequence-number** *number*] **set local-preference** *value*

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>value</i>	Configures the local-preference value for routes being redistributed in to BGP. The value is between 0 and 4294967295.

### Defaults

---

parameter	default
<i>number</i>	50

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set local-preference** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.
- The local preference attribute is used to set preference to an exit point from the local autonomous system (AS).
- If there are multiple exit points from the AS, the local preference attribute is used to select the exit point for a specific route.

### Examples

```
-> ip route-map 111 sequence-number 50 set local-preference 4
-> no ip route-map 111 sequence-number 50 set local-preference 4
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### **ip route-map action**

Creates a route map for redistribution and sets the status of the route map to permit or deny.

### **show ip route-map**

Displays the configured IP route maps.

## MIB Objects

alaRouteMapTable

    alaRouteMapIndex

    alaRouteMapSequence

    alaRouteMapType

    alaRouteMapValue

    alaRouteMapRowStatus

---

## ip route-map set level

Configures the level of the ISIS route being redistributed.

```
ip route-map route-map-name [sequence-number number] set level {level1 | level2 | level1-2}
```

```
no ip route-map route-map-name [sequence-number number] set level {level1 | level2 | level1-2}
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<b>level1</b>	Matches IS-IS Level-1 routes only.
<b>level2</b>	Matches IS-IS Level-2 routes only.
<b>level1-2</b>	Matches IS-IS Level1-2 routes.

### Defaults

<b>parameter</b>	<b>default</b>
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set level** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 111 sequence-number 50 set level level1  
-> no ip route-map 111 sequence-number 50 set level level1
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

### [ip route-map action](#)

Creates a route map for redistribution and sets the status of the route map to permit or deny.

### [show ip route-map](#)

Displays the configured IP route maps.

## MIB Objects

alaRouteMapTable

    alaRouteMapIndex

    alaRouteMapSequence

    alaRouteMapType

    alaRouteMapValue

    alaRouteMapRowStatus

---

## ip route-map set ip-next-hop

Configures the IP address of the next hop in a route map.

```
ip route-map route-map-name [sequence-number number] set ip-next-hop ip_address
```

```
no ip route-map route-map-name [sequence-number number] set ip-next-hop ip_address
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>ip_address</i>	IP address of the next hop.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set ip-next-hop** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 222 sequence-number 50 set ip-next-hop 128.251.17.224  
-> no ip route-map 222 sequence-number 50 set ip-next-hop 128.251.17.224
```

### Release History

Release 6.1.5; command was introduced.

## Related Commands

<a href="#">ip route-map action</a>	Creates a route map for redistribution and sets the status of the route map to permit or deny.
<a href="#">show ip route-map</a>	Displays the configured IP route maps.

## MIB Objects

```
alaIPRouteMapTable  
  alaRouteMapIndex  
  alaRouteMapSequence  
  alaRouteMapType  
  alaRouteMapValue  
  alaRouteMapRowStatus
```

---



## ip route-map set ipv6-nexthop

Configures the IPv6 address of the next hop in a route map.

```
ip route-map route-map-name [sequence-number number] set ipv6-nexthop ipv6_address
```

```
no ip route-map route-map-name [sequence-number number] set ipv6-nexthop ipv6_address
```

---

### Syntax Definitions

<i>route-map-name</i>	The name of the route map (up to 20 characters).
<i>number</i>	A number that links together the route maps. The range is 1–100.
<i>ipv6_address</i>	IPv6 address of the next hop.

### Defaults

parameter	default
<i>number</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the **set ipv6-nexthop** parameter in the route map.
- All route maps having the same name but different sequence numbers are linked together and processed in order of increasing sequence number.
- The *route-map-name* and **sequence-number** should exist before you configure this **set** criteria.

### Examples

```
-> ip route-map 222 sequence-number 50 set ipv6-nexthop 2001::1  
-> no ip route-map 222 sequence-number 50 set ipv6-nexthop 2001::1
```

### Release History

Release 6.1.5; command was introduced.

## Related Commands

- ip route-map action**      Creates a route map for redistribution and sets the status of the route map to permit or deny.
- show ip route-map**      Displays the configured IP route maps.

## MIB Objects

alaIPRouteMapTable  
  alaRouteMapIndex  
  alaRouteMapSequence  
  alaRouteMapType  
  alaRouteMapValue  
  alaRouteMapRowStatus

---

## vrf

Configures and selects a virtual routing and forwarding (VRF) instance on the switch.

**vrf** [*name* / **default**]

**no vrf** *name*

---

### Syntax Definitions

*name* The alphanumeric name (1–20 characters) assigned to the VRF instance.

**default** Optional. Selects the default VRF instance.

### Defaults

A default VRF instance exists in the switch configuration. All applications that are not VRF aware belong to this instance.

Parameter	Default
<i>name</i> / <b>default</b>	default VRF instance

### Platforms Supported

OmniSwitch 9000E, 6855-U24X

### Usage Guidelines

- Use the **no** form of this command to delete a VRF instance. Note that deleting the default instance is not allowed. In addition, any interfaces configured for a VRF instance are automatically removed when the instance is deleted.
- To return to the default VRF instance from within the context of another instance, enter the **vrf** command with or without the optional **default** parameter (for example, **vrf** or **vrf default**).
- Configuring a VRF instance name is case sensitive. In addition, if the name specified does not exist, a VRF instance is automatically created. As a result, it is possible to accidentally create instances or delete the wrong instance. Use the [show ip dynamic-proxy-arp](#) command to verify the VRF instance configuration before adding or removing instances.
- If the name of an existing instance is specified with this command, VRF changes the command prompt to reflect the specified instance name. All CLI commands entered at this point are applied within the context of the active VRF instance.
- It is also possible to configure other instances from within the CLI context of the default VRF instance by entering the **vrf** command followed by the instance name. For example, entering **vrf IpOne ip interface intf100 address 100.1.1.1/24 vlan 100** is applied to the IpOne instance even though IpOne is not the active CLI context.

## Examples

```
-> vrf IpOne  
IpOne: ->
```

```
IpOne: -> vrf IpTwo  
IpTwo: ->
```

```
IpTwo: -> vrf  
->
```

```
IpTwo: -> vrf default  
->
```

```
-> vrf IpOne ip interface intf100 address 100.1.1.1/24 vlan 100  
->
```

## Release History

Release 6.4.1; command was introduced.

## Related Commands

[show vrf](#) Displays the VRF instance configuration for the switch.

## MIB Objects

```
alaVirtualRouterNameTable  
  alaVirtualRouterName
```

---

## arp

Adds a permanent entry to the ARP table. To forward packets, the switch dynamically builds an ARP Table to match the IP address of a device with its physical (MAC) address. These entries age out of the table when the timeout value is exceeded. This command is used to add a permanent entry to the table. Permanent entries do not age out of the table.

**arp** *ip\_address hardware\_address* [**alias**] [**arp-name** *name*]

**no arp** *ip\_address* [**alias**]

---

### Syntax Definitions

<i>ip_address</i>	IP address of the device you are adding to the ARP table.
<i>hardware_address</i>	MAC address of the device in hexadecimal format (e.g., 00.00.39.59.f1.0c).
<b>alias</b>	<p>Specifies that the switch will act as an alias (or proxy) for this IP address. When the alias option is used, the switch responds to all ARP requests for the specified IP address with its own MAC address.</p> <p>You can also enable the proxy feature for an IP interface using the <b>ip interface</b> command. When enabled, ARP requests return the MAC address of the IP router interface and all traffic within the VLAN is routed.</p>
<i>name</i>	The name to assign to this ARP entry.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a permanent ARP entry.
- Configuring a permanent ARP entry with a multicast address is also supported. This is done by specifying a multicast address for the *ip\_address* parameter instead of a unicast address. ( OS6850 24-port models only)
- Note that using the **arp alias** command is not related to proxy ARP as defined in RFC 925. Instead, **arp alias** is similar to the Local Proxy ARP feature, except that it is used to configure the switch as a proxy for only *one* IP address.
- Because most hosts support the use of address resolution protocols to determine cache address information (called dynamic address resolution), you generally do not need to specify permanent ARP cache entries.
- Only the IP address is required when deleting an ARP entry from the table.

## Examples

```
-> arp 171.11.1.1 00:05:02:c0:7f:11
```

## Release History

Release 6.1; command was introduced.

Release 6.3.4; static multicast ARP support added on 6850 24-port models.

## Related Commands

### [clear arp-cache](#)

Deletes all dynamic entries from the ARP table.

### [ip interface](#)

Enables or disables the Local Proxy ARP feature for an IP interface. When enabled, all traffic within the VLAN is routed. ARP requests return the MAC address of the IP router interface.

### [show arp](#)

Displays the ARP table.

## MIB Objects

ipNetToMediaTable

- ipNetToMediaIfIndex
- ipNetToMediaNetAddress
- ipNetToMediaPhyAddress
- ipNetToMediaType

alaIpNetToMediaTable

- alaIpNetToMediaPhyAddress
- alaIpNetToMediaProxy

---

## clear arp-cache

Deletes all dynamic entries from the ARP table.

**clear arp-cache**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This commands only clears dynamic entries. If permanent entries have been added to the table, they must be removed using the **no** form of the **arp** command.
- Dynamic entries remain in the ARP table until they time out after a period of eight minutes.

### Examples

```
-> clear arp-cache
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>arp</b>	Adds a permanent entry to the ARP table.
<b>show arp</b>	Displays the ARP table.

### MIB Objects

alaIpClearArpCache

---





## arp filter

Configures an ARP filter that will determine if ARP Request packets containing a specific IP address are processed by the switch or discarded.

**arp filter** *ip\_address* [**mask** *ip\_mask*] [*vid*] [**sender** | **target**] [**allow** | **block**]

**no arp filter** *ip\_address*

---

### Syntax Definitions

<i>ip_address</i>	The IP address to use for filtering ARP packet IP addresses.
<i>ip_mask</i>	An IP mask that identifies which part of the ARP packet IP address is examined for filtering (e.g. mask 255.0.0.0 filters on the first octet of the ARP packet IP address).
<i>vid</i>	A VLAN ID that specifies that only ARP packets for a specific VLAN are filtered.
<b>sender</b>	The sender IP address in the ARP packet is used for ARP filtering.
<b>target</b>	The target IP address in the ARP packet is used for ARP filtering.
<b>allow</b>	ARP packets that meet filter criteria are processed.
<b>block</b>	ARP packets that meet filter criteria are discarded.

### Defaults

<b>parameter</b>	<b>default</b>
<i>vid</i>	0 (no VLAN)
<i>ip_mask</i>	255.255.255.255
<b>sender</b>   <b>target</b>	<b>target</b>
<b>allow</b>   <b>block</b>	<b>block</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an ARP filter.
- If there are no filters configured for the switch, all ARP Request packets received are processed.
- Up to 200 filters are allowed on each switch.
- If sender or target IP address in an ARP Request packet does not match any filter criteria, the packet is processed by the switch.
- ARP filtering is generally used in conjunction with the Local Proxy ARP application; however, ARP filtering is available for use on its own and/or with other applications.

## Examples

```
-> arp filter 171.11.1.1
-> arp filter 172.0.0.0 mask 255.0.0.0
-> arp filter 198.0.0.0 mask 255.0.0.0 sender
-> arp filter 198.172.16.1 vlan 200 allow
-> no arp filter 171.11.1.1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[clear arp filter](#)

Clears all ARP filters from the filter database.

[ip interface](#)

Enables or disables the Local Proxy ARP feature on an IP interface. When enabled, all traffic within the VLAN is routed. ARP requests return the MAC address of the IP router interface.

[show arp summary](#)

Displays the ARP filter configuration.

## MIB Objects

```
alaIpArpFilterTable
  alaIpArpFilterIpAddr
  alaIpArpFilterIpMask
  alaIpArpFilterVlan
  alaIpArpFilterMode
  alaIpArpFilterType
```

---

## clear arp filter

Clears the ARP filter database of all entries.

**clear arp filter**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This commands clears all ARP filters configured on the switch. To remove an individual filter entry, use the **no** form of the [arp filter](#) command.

### Examples

```
-> clear arp filter
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                  |                                                                                             |
|----------------------------------|---------------------------------------------------------------------------------------------|
| <a href="#">arp filter</a>       | Configures an ARP filter to allow or block the processing of specified ARP Request packets. |
| <a href="#">show arp summary</a> | Displays the ARP filter configuration.                                                      |

### MIB Objects

```
alaIpClearArpFilter
```

---

## icmp type

Enables or disables a specific type of ICMP message, and sets the minimum packet gap. The minimum packet gap is the number of microseconds that must pass between ICMP messages of the same type.

**icmp type** *type* **code** *code* **{{enable | disable} | min-pkt-gap** *gap*

---

### Syntax Definitions

<i>type</i>	The ICMP packet type. This in conjunction with the ICMP code determines the type of ICMP message being specified.
<i>code</i>	The ICMP code type. This in conjunction with the ICMP type determines the type of ICMP message being specified.
<b>enable</b>	Enables the specified ICMP message.
<b>disable</b>	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	disabled
<i>gap</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- This command allows the user to enable or disable all types of ICMP messages and set the minimum packet gap between messages of the specified type. The ICMP message types are specified in RFC 792, and are listed below:

ICMP Message	Type	Code
echo reply	0	0
network unreachable	0	3
host unreachable	3	1
protocol unreachable	3	2
port unreachable	3	3
frag needed but DF bit set	3	4
source route failed	3	5
destination network unknown	3	6
destination host unknown	3	7
source host isolated	3	8
dest network admin prohibited	3	9
host admin prohibited by filter	3	10
network unreachable for TOS	3	11
host unreachable for TOS	3	12
source quench	4	0
redirect for network	5	0
redirect for host	5	1
redirect for TOS and network	5	2
redirect for TOS and host	5	3
echo request	8	0
router advertisement	9	0
router solicitation	10	0
time exceeded during transmit	11	0
time exceeded during reassembly	11	1
ip header bad	12	0
required option missing	12	1
timestamp request	13	0
timestamp reply	14	0
information request (obsolete)	15	0
information reply (obsolete)	16	0
address mask request	17	0
address mask reply	18	0

- While this command can be used to enable or disable all ICMP messages, some of the more common ICMP messages have their own CLI commands, as described in the pages below. The following ICMP message have specific commands to enable and disable:

ICMP Message	Command
Network unreachable (type 0, code 3)	<a href="#">icmp unreachable</a>
Host unreachable (type 3, code 1)	<a href="#">icmp unreachable</a>
Protocol unreachable (type 3, code 2)	<a href="#">icmp unreachable</a>
Port unreachable (type 3, code 3)	<a href="#">icmp unreachable</a>
Echo reply (type 0, code 0)	<a href="#">icmp echo</a>
Echo request (type 8, code 0)	<a href="#">icmp echo</a>
Timestamp request (type 13, code 0)	<a href="#">icmp timestamp</a>
Timestamp reply (type 14, code 0)	<a href="#">icmp timestamp</a>
Address Mask request (type 17, code 0)	<a href="#">icmp addr-mask</a>
Address Mask reply (type 18, code 0)	<a href="#">icmp addr-mask</a>

- Enabling **Host unreachable** and **Network unreachable** messages is not recommended. Enabling these messages can cause switch instability due to high-CPU conditions, depending upon the volume of traffic required by these messages.

## Examples

```
-> icmp type 4 code 0 enabled
-> icmp type 4 code 0 min-pkt-gap 40
-> icmp type 4 code 0 disable
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[icmp messages](#)

Enables or disables all ICMP messages.

[show icmp control](#)

Allows the viewing of the ICMP control settings.

## MIB Objects

```
alaIcmpCtrlTable
  alaIcmpCtrlType
alaIcmpCtrlTable
  alaIcmpCtrlCode
  alaIcmpCtrlStatus
  alaIcmpCtrlPktGap
```

## icmp unreachable

Enables or disables ICMP messages pertaining to unreachable destinations, and sets the minimum packet gap. The minimum packet gap is the number of microseconds that must pass between ICMP messages of the same type.

**icmp unreachable** [**net-unreachable** | **host-unreachable** | **protocol-unreachable** | **port-unreachable**] [{**enable** | **disable**} | **min-pkt-gap** *gap*]

---

### Syntax Definitions

<b>net-unreachable</b>	Sets the unreachable network ICMP message.
<b>host-unreachable</b>	Sets the unreachable host ICMP message.
<b>protocol-unreachable</b>	Sets the unreachable protocol ICMP message.
<b>port-unreachable</b>	Sets the unreachable port ICMP message.
<b>enable</b>	Enables the specified ICMP message.
<b>disable</b>	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable</b>   <b>disable</b>	disabled
<i>gap</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command enables ICMP messages relating to unreachable destinations. Unreachable networks, hosts, protocols, and ports can all be specified.
- Enabling **host-unreachable** and **net-unreachable** messages are not recommended as it can cause the switch instability due to high-CPU conditions depending upon the volume of traffic required by these messages.
- The unreachable ICMP messages can also be enabled, disabled, and modified using the [icmp type](#) command. See the [icmp type](#) command information on the type and code for the unreachable ICMP messages.

### Examples

```
-> icmp unreachable net-unreachable enable
-> icmp unreachable host-unreachable enable
```

```
-> icmp unreachable protocol-unreachable enable
-> icmp unreachable port-unreachable enable
-> icmp unreachable port-unreachable min-pkt-gap 50
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**show icmp control**                      Allows the viewing of the ICMP control settings.

## MIB Objects

```
alaIcmpCtrlTable
  alaIcmpCtrlType
alaIcmpCtrlTable
  alaIcmpCtrlCode
  alaIcmpCtrlStatus
  alaIcmpCtrlPktGap
```

---



## icmp echo

Enables or disables ICMP echo messages, and sets the minimum packet gap. The minimum packet gap is the number of microseconds that must pass between ICMP messages of the same type.

**icmp echo** [**request** | **reply**] **{{enable | disable}** | **min-pkt-gap** *gap*}

---

### Syntax Definitions

<b>request</b>	Specifies the echo request ICMP message.
<b>reply</b>	Specifies the echo reply ICMP message.
<b>enable</b>	Enables the specified ICMP message.
<b>disable</b>	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>enable</b>
<i>gap</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command sets the ICMP echo messages. An echo request is sent to a destination, and must be responded to with an echo reply message that contains the original echo request.
- Using this command without specifying a request or reply will enable, disable, or set the minimum packet gap for both types.
- The echo ICMP messages can also be enabled, disabled, and modified using the [icmp type](#) command. See the [icmp type](#) command information on the type and code for the echo ICMP messages.

### Examples

```
-> icmp echo reply enable
-> icmp echo enable
-> icmp echo request enable
-> icmp echo request min-pkt-gap 50
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### **show icmp control**

Allows the viewing of the ICMP control settings.

## MIB Objects

alaIcmpCtrlTable

    alaIcmpCtrlType

alaIcmpCtrlTable

    alaIcmpCtrlCode

    alaIcmpCtrlStatus

    alaIcmpCtrlPktGap

---

## icmp timestamp

Enables or disables ICMP timestamp messages, and sets the minimum packet gap. The minimum packet gap is the number of microseconds that must pass between ICMP messages of the same type.

**icmp timestamp** [**request** | **reply**] {{**enable** | **disable**} | **min-pkt-gap** *gap*}

---

### Syntax Definitions

<b>request</b>	Specifies timestamp request messages.
<b>reply</b>	Specifies timestamp reply messages.
<b>enable</b>	Enables the specified ICMP message.
<b>disable</b>	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable</b>   <b>disable</b>	<b>enable</b>
<i>gap</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The data received (a timestamp) in the message is returned in the reply together with an additional timestamp. The timestamp is 32 bits of milliseconds since midnight UT. The Originate timestamp is the time the sender last touched the message before sending it, the Receive timestamp is the time the echoer first touched it on receipt, and the Transmit timestamp is the time the echoer last touched the message on sending it.
- Using this command without specifying a request or reply will enable, disable, or set the minimum packet gap for both types.
- The timestamp ICMP messages can also be enabled, disabled, and modified using the [icmp type](#) command. See the [icmp type](#) command information on the type and code for the timestamp ICMP messages.

### Examples

```
-> icmp timestamp reply enable
-> icmp timestamp enable
-> icmp timestamp request enable
-> icmp timestamp request min-pkt-gap 50
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**show icmp control**                      Allows the viewing of the ICMP control settings.

## MIB Objects

```
alaIcmpCtrlTable
  alaIcmpCtrlType
alaIcmpCtrlTable
  alaIcmpCtrlCode
  alaIcmpCtrlStatus
  alaIcmpCtrlPktGap
```

---

## icmp addr-mask

Enables or disables ICMP address mask messages, and sets the minimum packet gap. The minimum packet gap is the number of microseconds that must pass between ICMP messages of the same type.

**icmp addr-mask** [**request** | **reply**] {{**enable** | **disable**} | **min-pkt-gap** *gap*}

---

### Syntax Definitions

<b>request</b>	Specifies request address mask messages.
<b>reply</b>	Specifies reply address mask messages.
<b>enable</b>	Enables the specified ICMP message.
<b>disable</b>	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable</b>   <b>disable</b>	<b>enable</b>
<i>gap</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A gateway receiving an address mask request should return it with the address mask field set to the 32-bit mask of the bits identifying the subnet and network, for the subnet on which the request was received.
- Using this command without specifying a request or reply will enable, disable, or set the minimum packet gap for both types.
- The address mask ICMP messages can also be enabled, disabled, and modified using the [icmp type](#) command. See the [icmp type](#) command information on the type and code for the address mask ICMP messages.

### Examples

```
-> icmp addr-mask reply enable
-> icmp addr-mask enable
-> icmp addr-mask request enable
-> icmp addr-mask request min-pkt-gap 50
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### **show icmp control**

Allows the viewing of the ICMP control settings.

## MIB Objects

alaIcmpCtrlTable

    alaIcmpCtrlType

alaIcmpCtrlTable

    alaIcmpCtrlCode

    alaIcmpCtrlStatus

    alaIcmpCtrlPktGap

---

## icmp messages

Enables or disables all Internet Control Message Protocol (ICMP) messages.

`icmp messages {enable | disable}`

---

### Syntax Definitions

**enable** Enables ICMP messages.  
**disable** Disables ICMP messages.

### Defaults

parameter	default
enable   disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> icmp messages enable  
-> icmp messages disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[icmp type](#) Enables or disables a specific type of ICMP message, and sets the minimum packet gap.  
[show icmp control](#) Allows the viewing of the ICMP control settings.

### MIB Objects

alaIcmpCtrl  
alaIcmpAllMsgStatus

---

---

## ip dos scan close-port-penalty

Assigns a penalty value to be added to the Denial of Service penalty scan value when a TCP or UDP packet is received on a closed port.

**ip dos scan close-port-penalty** *penalty\_value*

---

### Syntax Definitions

*penalty\_value* A penalty value added to the penalty scan value. This value can be any non-negative integer.

### Defaults

parameter	default
<i>penalty_value</i>	10

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command creates a point value that is added to the total port scan penalty value when a TCP or UDP packet is received that is destined for a closed port.

### Examples

```
-> ip dos scan close-port-penalty 25
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip dos scan threshold** Sets the threshold for the port scan value, at which a DoS attack is recorded.

**ip dos trap** Sets whether the switch generates SNMP DoS traps when an attack is detected.

### MIB Objects

alaDoSConfig  
  alaDoSPortScanClosePortPenalty

---



## ip dos scan tcp open-port-penalty

Assigns a penalty value to be added to the Denial of Service penalty scan value when a TCP packet is received on an open port.

**ip dos scan tcp open-port-penalty** *penalty\_value*

---

### Syntax Definitions

*penalty\_value*                      A penalty value added to the penalty scan value. This value can be any non-negative integer.

### Defaults

parameter	default
<i>penalty_value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command creates a point value that is added to the total port scan penalty value when a TCP packet is received that is destined for an open port.
- The switch does not distinguished between a legal TCP packet and a port scan packet.

### Examples

```
-> ip dos scan tcp open-port-penalty 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip dos scan threshold](#)                      Sets the threshold for the port scan value, at which a DoS attack is recorded.
- [ip dos trap](#)                                      Sets whether the switch generates SNMP DoS traps when an attack is detected.

### MIB Objects

alaDoSConfig  
    alaDoSPortScanTcpOpenPortPenalty

---

## ip dos scan udp open-port-penalty

Assigns a penalty value to be added to the Denial of Service penalty scan value when a UDP packet is received on an open port.

**ip dos scan udp open-port-penalty** *penalty\_value*

---

### Syntax Definitions

*penalty\_value*                      A penalty value added to the penalty scan value. This value can be any non-negative integer.

### Defaults

parameter	default
<i>penalty_value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command creates a point value that is added to the total port scan penalty value when a UDP packet is received that is destined for an open port.
- The switch does not distinguished between a legal UDP packet and a port scan packet.

### Examples

```
-> ip dos scan udp open-port-penalty 15
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- ip dos scan threshold**                      Sets the threshold for the port scan value, at which a DoS attack is recorded.
- ip dos trap**                                      Sets whether the switch generates SNMP DoS traps when an attack is detected.

### MIB Objects

alaDoSConfig  
     alaDoSPortScanUdpOpenPortPenalty

---

## ip dos scan threshold

Sets the threshold for the port scan value, at which a DoS attack is recorded.

**ip dos scan threshold** *threshold\_value*

---

### Syntax Definitions

*threshold\_value*

A numerical value representing the total acceptable penalty before a DoS attack is noted. This value can be any non-negative integer.

### Defaults

parameter	default
<i>threshold_value</i>	1000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the total port scan penalty value exceeds this value, a port scan attack is recorded.
- The penalty value is incremented by recording TCP or UDP packets that are bound for open or closed ports. Such packets are given a penalty value, which are added together. The commands for setting the packet penalty value are the [ip dos scan close-port-penalty](#), [ip dos scan tcp open-port-penalty](#), and [ip dos scan udp open-port-penalty](#) commands.

### Examples

```
-> ip dos scan threshold 1200
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip dos scan close-port-penalty</b>	Assigns a penalty value to be added to the Denial of Service penalty scan value when a TCP or UDP packet is received on a closed port.
<b>ip dos scan tcp open-port-penalty</b>	Assigns a penalty value to be added to the Denial of Service penalty scan value when a TCP packet is received on an open port.
<b>ip dos scan udp open-port-penalty</b>	Assigns a penalty value to be added to the Denial of Service penalty scan value when a UDP packet is received on an open port.
<b>show ip dos config</b>	Displays the configuration parameters of the DoS scan for the switch.

## MIB Objects

alaDoSConfig  
  alaDoSPortScanThreshold

---

## ip dos trap

Sets whether the switch generates SNMP DoS traps when an attack is detected.

**ip dos trap {enable | disable}**

---

### Syntax Definitions

**enable** Enables the generation of DoS traps.  
**disable** Disables the generation of DoS traps.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command controls whether the switch generates an SNMP trap when a DoS attack is detected. It is assumed a DoS attack has occurred when the port scan penalty threshold is exceeded. This value is set using the [ip dos scan threshold](#) command.

### Examples

```
-> ip dos trap enable  
-> ip dos trap disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip dos scan threshold](#) Sets the threshold for the port scan value, at which a DoS attack is recorded.  
[show ip dos config](#) Displays the configuration parameters of the DoS scan for the switch.

### MIB Objects

alaDoSConfig  
alaDoSTrapCnt1

---

---

## ip dos scan decay

Sets the decay speed of the port scan penalty value for the switch when calculating DoS attacks.

**ip dos scan decay** *decay\_value*

---

### Syntax Definitions

*decay\_value*                      The decay value amount for reducing the port scan penalty. This value can be any non-negative integer.

### Defaults

parameter	default
<i>decay_value</i>	2

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The port scan penalty value is reduced every minute by dividing by the amount set in using this command. For example, if the decay value is set to 10, every minute the total port scan penalty value is divided by 10.

### Examples

```
-> ip dos scan decay 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip dos scan threshold](#)                      Sets the threshold for the port scan value, at which a DoS attack is recorded.

[show ip dos config](#)                      Displays the configuration parameters of the DoS scan for the switch.

### MIB Objects

alaDoSConfig  
  alaDoSPortScanDecay

---

## show ip traffic

Displays IP datagram traffic and errors.

**show ip traffic**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The statistics show the cumulative totals since the last time the switch was powered on or since the last reset of the switch was executed.
- Packets received on a port that is a member of the UserPorts group are dropped if they contain a source IP network address that does not match the IP subnet for the port. This is done to block spoofed IP traffic. If the UserPorts group function is active and spoofed traffic was detected and blocked, the output display of this command will include statistics regarding the spoofed traffic.
- Note that the presence of spoofing event statistics in the output display of this command indicates that an attack was prevented, not that the switch is currently under attack.
- If statistics for spoofed traffic are not displayed, then a spoofing attempt has not occurred since the last time this command was issued.

### Examples

```
-> show ip traffic
```

```
IP statistics
Datagrams received
  Total                = 621883,
  IP header error      = 0,
  Destination IP error = 51752,
  Unknown protocol     = 0,
  Local discards       = 0,
  Delivered to users   = 567330,
  Reassemble needed    = 0,
  Reassembled          = 0,
```

```

Reassemble failed          =          0

Datagrams sent
  Forwarded                 =       2801,
  Generated                 =    578108,
  Local discards           =          0,
  No route discards       =          9,
  Fragmented               =       2801,
  Fragment failed         =          0,
  Fragments generated     =          0

Event      Source      Total      Last 33 seconds
-----+-----+-----+-----
spoof      5/26   18          2      last mac 00:08:02:e2:17:70

```

**output definitions**

<b>Total</b>	Total number of input datagrams received including those received in error.
<b>IP header error</b>	Number of IP datagrams discarded due to errors in the IP header (e.g., bad checksums, version number mismatch, other format errors, time-to-live exceeded, errors discarded in processing IP options).
<b>Destination IP error</b>	Number of IP datagrams discarded because the IP header destination field contained an invalid address. This count includes invalid addresses (e.g., 0.0.0.0) and addresses of unsupported classes (e.g., Class E).
<b>Unknown protocol</b>	Number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
<b>Local discards</b>	Number of IP datagrams received that were discarded, even though they had no errors to prevent transmission (e.g., lack of buffer space). This does not include any datagrams discarded while awaiting reassembly. Typically, this value should be zero.
<b>Delivered to users</b>	Total number of datagrams received that were successfully delivered to IP user protocols (including ICMP).
<b>Reassemble needed</b>	Number of IP fragments received that needed to be reassembled.
<b>Reassembled</b>	Number of IP datagrams received that were successfully reassembled.
<b>Reassemble failed</b>	Number of IP failures detected by the IP reassembly algorithm for all reasons (e.g., timed out, error). This is not necessarily a count of discarded IP fragments since some algorithms (notably the algorithm in RFC 815) can lose track of the number of fragments by combining them as they are received.
<b>Fragmented</b>	Number of successfully fragmented IP datagrams.
<b>Fragment failed</b>	Number of packets received and discarded by IP because they needed to be fragmented but could not be. This situation could happen if a large packet has the "Don't Fragment" flag set.
<b>Forwarded</b>	Number of IP datagrams forwarded by the switch.
<b>Generated</b>	Total number of IP datagrams that local IP user protocols (including ICMP) generated in response to requests for transmission. This does not include any datagrams counted as "Forwarded."



*output definitions (continued)*

---

<b>Local discards</b>	Number of output IP datagrams that were discarded, even though they had no errors to prevent transmission (e.g., lack of buffer space). This number includes datagrams counted as “Forwarded” if the packets are discarded for these reasons.
<b>No route discards</b>	Number of IP datagrams received and discarded by IP because no route could be found to transmit them to their destination. This includes any packets counted as “Forwarded” if the packets are discarded for these reasons. It also includes any datagrams that a host cannot route because all of its default routers are down.
<b>Fragments generated</b>	The of IP datagram fragments generated as a result of fragmentation.
<b>Routing entry discards</b>	Number of packets received and discarded by IP even though no problems were encountered to prevent their transmission to their destination (e.g., discarded because of lack of buffer space).
<b>Event</b>	The type of event ( <b>spoof</b> ).
<b>Source</b>	The slot and port number of the port that has received spoofed packets and is also a member of the UserPorts group. Ports are configured as members of the UserPorts group through the <b>policy port group</b> command.
<b>Total</b>	The total number of spoofed packets received on the source port.
<b>Last <i>xx</i> seconds</b>	The number of spoofed packets blocked in the last number of seconds indicated. Also includes the source MAC address of the last spoofed packet received.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show icmp statistics**                      Displays ICMP statistics and errors.

---

## show ip interface

Displays the configuration and status of IP interfaces.

**show ip interface** [*name* / **emp** | **vlan** *vlan id* / **dhcp-client**]

---

### Syntax Definitions

<i>name</i>	The name associated with the IP interface.
<b>emp</b>	Displays the configuration and status of the Ethernet Management Port interface. This parameter is available on OmniSwitch 9000 Series switches only.
<i>vlan_id</i>	VLAN ID (displays a list of IP interfaces associated with a VLAN).
<b>dhcp-client</b>	Displays the configuration and status of the DHCP-Client interface.

### Defaults

By default, all IP interfaces are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The basic **show ip interface** command displays information about all configured IP interfaces on the switch.
- Use the optional **vlan** parameter to display a list of interfaces configured for the specified VLAN.
- Specify an optional interface *name* to display detailed information about an individual interface.
- Use the optional **emp** parameter to display detailed information about the EMP interface. This parameter is available on OmniSwitch 9000 Series switches only.

### Examples

```
-> show ip interface
Total 13 interfaces
```

Name	IP Address	Subnet Mask	Status	Forward	Device
EMP	172.22.16.115	255.255.255.0	UP	NO	EMP
GMRULE	40.1.1.1	255.255.255.0	DOWN	NO	vlan 40
Loopback	127.0.0.1	255.0.0.0	UP	NO	Loopback
dhcp-client	172.16.105.10	255.255.255.0	UP	NO	vlan 60
gbps	5.5.5.5	255.255.255.0	DOWN	NO	vlan 7
if222	30.1.5.1	255.0.0.0	UP	YES	vlan 222
ldap_client1	173.22.16.115	255.255.255.0	UP	YES	vlan 173
ldap_server1	174.22.16.115	255.255.255.0	UP	YES	vlan 174
radius_client3	110.1.1.101	255.255.255.0	UP	YES	vlan 30
vlan-2	0.0.0.0	0.0.0.0	DOWN	NO	unbound
gre-1	24.24.24.1	255.255.255.0	UP	YES	GRE tunnel
ipip-1	25.25.25.1	255.255.255.0	UP	YES	IPIP tunnel

```
vlan-23          23.23.23.1      255.255.255.0    UP      YES vlan 23
```

*output definitions*


---

<b>Name</b>	Interface name. Generally, this is the name configured for the interface (e.g., Accounting). <b>EMP</b> refers to the Ethernet Management Port. <b>Loopback</b> refers to a loopback interface configured for testing.
<b>IP Address</b>	IP address of the interface. Configured through the <b>ip interface</b> command.
<b>Subnet Mask</b>	IP subnet mask for the interface IP address. Configured through the <b>ip interface</b> command.
<b>Status</b>	Interface status: <ul style="list-style-type: none"> <li>• <b>UP</b>—Interface is ready to pass packets.</li> <li>• <b>DOWN</b>—Interface is down.</li> </ul>
<b>Forward</b>	Indicates whether or not the interface is actively forwarding packets ( <b>YES</b> or <b>NO</b> ).
<b>Device</b>	The type of device bound to the interface: <ul style="list-style-type: none"> <li>• <b>unbound</b>—No device is bound to the interface.</li> <li>• <b>vlan</b>—The VLAN ID that is bound to the interface.</li> <li>• <b>EMP</b>—The Ethernet Management Port is bound to the interface.</li> <li>• <b>Loopback</b>—A loopback interface is configured for testing.</li> <li>• <b>GRE tunnel</b>—GRE tunnel is configured for the interface.</li> <li>• <b>IPIP tunnel</b>—IPIP tunnel is configured for the interface.</li> </ul> Configured through the <b>ip interface</b> command.

---

```
-> show ip interface Marketing
Interface Name = Marketing
SNMP Interface Index      = 13600007,
IP Address                 = 172.16.105.10,
Subnet Mask                = 255.255.0.0,
Broadcast Address         = 172.16.255.255,
Device                    = vlan 200,
Forwarding                 = disabled,
Administrative State       = enabled,
Operational State         = down,
Operational State Reason  = device-down,
Router MAC                 = 00:d0:95:6a:f4:5c,
Local Proxy ARP           = disabled,
Maximum Transfer Unit     = 1500,
```

```
-> show ip interface dhcp-client
Interface Name = Marketing
SNMP Interface Index      = 13600012,
IP Address                 = 172.16.105.10,
Subnet Mask                = 255.255.0.0,
Broadcast Address         = 172.16.255.255,
Device                    = vlan 60,
Forwarding                 = disabled,
Administrative State       = enabled,
Operational State         = up,
Router MAC                 = 00:d0:95:6a:f4:55,
Maximum Transfer Unit     = 1500,
DHCP-CLIENT Parameter Details
Client Status              = Active,
Server IP                  = 198.206.181.55,
```

```

Lease Time Remaining      = 2 Days 10 Hours 20 Min,
Option-60                 = Option60_example,
HostName                  = TechPubs

```

### *output definitions*

<b>SNMP Interface Index</b>	Interface index.
<b>IP Address</b>	IP address associated with the interface. Configured through the <b>ip interface</b> command.
<b>Subnet Mask</b>	IP subnet mask for the interface. Configured through the <b>ip interface</b> command.
<b>Broadcast Address</b>	Broadcast address for the interface.
<b>Device</b>	The type of device bound to the interface: <ul style="list-style-type: none"> <li>• <b>unbound</b>—No device is bound to the interface.</li> <li>• <b>vlan</b>—The VLAN ID that is bound to the interface.</li> <li>• <b>EMP</b>—The Ethernet Management Port is bound to the interface.</li> <li>• <b>Loopback</b>—A loopback interface is configured for testing.</li> <li>• <b>GRE tunnel</b>—GRE tunnel is configured for the interface.</li> <li>• <b>IPIP tunnel</b>—IPIP tunnel is configured for the interface.</li> </ul> Configured through the <b>ip interface</b> command.
<b>Forwarding</b>	Indicates whether or not IP forwarding is active for the interface ( <b>enabled</b> or <b>disabled</b> ). Configured through the <b>ip interface</b> command.
<b>Administrative State</b>	Administrative state of the IP interface ( <b>enabled</b> or <b>disabled</b> ), which is independent of the state of the underlying device. Configured through the <b>ip interface</b> command.
<b>Operational State</b>	Indicates whether or not the interface is active ( <b>up</b> or <b>down</b> ).
<b>Operation State Reason</b>	Indicates why the operational state of the interface is down: <ul style="list-style-type: none"> <li>• <b>unbound</b>—No device is bound to the interface.</li> <li>• <b>device-down</b>—Device bound to the interface is down.</li> <li>• <b>admin-down</b>—The admin state of the interface is down.</li> <li>• <b>no-such-device</b>—Device does not exist.</li> <li>• <b>no-router-mac</b>—No MAC address available for the interface.</li> <li>• <b>tunnel-src-invalid</b>—Tunnel's source IP address is invalid.</li> <li>• <b>tunnel-dst-unreachable</b>—Tunnel's destination IP address is not reachable.</li> </ul> Note that the <b>tunnel-src-invalid</b> and <b>tunnel-dst-unreachable</b> are only applicable for the <b>GRE tunnel</b> and <b>IPIP tunnel</b> device types. Note that <b>Operational State Reason</b> field is only included in the display output when the operational state of the interface is <b>down</b> .
<b>Router MAC</b>	Switch MAC address assigned to the interface. Note that each interface assigned to the same VLAN will share the same switch MAC address.
<b>Local Proxy ARP</b>	Indicates whether or not Local Proxy ARP is active for the interface ( <b>enabled</b> or <b>disabled</b> ). Configured through the <b>ip interface</b> command.
<b>Maximum Transfer Unit</b>	The Maximum Transmission Unit size set for the interface. Configured through the <b>ip interface</b> command.
<b>DHCP-CLIENT Parameter Details</b>	(Parameters below are only applicable to the 'dhcp-client' interface)
<b>Client Status</b>	DHCP Client Status ( <b>In-active, Inactive</b> )
<b>Server IP</b>	The IP address of the DHCP server.
<b>Lease Time Remaining</b>	The lease time remaining for the DHCP client IP address.

*output definitions (continued)*


---

<b>Option-60</b>	The option-60 string that shall be included in DHCP discover/request packets.
<b>HostName</b>	The system name of the OmniSwitch.

---

The following are examples of the output display on OmniSwitch stackable and chassis-based switches:

```
-> show ip interface ipip-1
Interface Name = ipip-1
SNMP Interface Index      = 13600001,
IP Address                 = 25.25.25.1,
Subnet Mask                = 255.255.255.0,
Device                    = IPIP Tunnel,
Tunnel Source Address     = 23.23.23.1
Tunnel Destination Address = 23.23.23.2,
Forwarding                 = enabled,
Administrative State      = enabled,
Operational State         = up,
Maximum Transfer Unit     = 1480,
```

```
-> show ip interface gre-1
Interface Name = gre-1
SNMP Interface Index      = 13600002,
IP Address                 = 24.24.24.1,
Subnet Mask                = 255.255.255.0,
Device                    = GRE Tunnel,
Tunnel Source Address     = 23.23.23.1
Tunnel Destination Address = 23.23.23.2,
Forwarding                 = enabled,
Administrative State      = enabled,
Operational State         = down,
Operational State Reason  = unbound,
Maximum Transfer Unit     = 1476,
```

*output definitions*


---

<b>SNMP Interface Index</b>	Interface index.
<b>IP Address</b>	IP address associated with the interface. Configured through the <a href="#">ip interface</a> command.
<b>Subnet Mask</b>	IP subnet mask for the interface. Configured through the <a href="#">ip interface</a> command.
<b>Device</b>	The type of device bound to the interface: <ul style="list-style-type: none"> <li>• <b>unbound</b>—No device is bound to the interface.</li> <li>• <b>vlan</b>—The VLAN ID that is bound to the interface.</li> <li>• <b>EMP</b>—The Ethernet Management Port is bound to the interface.</li> <li>• <b>Loopback</b>—A loopback interface is configured for testing.</li> <li>• <b>GRE tunnel</b>—GRE tunnel is configured for the interface.</li> <li>• <b>IPIP tunnel</b>—IPIP tunnel is configured for the interface.</li> </ul> Configured through the <a href="#">ip interface</a> command.
<b>Tunnel Source Address</b>	The source IP address for the tunnel.
<b>Tunnel Destination Address</b>	The destination IP address for the tunnel.
<b>Forwarding</b>	Indicates whether or not IP forwarding is active for the interface ( <b>enabled</b> or <b>disabled</b> ). Configured through the <a href="#">ip interface</a> command.

*output definitions (continued)*


---

<b>Administrative State</b>	Administrative state of the IP interface ( <b>enabled</b> or <b>disabled</b> ), which is independent of the state of the underlying device. Configured through the <b>ip interface</b> command.
<b>Operational State</b>	Indicates whether or not the interface is active ( <b>up</b> or <b>down</b> ).
<b>Operational State Reason</b>	Indicates why the operational state of the interface is down: <ul style="list-style-type: none"> <li>• <b>interface-up</b>—The admin state of the interface is up.</li> <li>• <b>unbound</b>—No device is bound to the interface.</li> <li>• <b>device-down</b>—Device bound to the interface is down.</li> <li>• <b>admin-down</b>—The admin state of the interface is down.</li> <li>• <b>no-such-device</b>—Device does not exist.</li> <li>• <b>no-router-mac</b>—No MAC address available for the interface.</li> <li>• <b>tunnel-src-invalid</b>—Tunnel's source IP address is invalid.</li> <li>• <b>tunnel-dst-unreachable</b>—Tunnel's destination IP address is not reachable.</li> </ul> <p>Note that this field is only included in the display output when the operational state of the interface is <b>down</b>.</p>
<b>Maximum Transfer Unit</b>	The Maximum Transmission Unit size set for the interface. Configured through the <b>ip interface</b> command.

---

**Release History**

Release 6.1; command was introduced.

Release 6.3.1; **Tunnel Source Address** and **Tunnel Destination Address** fields added.

Release 6.4.3; **DHCP Client** options added.

**Related Commands**

<b>ip interface</b>	Configures an IP interface to enable IP routing on a VLAN. Without an IP interface, traffic is bridged within the VLAN or across connections to the same VLAN on other switches.
<b>ip interface dhcp-client</b>	Configures a DHCP client IP interface that is to be assigned an IP address from a DHCP server.
<b>ip interface tunnel</b>	Configures the end points for the GRE and IPIP tunnels.
<b>show icmp statistics</b>	Displays ICMP statistics and errors.

**MIB Objects**

```

alaIpInterfaceTable
  alaIpInterfaceName
  alaIpInterfaceAddress
  alaIpInterfaceMask
  alaIpInterfaceAdminState
  alaIpInterfaceDeviceType
  alaIpInterfaceVlanID
  alaIpInterfaceIpForward
  alaIpInterfaceEncap
  alaIpInterfaceLocalProxyArp
  alaIpInterfacePrimCfg
  alaIpInterfaceOperState
  alaIpInterfaceOperReason
  alaIpInterfaceRouterMac
  alaIpInterfaceBcastAddr

```

```
alaIpInterfacePrimAct  
alaIpInterfaceMtu  
alaIpInterfaceTunnelSrc  
alaIpInterfaceTunnelDst
```

---

## show ip managed-interface

Displays the application name and the corresponding interface name.

**show ip managed-interface**

---

### Syntax Definitions

N/A.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to view the interface name used by the application.

### Examples

```
-> show ip managed-interface
Application      Interface-Name
-----+-----
tacacs          -
sflow           -
ntp             Loopback0
syslog          -
dns             -
dhcp-server     -
telnet          management
ssh             -
tftp            -
ldap-server     -
radius          -
snmp            -
ftp             -
```

### Release History

Release 6.4.3; command was introduced.



## Related Commands

### **ip managed-interface**

Specifies the source IP address for the outgoing packets that are sent by the applications.

## MIB Objects

alaIpManagedIntfTable  
  AlaIpManagedIntfAppIndex  
  alaIpManagedIntfEntry  
  alaIpManagedIntfName  
  alaIpManagedRowStatus

---

## show ip route

Displays the IP Forwarding table.

**show ip route [summary]**

---

### Syntax Definitions

**summary** Displays a summary of routing protocols that appear in the IP Forwarding table.

### Defaults

By default, all routes are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The IP Forwarding table includes static routes as well as all routes learned through routing protocols (e.g., RIP, OSPF).
- Use the optional **summary** keyword to display a list of routing protocols and the number of routes for each protocol that appear in the IP Forwarding table.

### Examples

```
-> show ip route
```

```
+ = Equal cost multipath routes
```

```
* = BFD Enabled
```

```
Total 8 routes
```

Dest Address	Subnet Mask	Gateway Addr	Age	Protocol
20.20.20.0	255.255.255.0	20.20.20.10	01:56:01	LOCAL
32.32.32.0	255.255.255.0	*20.20.20.152	00:00:01	NETMGMT
60.60.60.0	255.255.255.0	*20.20.20.152	00:01:22	NETMGMT
70.70.70.0	255.255.255.0	70.70.70.151	00:01:22	LOCAL
71.71.71.0	255.255.255.0	71.71.71.151	00:01:22	LOCAL
78.78.78.0	255.255.255.0	*80.80.80.142	00:01:22	NETMGMT
79.79.79.0	255.255.255.0	79.79.79.151	00:01:23	LOCAL
127.0.0.1	255.255.255.255	127.0.0.1	01:57:15	LOCAL

```
-> show ip route summary
```

Protocol	Route Count
All	8
Local	5
Netmgmt	3
RIP	0
ISIS	0

OSPF	0
BGP	0
Other	0

### *output definitions*

---

<b>Dest Addr</b>	Destination IP address.
<b>Subnet Mask</b>	Destination IP address IP subnet mask.
<b>Gateway Addr</b>	IP address of the gateway from which this address was learned.
<b>Age</b>	Age of the entry. If the entry is less than a day old, it is displayed in <i>hh/mm/ss</i> format. If it is more than a day old, it is displayed in <i>dd/hh</i> format (e.g., a route that is 2 days and 12 hours old is displayed as 2d12h).
<b>Protocol</b>	Protocol by which this IP address was learned (e.g., RIP). NETMGT indicates a static route. LOCAL indicates a local interface.
<b>Route Count</b>	The number of routes that appear in the IP Forwarding table for each protocol type listed.

---

### **Release History**

Release 6.1; command was introduced.  
Release 6.3.4; **BFD Enabled** field added.

### **Related Commands**

<b>ping</b>	Used to test whether an IP destination can be reached from the local switch.
<b>traceroute</b>	Used to find the path taken by an IP packet from the local switch to a specified destination.
<b>show ip managed-interface</b>	Displays a list of all routes (static and dynamic) that exist in the IP router database.

---

## show ip route-pref

Displays the IPv4 routing preferences of a router.

```
show ip route-pref
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip route-pref
  Protocol      Route Preference Value
-----+-----
  Local         1
  Static        2
  OSPF          110
  RIP           100
  EBGP          190
  IBGP          200
```

### Release History

Release 6.1.1; command was introduced.

Release 6.1.3; **bgp** parameter deprecated; **ebgp** and **ibgp** parameters added.

### Related Commands

[ip route-pref](#) Configures the route preference of a router.

## **MIB Objects**

```
alaIprmRtPrefTable  
  alaIprmRtPrefLocal  
  alaIprmRtPrefStatic  
  alaIprmRtPrefOspf  
  alaIprmRtPrefRip  
  alaIprmRtPrefEbgp  
  alaIprmRtPrefIbgp
```

---

## show ip redist

Displays the IPv4 route map redistribution configuration.

**show ip redist** [**rip** | **ospf** | **bgp**]

---

### Syntax Definitions

<b>rip</b>	Displays route map redistribution configurations that use RIP as the destination (into) protocol.
<b>ospf</b>	Displays route map redistribution configurations that specify OSPF as the destination (into) protocol.
<b>bgp</b>	Displays the route map redistribution configurations that specify BGP as the destination (into) protocol at this time.

### Defaults

By default all route map redistribution configurations are shown.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specify a destination protocol with this command to display only those configurations that redistribute routes into the specified protocol.

### Release History

Release 6.1.3; command was introduced.

### Examples

```
-> show ip redist
```

Source Protocol	Destination Protocol	Status	Route Map
RIP	OSPF	Enabled	ipv4rm
BGP	RIP	Enabled	ipv4rm

```
-> show ip redist rip
```

Source Protocol	Destination Protocol	Status	Route Map
BGP	RIP	Enabled	ipv4rm

*output definitions*

---

<b>Source Protocol</b>	The protocol from which the routes are learned.
<b>Destination Protocol</b>	The protocol into which the source protocol routes are redistributed.
<b>Status</b>	The administrative status ( <b>Enabled</b> or <b>Disabled</b> ) of the route map redistribution configuration.
<b>Route Map</b>	The name of the route map that is applied with this redistribution configuration.

---

**Related Commands**

**ip redistrib** Controls the conditions for redistributing different IPv6 routes between protocols.

**MIB Objects**

```
alaRouteMapRedistProtoTable  
  alaRouteMapRedistSrcProtoId  
  alaRouteMapRedistDestProtoId  
  alaRouteMapRedistRouteMapIndex  
  alaRouteMapRedistStatus  
  alaRouteMapRedistAddressType  
  alaRouteMapRedistRowStatus
```

---

## show ip access-list

Displays the details of the access list.

**show ip access-list** [*access-list-name*]

---

### Syntax Definitions

*access-list-name*                      Name of the access list.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If the *access-list-name* is not specified in this command, all the access lists will be displayed.

### Examples

```
-> show ip access-list
```

Name	Address / Prefix Length	Effect	Redistribution Control
al_3	10.0.0.0/8	permit	all-subnets
al_3	11.0.0.0/8	permit	all-subnets
al_4	1.0.0.0/8	permit	no-subnets
al_4	10.0.0.0/8	permit	all-subnets

```
-> show ip access-list al_4
```

Name	Address / Prefix Length	Effect	Redistribution Control
al_4	1.0.0.0/8	permit	no-subnets
al_4	10.0.0.0/8	permit	all-subnets

### output definitions

---

<b>Name</b>	Name of the access list.
<b>Address/Prefix Length</b>	IP address that belongs to the access list.
<b>Effect</b>	Indicates whether the IP address is permitted or denied for redistribution.
<b>Redistribution Control</b>	Indicates the conditions specified for redistributing the matched routes.

---



## Release History

Release 6.1.3; command was introduced.

## Related Commands

- |                                        |                                                                          |
|----------------------------------------|--------------------------------------------------------------------------|
| <a href="#">ip access-list</a>         | Creates an access list for adding multiple IPv4 addresses to route maps. |
| <a href="#">ip access-list address</a> | Adds multiple IPv4 addresses to the access list.                         |

## MIB objects

```
alaRouteMapAccessListIndex  
alaRouteMapAccessListAddressType  
alaRouteMapAccessListAddress  
alaRouteMapAccessListPrefixLength  
alaRouteMapAccessListAction  
alaRouteMapAccessListRedistControl
```

---

## show ip route-map

Displays the IP route maps configured on the switch.

```
show ip route-map [route-map-name]
```

---

### Syntax Definitions

*route-map-name*                      The name of the specific route map.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If the *route-map-name* is not specified in this command, all the route maps are displayed.

### Examples

```
-> show ip route-map
Route Maps: configured: 1 max: 200
Route Map: Route_map1 Sequence Number: 50 Action permit
  match ip address 10.0.0.0/8 redistrib-control all-subnets permit
  set metric 100 effect replace
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

<b>ip route-map action</b>	Creates a route map for redistribution and sets the status of route map to permit or deny.
<b>ip route-map match ip address</b>	Matches the route with the specified IPv4 address or with addresses contained in an IPv4 access list specified by the access list name.
<b>ip route-map match ipv6 address</b>	Matches the route with the specified IPv6 address or with addresses contained in an IPv6 access list specified by the access list name.
<b>ip route-map match ip-nexthop</b>	Matches the routes that have a next-hop router address permitted by the specified access list.
<b>ip route-map match ipv6-nexthop</b>	Matches the routes that have an IPv6 next-hop router address permitted by the specified access list.
<b>ip route-map match tag</b>	Permits or denies a route based on the specified next-hop IP address.
<b>ip route-map match tag</b>	Matches the tag value specified in the route map with the one that the routing protocol learned the route on.
<b>ip route-map match metric</b>	Matches the metric value specified in the route map with the one that the routing protocol learned the route on.
<b>ip route-map match route-type</b>	Matches the specified route type with the one that the routing protocol learned the route on.

## MIB Objects

```
alaRouteMapRedistProtoTable
  alaRouteMapRedistRouteMapIndex
alaRouteMapTable
  alaRouteMapIndex
  alaRouteMapSequence
  alaRouteMapType
  alaRouteMapValue
  alaRouteMapRowStatus
```

---

---

## show ip router database

Displays a list of all routes (static and dynamic) that exist in the IP router database. This database serves as a central repository where routes are first processed for redistribution and where duplicate routes are compared to determine the best route to use. If a route does not appear in the IP router database list, then the switch does not know about it. In the case of dynamically learned routes, this could indicate that the route was never received by the switch.

```
show ip router database [protocol type / gateway ip_address / dest {ip_address/prefixLen / ip_address}]
```

---

### Syntax Definitions

<i>type</i>	Routing protocol type (local, static, OSPF, RIP, or BGP).
<i>ip_address</i>	Destination IP address.
<i>ip_address/prefixLen</i>	The destination IP address along with the prefix length of the routes processed for redistribution.

### Defaults

By default, all routes are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Command options are not mutually exclusive. You can use them on the same command line to narrow and/or customize the output display of this command. For example, use the **protocol** and **dest** options to display only those routes that are of a specific protocol type and have the specified destination network.
- The IP forwarding table is derived from IP router database processing performed by the switch and contains only unique routes that the switch currently uses. Use the **show ip route** command to view the forwarding table.
- If an expected route does not appear in the IP forwarding table, use the **show ip router database** command to see if the switch knows about the route and/or if a duplicate route with a higher precedence was selected instead.
- The switch compares the protocol of duplicate routes to determine which one to use. Regardless of whether or not a route has a higher priority metric value, protocol determines precedence. Local routes are given the highest level of precedence followed by static, OSPF, RIP, then BGP routes. As a result, a route that is known to the switch may not appear in the IP forwarding table if a duplicate route with a higher protocol precedence exists.
- A list of inactive static routes is also included in the **show ip router database** output display. A route becomes inactive if the interface for its gateway goes down. Inactive routes are unable to get to their destination and further investigation is warranted to determine why their gateway is unavailable.
- Static routes that appear as inactive are not included in the main IP router database listing. If an inactive route becomes active, however, it is removed from the inactive list and added to the active route list.

## Examples

```
-> show ip router database
Legend: + indicates routes in-use
        * indicates BFD-enabled static route
        r indicates recursive static route, with following address in brackets
```

Total IPRM IPv4 routes: 9

Destination	Gateway	Protocol	Metric	Tag	Misc-Info
+ 10.212.31.0/24	10.212.60.27	OSPF	2	44	
+ 10.212.31.0/24	10.212.61.27	OSPF	2	43	
+ 10.212.59.0/24	10.212.59.17	LOCAL	1	45	
+ 10.212.60.0/24	10.212.60.17	LOCAL	1	44	
+ 10.212.61.0/24	10.212.61.17	LOCAL	1	43	
+ 10.212.66.0/24	10.212.66.17	LOCAL	1	46	
+r 143.209.92.0/24	172.28.6.254	STATIC	1	N/A	[192.168.10.1]
+ 172.28.6.0/24	172.28.6.2	LOCAL	1	6	
+ 172.28.6.0/24	10.212.66.18	OSPF	1	46	

Inactive Static Routes

Destination	Gateway	Metric
1.0.0.0/8	8.4.5.3	1

```
-> show ip router database dest 10.212.62.0/24 protocol ospf
```

Destination	Gateway	Protocol	Metric	Tag	Misc-Info
10.212.62.0/24	10.212.60.27	OSPF	2	44	
10.212.62.0/24	10.212.61.27	OSPF	2	43	

Inactive Static Routes

Destination	Gateway	Metric
1.0.0.0/8	8.4.5.3	1

### output definitions

<b>Destination</b>	Destination IP address. Also includes the mask prefix length notation after the address to indicate the subnet mask value. For example, /24 indicates the destination IP address has a 24-bit mask (255.255.255.0)
	+ indicates routes in-use * indicates BFD-enabled static route 'r' indicates a recursive static route.
<b>Gateway</b>	IP address of the gateway from which this route was learned.
<b>Protocol</b>	Protocol by which this IP address was learned: LOCAL, STATIC, OSPF, RIP, BGP).
<b>Metric</b>	RIP metric or cost (hop count) for the route. Indicates a priority for the route. The lower the metric value, the higher the priority.

**output definitions**

---

<b>Tag</b>	The VLAN on which the route was <i>learned</i> , not forwarded. Note that <b>N/A</b> appears in this field for static routes as they are not learned on a VLAN.
<b>Misc-Info</b>	Used for various output such as IP address of the recursive static route or IP address of backup routes.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; mask parameter deleted; /prefixLen parameter added.

Release 6.4.3; 'r' added to indicate recursive static route.

**Related Commands**

[show ip route](#) Displays the IP Forwarding table.

---

## show ip emp-route

Displays the IP routes associated with the Ethernet Management Port (EMP).

**show ip emp-route**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command displays the routes that are connected to the Ethernet Management Port (EMP).
- The EMP cannot handle routing protocols such as RIP or OSPF.
- The default route for the switch cannot be set up on the EMP.

### Examples

```
-> show ip emp-route
```

Dest Address	Subnet Mask	Gateway Addr	Age	Protocol
127.0.0.1	255.255.255.255	127.0.0.1	2d 4h	LOCAL
172.17.1.10	255.255.255.255	10.255.11.225	1d 5h	LOCAL

#### *output definitions*

---

<b>Dest Addr</b>	Destination IP address.
<b>Subnet Mask</b>	Destination IP address IP subnet mask.
<b>Gateway Addr</b>	IP address of the gateway from which this address was learned.
<b>Age</b>	Age of the entry. If the entry is less than a day old, it is displayed in <i>hh/mm/ss</i> format. If it is more than a day old, it is displayed in <i>dd/hh</i> format (e.g., a route that is 2 days and 12 hours old is displayed as 2d12h).
<b>Protocol</b>	Protocol by which this IP address was learned (e.g., RIP). NETMGT indicates a static route. LOCAL indicates a local interface.

---

### Release History

Release 6.1; command was introduced.

**Related Commands****ping**

Tests whether an IP destination can be reached from the local switch.

**traceroute**

Finds the path taken by an IP packet from the local switch to a specified destination.

---



## show ip config

Displays IP configuration parameters.

**show ip config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip config
IP directed-broadcast = OFF,
IP default TTL       = 64
```

### *output definitions*

---

<b>IP directed-broadcast</b>	Indicates whether the IP directed-broadcast feature is on or off.
<b>IP default TTL</b>	IP default TTL interval.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip directed-broadcast](#) Enables or disables IP directed broadcasts routed through the switch.
- [ip default-ttl](#) Sets TTL value for IP packets.
-

## show ip protocols

Displays switch routing protocol information and status.

**show ip protocols**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command also displays the switch's primary IP address and router ID, if configured, and debug information.

### Examples

```
-> show ip protocols
Router ID                = 10.255.11.243,
Primary addr            = 10.255.11.243,

RIP status              = Not Loaded,
OSPF status             = Not Loaded,
BGP status              = Not Loaded,
DVMRP status           = Not Loaded,
PIMSM status           = Not Loaded,

Debug level             = 1,
Debug sections         = error,
```

### *output definitions*

---

<b>Router ID</b>	The set routing ID. The router ID is how the router is identified in IP.
<b>Primary addr</b>	The primary interface address the route uses.
<b>RIP status</b>	Whether RIP is loaded or not.
<b>OSPF status</b>	Whether OSPF is loaded or not.
<b>BGP status</b>	Whether BGP is loaded or not.
<b>DVMRP status</b>	Whether DVMRP is loaded or not.
<b>PIMSM status</b>	Whether PIMSM is loaded or not.
<b>Debug level</b>	What the current router debug level is.
<b>Debug sections</b>	What types of debugging information are being tracked.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

**ip router primary-address** Configures the router primary IP address.  
**ip router router-id** Configures the router ID for the router.

## MIB Objects

alaIpRouteSumTable  
    alaIpRouteProtocol

---

## show ip service

Displays the current status of TCP/UDP service ports.

**show ip service**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The display output from this command also includes the service port number.

### Examples

```
-> show ip service
```

Name	Port	Status
ftp	21	enabled
ssh	22	disabled
telnet	23	disabled
udp-relay	67	disabled
http	80	disabled
network-time	123	disabled
snmp	161	disabled
avlan-telnet	259	disabled
avlan-http	260	disabled
avlan-secure-http	261	disabled
secure_http	443	enabled
avlan-http-proxy	262	disabled

#### *output definitions*

---

<b>Name</b>	Name of the TCP/UDP service.
<b>Port</b>	The TCP/UDP well-known port number associated with the service.
<b>Status</b>	The status of the well-known service port: <b>enabled</b> (port is closed) or <b>disabled</b> (port is open).

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [ip service](#)

Enables (opens) or disables (closes) well-known TCP/UDP service ports.

## MIB Objects

```
alaIpServiceTable
  alaIpServiceType
  alaIpServicePort
  alaIpServiceStatus
alaIpPortServiceTable
  alaIpPortServicePort
  alaIpPortServiceStatus
```

---

## show ip dynamic-proxy-arp

Displays the dynamic proxy ARP table. The ARP table contains a listing of router IP addresses and their corresponding translations to physical MAC addresses.

**show ip dynamic-proxy-arp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The OmniSwitch will provide the proxy arp functionality for the addresses contained in this table.
- Dynamic proxy arp is used in conjunction with the DHCP Snooping and Port Mapping features.

### Examples

```
-> show ip dynamic-proxy-arp
```

Router IP Addr	Hardware Addr	VLAN	Interfaces
172.18.16.1	00:d0:95:3a:e8:08	10	1/1
172.18.16.100	00:1a:92:42:ac:63	20	3/2

#### *output definitions*

---

<b>Router IP Addr</b>	Router IP address.
<b>Hardware Addr</b>	Router MAC address.
<b>VLAN</b>	The VLAN the entry is learned on.
<b>Interface</b>	The interface the entry is learned on.

---

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**port mapping dynamic-proxy-arp** Enables or disables the dynamic proxy arp functionality on a port mapping session.

**ip helper dhcp-snooping** Enables or disables dhcp snooping.

## MIB Objects

```
alaIpNetToMediaDpGroup
  alaIpNetToMediaDpaPhysAddress
  alaIpNetToMediaDpaIpType
  alaIpNetToMediaDpaIp
  alaIpNetToMediaDpaSlot
  alaIpNetToMediaDpaPort
```

---

---

## show vrf

Displays the Multiple VRF instance configuration for the switch.

`show vrf`

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E, 6855-U24X

### Usage Guidelines

Information is displayed for all VRF instances configured on the switch.

### Examples

```
-> show vrf
Virtual Routers   Protocols
-----
      default
      IpOne      RIP
      IpTwo      BGP
```

### Release History

Release 6.4.1; command was introduced.

### Related Commands

[vrf](#) Configures a Multiple VRF instance for the switch.

### MIB Objects

```
alaVirtualRouterNameTable
  alaVirtualRouterNameIndex
  alaVirtualRouterName
```

---



## show arp

Displays the ARP table. The ARP table contains a listing of IP addresses and their corresponding translations to physical MAC addresses.

**show arp** [*ip\_address* | *hardware\_address*]

---

### Syntax Definitions

*ip\_address* IP address of the entry you want to view.  
*hardware\_address* MAC address of the entry you want to view.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the basic command (**show arp**) to view all of the entries in the table. Enter a specific IP address or MAC address to view a specific entry.

### Examples

```
-> show arp
Total 8 arp entries
Flags (P=Proxy, A=Authentication, V=VRRP)
```

IP Addr	Hardware Addr	Type	Flags	Port	Interface	Name
10.255.11.59	00:50:04:b2:c9:ee	DYNAMIC		3/20	vlan 1	
10.255.11.48	00:50:04:b2:ca:11	DYNAMIC		3/20	vlan 1	
10.255.11.201	00:10:83:03:e7:e4	DYNAMIC		3/20	vlan 1	
10.255.11.14	00:10:5a:04:19:a7	DYNAMIC		3/20	vlan 1	
10.255.11.64	00:b0:d0:62:fa:f1	DYNAMIC		3/20	vlan 1	
10.255.13.25	00:b0:d0:42:80:24	DYNAMIC		0/20	vlan 13	agg20
10.255.13.26	00:b0:d0:42:82:59	DYNAMIC		0/20	vlan 13	agg20
10.255.11.254	11:50:04:11:11:11	STATIC		3/20	vlan 1	demoarp

### output definitions

---

<b>IP Address</b>	Device IP address.
<b>Hardware Addr</b>	MAC address of the device that corresponds to the IP address.
<b>Type</b>	Indicates whether the ARP cache entries are dynamic or static.
<b>Flags</b>	Indicates the type of entry: <ul style="list-style-type: none"> <li>• P = Proxy</li> <li>• A = Authentication (AVLAN)</li> <li>• V = VRRP</li> </ul>
<b>Port</b>	The port or link aggregate on the switch attached to the device identified by the IP address.

---

*output definitions (continued)*

---

<b>Interface</b>	The interface to which the entry belongs (e.g., VLAN, EMP).
<b>Name</b>	User configured name of static arp entry.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands****ip service**

Adds a permanent entry to the ARP table.

**clear arp-cache**

Deletes all dynamic entries from the ARP table.

**MIB Objects**

```
ipNetToMediaTable
  ipNetToMediaIfIndex
  ipNetToMediaNetAddress
  ipNetToMediaPhyAddress
  ipNetToMediaType
ipNetToMediaAugTable
  ipNetToMediaSlot
  ipNetToMediaPort
alaIpNetToMediaTable
  alaIpNetToMediaPhyAddress
  alaIpNetToMediaProxy
  alaIpNetToMediaVRRP
  alaIpNetToMediaAuth
```

---

## show arp summary

Displays the number of each ARP entry type.

**show arp summary**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

-> show arp summary

Type	Count
-----+-----	
Total	105
Static	2
Dynamic	100
Authenticated	3
Proxy	0
VRRP	0

### *output definitions*

---

<b>Type</b>	The type of ARP entry.
<b>Count</b>	The number of entries for that type.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[show arp](#) Displays the ARP table.

## show arp filter

Displays a list of ARP filters configured for the switch.

**show arp filter** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* IP address of the filter entry you want to view.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If an IP address is not specified with this command, a list of all ARP filters is displayed.
- Enter a specific IP address to view the configuration for an individual filter.

### Examples

```
-> show arp filter
```

IP Addr	IP Mask	Vlan	Type	Mode
171.11.1.1	255.255.255.255	0	target	block
172.0.0.0	255.0.0.0	0	target	block
198.0.0.0	255.0.0.0	0	sender	block
198.172.16.1	255.255.255.255	200	target	allow

```
-> show arp filter 198.172.16.1
```

IP Addr	IP Mask	Vlan	Type	Mode
198.0.0.0	255.0.0.0	0	sender	block
198.172.16.1	255.255.255.255	200	target	allow

### output definitions

---

<b>IP Addr</b>	The ARP packet IP address to which the filter is applied.
<b>IP Mask</b>	The IP mask that specifies which part of the IP address to which the filter is applied.
<b>Vlan</b>	A VLAN ID. The filter is applied only to ARP packets received on ports associated with this VLAN.
<b>Type</b>	Indicates which IP address in the ARP packet ( <b>sender</b> or <b>target</b> ) is used to identify if a filter exists for that address.
<b>Mode</b>	Indicates whether or not to <b>block</b> or <b>allow</b> a switch response to an ARP packet that matches the filter.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[arp filter](#)

Adds a permanent entry to the ARP table.

[clear arp filter](#)

Deletes all dynamic entries from the ARP table.

## MIB Objects

alaIpArpFilterTable

  alaIpArpFilterIpAddr

  alaIpArpFilterIpMask

  alaIpArpFilterVlan

  alaIpArpFilterMode

  alaIpArpFilterType

---

## show icmp control

Allows the viewing of the ICMP control settings.

**show icmp control**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to view the status of the various ICMP messages. It is also useful to determine the type and code of the less common ICMP messages.

### Examples

```
-> show icmp control
```

Name	Type	Code	Status	min-pkt-gap(us)
echo reply	0	0	enabled	0
network unreachable	3	0	enabled	0
host unreachable	3	1	enabled	0
protocal unreachable	3	2	enabled	0
port unreachable	3	3	enabled	0
frag needed but DF bit set	3	4	enabled	0
source route failed	3	5	enabled	0
destination network unknown	3	6	enabled	0
destination host unknown	3	7	enabled	0
source host isolated	3	8	enabled	0
dest network admin prohibited	3	9	enabled	0
host admin prohibited by filter	3	10	enabled	0
network unreachable for TOS	3	11	enabled	0
host unreachable for TOS	3	12	enabled	0
source quench	4	0	enabled	0
redirect for network	5	0	enabled	0
redirect for host	5	1	enabled	0
redirect for TOS and network	5	2	enabled	0
redirect for TOS and host	5	3	enabled	0
echo request	8	0	enabled	0
router advertisement	9	0	enabled	0
router solicitation	10	0	enabled	0
time exceeded during transmit	11	0	enabled	0
time exceeded during reassembly	11	1	enabled	0
ip header bad	12	0	enabled	0
required option missing	12	1	enabled	0
timestamp request	13	0	enabled	0

timestamp reply	14	0	enabled	0
information request(obsolete)	15	0	enabled	0
information reply(obsolete)	16	0	enabled	0
address mask request	17	0	enabled	0
address mask reply	18	0	enabled	0

### *output definitions*

---

<b>Name</b>	The name of the ICMP message.
<b>Type</b>	The ICMP message type. This along with the ICMP code specify the kind of ICMP message.
<b>Code</b>	The ICMP message code. This along with the ICMP type specify the kind of ICMP message.
<b>Status</b>	Whether this message is <b>Enabled</b> or <b>Disabled</b> .
<b>min-pkt-gap</b>	The minimum packet gap, in microseconds, for this ICMP message. The minimum packet gap is the amount of time that must pass between ICMP messages of like types.

---

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

<b>icmp type</b>	Enables or disables a specific type of ICMP message, and sets the minimum packet gap.
<b>icmp unreachable</b>	Enables or disables ICMP messages pertaining to unreachable destinations, and sets the minimum packet gap.
<b>icmp echo</b>	Enables or disables ICMP echo messages, and sets the minimum packet gap.
<b>icmp timestamp</b>	Enables or disables ICMP timestamp messages, and sets the minimum packet gap.
<b>icmp addr-mask</b>	Enables or disables ICMP address mask messages, and sets the minimum packet gap.
<b>icmp messages</b>	Enables or disables all ICMP messages.

---

## show icmp statistics

Displays Internet Control Message Protocol (ICMP) statistics and errors. ICMP is a network layer protocol within the IP protocol suite that provides message packets to report errors and other IP packet processing information back to the source. ICMP generates several kinds of useful messages, including Destination Unreachable, Echo Request and Reply, Redirect, Time Exceeded, and Router Advertisement and Solicitation. If an ICMP message cannot be delivered, no second one is generated. This is to avoid an endless flood of ICMP messages.

**show icmp [statistics]**

---

### Syntax Definitions

**statistics** Optional syntax.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the ICMP Table to monitor and troubleshoot the switch.

### Examples

```
-> show icmp
```

Messages	Received	Sent
Total	2105	2105
Error	0	0
Destination unreachable	0	0
Time exceeded	0	0
Parameter problem	0	0
Source quench	0	0
Redirect	0	0
Echo request	2105	0
Echo reply	0	2105
Time stamp request	0	0
Time stamp reply	0	0
Address mask request	0	0
Address mask reply	0	0

#### *output definitions*

<b>Total</b>	Total number of ICMP messages the switch received or attempted to send. This counter includes all those counted as errors.
<b>Error</b>	Number of ICMP messages the switch sent/received but was unable to process because of ICMP-specific errors (e.g., bad ICMP checksums, bad length).
<b>Destination unreachable</b>	Number of “destination unreachable” messages that were sent/received by the switch.



**output definitions (continued)**

---

<b>Time exceeded</b>	Number of “time exceeded” messages that were sent/received by the switch. These occur when a packet is dropped because the TTL counter reaches zero. When a large number of these occur, it is a symptom that packets are looping, that congestion is severe, or that the TTL counter value is set too low. These messages also occur when all the fragments trying to be reassembled do not arrive before the reassembly timer expires.
<b>Parameter problem</b>	Number of messages sent/received which indicate that an illegal value has been detected in a header field. These messages can indicate a problem in the sending host’s IP software or possibly the gateway’s software.
<b>Source quench</b>	Number of messages sent/received that tell a host that it is sending too many packets. A host should attempt to reduce its transmissions upon receiving these messages.
<b>Redirect</b>	Number of ICMP redirect messages sent/received by the switch.
<b>Echo request</b>	Number of ICMP echo messages sent/received by the switch to see if a destination is active and unreachable.
<b>Echo reply</b>	Number of echo reply messages received by the switch.
<b>Time stamp request</b>	Number of time stamp request messages sent/received by the switch.
<b>Time stamp reply</b>	Number of time stamp reply messages sent/received by the switch.
<b>Address mask request</b>	Number of address mask request messages that were sent/received by the switch in an attempt to determine the subnet mask for the network.
<b>Address mask reply</b>	Number of address mask reply messages that were sent/received by the switch.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show udp statistics](#) Displays UDP errors and statistics.

---

## show tcp statistics

Displays TCP statistics.

**show tcp statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show tcp statistics
Total segments received = 235080,
Error segments received = 0,
Total segments sent = 363218,
Segments retransmitted = 38,
Reset segments sent = 97,
Connections initiated = 57185,
Connections accepted = 412,
Connections established = 1,
Attempt fails = 24393,
Established resets = 221
```

#### *output definitions*

<b>Total segments received</b>	Total number of segments received, including those received in error. This count includes segments received on currently established connections.
<b>Error segments received</b>	Total number of segments received in error (e.g., bad TCP checksums).
<b>Total segments sent</b>	Total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.
<b>Segments retransmitted</b>	Number of TCP segments transmitted containing one or more previously transmitted octets.
<b>Reset segments sent</b>	Number of TCP segments containing the reset flag.
<b>Connections initiated</b>	Number of connections attempted.
<b>Connections accepted</b>	Number of connections allowed.
<b>Connections established</b>	Number of successful connections.

*output definitions (continued)*

---

<b>Attempt fails</b>	Number of times attempted TCP connections have failed.
<b>Established resets</b>	Number of times TCP connections have been reset from the "Established" or "Close Wait" state to the "Closed" state.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show icmp statistics</a>	Displays ICMP statistics and errors.
<a href="#">show tcp ports</a>	Displays the TCP connection table.

---

## show tcp ports

Displays the TCP connection table.

**show tcp ports**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this table to check the current available TCP connections.

### Examples

-> show tcp ports

Local Address	Local Port	Remote Address	Remote Port	State
0.0.0.0	21	0.0.0.0	0	LISTEN
0.0.0.0	23	0.0.0.0	0	LISTEN
0.0.0.0	80	0.0.0.0	0	LISTEN
0.0.0.0	260	0.0.0.0	0	LISTEN
0.0.0.0	261	0.0.0.0	0	LISTEN
0.0.0.0	443	0.0.0.0	0	LISTEN
0.0.0.0	6778	0.0.0.0	0	LISTEN
10.255.11.223	23	128.251.16.224	1867	ESTABLISHED
10.255.11.223	2509	10.255.11.33	389	TIME-WAIT
10.255.11.223	2510	10.255.11.25	389	TIME-WAIT
10.255.11.223	2513	10.255.11.33	389	TIME-WAIT
10.255.11.223	2514	10.255.11.25	389	TIME-WAIT
10.255.11.223	2517	10.255.11.33	389	TIME-WAIT
10.255.11.223	2518	10.255.11.25	389	TIME-WAIT
10.255.11.223	2521	10.255.11.33	389	TIME-WAIT
10.255.11.223	2522	10.255.11.25	389	TIME-WAIT
10.255.11.223	2525	10.255.11.33	389	TIME-WAIT
10.255.11.223	2526	10.255.11.25	389	TIME-WAIT
10.255.11.223	2529	10.255.11.33	389	TIME-WAIT
10.255.11.223	2530	10.255.11.25	389	TIME-WAIT

#### *output definitions*

<b>Local Address</b>	Local IP address for this TCP connection. If a connection is in the LISTEN state and will accept connections for any IP interface associated with the node, IP address 0.0.0.0 is used.
<b>Local Port</b>	Local port number for this TCP connection. The range is 0–65535.
<b>Remote Address</b>	Remote IP address for this TCP connection.

*output definitions (continued)*

---

<b>Remote Port</b>	Remote port number for this TCP connection. The range is 0–65535.
<b>State</b>	<p>State of the TCP connection, as defined in RFC 793. A connection progresses through a series of states during its lifetime:</p> <ul style="list-style-type: none"><li>• Listen—Waiting for a connection request from any remote TCP and port.</li><li>• Syn Sent—Waiting for a matching connection request after having sent a connection request.</li><li>• Syn Received—Waiting for a confirming connection request acknowledgment after having both received and sent a connection request.</li><li>• Established—Open connection. Data received can be delivered to the user. This is the normal state for the data transfer phase of the connection.</li><li>• Fin Wait 1—Waiting for a connection termination request from the remote TCP, or an acknowledgment of the connection termination request previously sent.</li><li>• Fin Wait 2—Waiting for a connection termination request from the remote TCP.</li><li>• Close Wait—Waiting for a connection termination request from the local user.</li><li>• Closing—Waiting for a connection termination request acknowledgment from the remote TCP.</li><li>• Last Ack—Waiting for an acknowledgment of the connection termination request previously sent to the remote TCP (which includes an acknowledgment of its connection termination request).</li><li>• Time Wait—Waiting for enough time to pass to be sure the remote TCP received the acknowledgment of its connection termination request.</li><li>• Closed—No connection state.</li></ul>

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show ip interface</a>	Displays the status and configuration of IP interfaces.
<a href="#">show tcp statistics</a>	Displays TCP statistics.

---

---

## show udp statistics

Displays UDP errors and statistics.

**show udp statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays cumulative statistics since the last time the switch was powered on or since the last reset of the switch.

### Examples

```
-> show udp statistics
Total datagrams received = 214937,
Error datagrams received = 0,
No port datagrams received = 32891,
Total datagrams sent = 211884
```

#### *output definitions*

---

<b>Total datagrams received</b>	Total number of UDP datagrams delivered to UDP applications.
<b>Error datagrams received</b>	Number of UDP datagrams that could not be delivered for any reason.
<b>No port datagrams received</b>	Number of UDP datagrams that could not be delivered for reasons other than lack of application at the destination.
<b>Total datagrams sent</b>	Total number of UDP datagrams sent from this switch.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[show udp ports](#) Displays the UDP Listener table.

---

## show udp ports

Displays the UDP Listener table. The table shows the local IP addresses and the local port number for each UDP listener.

**show udp ports**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- An IP address of zero (0.0.0.0) indicates that it is listening on all interfaces.
- This table contains information about the UDP end-points on which a local application is currently accepting datagrams.

### Examples

```
-> show udp port
Local Address      Local Port
-----+-----
 0.0.0.0           67
 0.0.0.0           161
 0.0.0.0           520
```

#### *output definitions*

---

<b>Local Address</b>	Local IP address for this UDP connection.
<b>Local Port</b>	Local port number for this UDP connection.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[show udp statistics](#) Displays UDP errors and statistics.

---

## show ip dos config

Displays the configuration parameters of the DoS scan for the switch.

**show ip dos config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command allows the user to view the configuration parameters of the DoS scan. The scan keeps a record of the penalties incurred by certain types of packets on TCP and UDP ports. When the set penalty threshold is reached, it is assumed a DoS attack is in progress, and a trap is generated to inform the system administrator.

### Examples

```
-> show ip dos config
```

Dos type	Status
-----+-----	
port scan	ENABLED
tcp sync flood	ENABLED
ping of death	ENABLED
smurf	ENABLED
pepsi	ENABLED
land	ENABLED
teardrop/bonk/boink	ENABLED
loopback-src	ENABLED
invalid-ip	ENABLED
invalid-multicast	ENABLED
unicast dest-ip/multicast-mac	ENABLED
ping overload	DISABLED
arp flood	ENABLED
arp poison	ENABLED
DoS trap generation	= ENABLED,
DoS port scan threshold	= 1000,
DoS port scan decay	= 2,
DoS port scan close port penalty	= 10,
DoS port scan TCP open port penalty	= 0,
DoS port scan UDP open port penalty	= 0,
Dos MAXimum Ping Rate	= 100
Dos Maximum ARP Request Rate	= 500



*output definitions*

---

<b>DoS trap generation</b>	Displays the status of DoS trap generation. It is either <b>ENABLED</b> or <b>DISABLED</b> . This is set using the <b>ip dos trap</b> command.
<b>DoS port scan threshold</b>	The penalty threshold setting. When enough packets have increased the penalty number to this setting, a trap is generated to warn the administrator that a DoS attack is in progress. This is set using the <b>ip dos scan threshold</b> command.
<b>DoS port scan decay</b>	The decay value for the switch. The penalty value of the switch is decreased by this number every minute. This is set using the <b>ip dos scan decay</b> command.
<b>DoS port scan close port penalty</b>	The penalty value for packets received on closed UDP and TCP ports. The penalty number for the switch is increased by this amount every time a packet is received on a closed UDP or TCP port. This is set using the <b>ip dos scan close-port-penalty</b> command.
<b>DoS port scan TCP open port penalty</b>	The penalty value for packets received on open TCP ports. The penalty number for the switch is increased by this amount every time a packet is received on an open TCP port. This is set using the <b>ip dos scan tcp open-port-penalty</b> command.
<b>DoS port scan UDP open port penalty</b>	The penalty value for packets received on open UDP ports. The penalty number for the switch is increased by this amount every time a packet is received on an open UDP port. This is set using the <b>ip dos scan udp open-port-penalty</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show ip dos statistics** Displays the statistics on detected DoS attacks for the switch.

**MIB Objects**

alaDosTable  
alaDoSType

---

## show ip dos statistics

Displays the statistics on detected DoS attacks for the switch.

**show ip dos statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command displays the number of attacks the switch has detected for several types of DoS attacks.
- Just because an attack is detected and reported, doesn't necessarily mean an attack occurred. The switch assumes a DoS attack is underway anytime the penalty threshold is exceeded. It is possible for this threshold to be exceeded when no attack is in progress.

### Examples

```
-> show ip dos statistics
DoS type           Attacks detected
-----+-----
port scan          0
tcp sync flood     0
ping of death      0
smurf              0
pepsi              0
land               0
teardrop/bonk/boink 0
loopback-src       0
invalid-ip         0
invalid-multicast  0
unicast dest-ip/multicast-mac 0
ping overload      0
arp flood          0
arp poison         0
```

### *output definitions*

---

<b>DoS type</b>	The type of DoS attack. The most common seven are displayed.
<b>Attacks detected</b>	The number of attacks noted for each DoS type.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[show ip dos config](#)

Displays the configuration parameters of the DoS scan for the switch.

## MIB Objects

alaDoSTable

alaDoSType

---

## show ip dos arp-poison

Displays the number of attacks detected for configured ARP poison restricted-addresses.

```
show ip dos arp-poison
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip dos arp-poison
  IP Address                               Attacks
-----+-----
192.168.1.1                               0
192.168.1.2                               0
192.168.1.3                               0
```

#### *output definitions*

---

<b>IP Address</b>	The configured ARP Poison restricted-addresses.
<b>Attacks detected</b>	The number of ARP Poison attacks detected for each address.

---

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[ip dos arp-poison restricted-address](#) Adds or deletes an ARP Poison restricted address.

### MIB Objects

```
alaDoSArpPoisonTable
  alaDoSArpPoisonIpAddr
  alaDoSArpPoisonDetected
```

---

## ip wccp admin-state

Enables or disables the Web Cache Communication Protocol (WCCP) globally on the switch.

**ip wccp admin-state {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the administrative status for the WCCP feature.
<b>disable</b>	Disables the administrative status for the WCCP feature.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to enable or disable the WCCP globally on the switch.

### Examples

```
-> ip wccp admin-state enable
-> ip wccp admin-state disable
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<a href="#">clear ip wccp</a>	Clears the statistics for the given service group.
<a href="#">show ip wccp service-group</a>	Displays the global statistics related to WCCP.
<a href="#">show ip wccp service-group</a>	Displays the WCCP statistics related to the specified service group.

### MIB Objects

wccpAdminEnabled

---

## ip wccp service-group web-cache md5

Configures one or a range of service groups and sets the MD5 authentication.

**ip wccp service-group** {web-cache | *service-id*[-*service-id2*]} [**md5 password** *string*]

**no ip wccp service-group** {web-cache | *service-id*[-*service-id2*]}

---

### Syntax Definitions

<b>web-cache</b>	The well-known service (ID = 0).
<i>service-id</i>	A WCCP service ID number (1 to 255). Use a hyphen to specify a range of service IDs (5-10).
<i>string</i>	The MD5 password for the service group (0 to 8 characters).

### Defaults

parameter	default
md5 authentication	disabled

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove the service group.

### Examples

```
-> ip wccp service-group web-cache
-> ip wccp service-group web-cache md5 password san
-> ip wccp service-group 10
-> ip wccp service-group 10 md5 password san
-> no ip wccp service-group web-cache
-> no ip wccp service-group 10
-> no ip wccp service-group 2-8
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

[clear ip wccp](#)

Clears the statistics for the given service group.

[show ip wccp services](#)

Displays the list of service groups created on the switch and their related information.

## MIB Objects

wccpServiceTable

    wccpServiceId

    wccpServicePassword

---

## ip wccp service-group web-cache restrict

Restricts a port, VLAN or IP in a service group from processing WCCP messages.

```
ip wccp service-group {web-cache | service-id} restrict { port slot/port | vlan vlan_id | ip ipv4 [mask mask]}
```

```
no ip wccp service-group {web-cache | service-id} restrict { port slot/port | vlan vlan_id | ip ipv4 [mask mask]}
```

---

### Syntax Definitions

<b>web-cache</b>	The well-known service (ID = 0).
<i>service-id</i>	A WCCP service ID number (1 to 255).
<i>slot/port</i>	Restricts the specified port from processing the WCCP messages.
<i>vlan_id</i>	Restricts the specified VLAN from processing the WCCP messages.
<i>ipv4</i>	Restricts the specified cache server IP from processing the WCCP messages.
<i>mask</i>	Specifies an optional mask when an IPv4 address is used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove the restriction from the service group.

### Examples

```
-> ip wccp service-group web-cache restrict port 1/20
-> no ip wccp service-group web-cache restrict port 1/20
-> ip wccp service-group 10 restrict vlan 20
-> no ip wccp service-group 10 restrict vlan 20
-> ip wccp service-group 10 restrict ip 30.0.0.20
-> no ip wccp service-group 10 restrict ip 30.0.0.20
```

### Release History

Release 6.4.4; command was introduced.



## Related Commands

### **show ip wccp restricts**

Displays the restricted ports, VLANs and server IPs for the service groups created on the switch.

## MIB Objects

wccpRestrictPortTable

    wccpRestrictPortServiceId

    wccpRestrictPortIndex

wccpRestrictVlanTable

    wccpRestrictVlanServiceId

    wccpRestrictVlanVlanId

wccpRestrictWebCacheTable

    wccpRestrictWebCacheServiceId

    wccpRestrictWebCacheIpAddress

    wccpRestrictWebCacheIpMask

---

---

## clear ip wccp

Clears the statistics for the given service group.

**clear ip wccp [service-group {web-cache | *service-id*}] statistics**

---

### Syntax Definitions

**web-cache**                      The well-known service (ID = 0).  
*service-id*                      A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If no service group is specified, then the statistics for all the service groups are cleared.

### Examples

```
-> clear ip wccp service-group web-cache statistics  
-> clear ip wccp statistics
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

[show ip wccp service-group](#)      Displays the global statistics related to WCCP.

### MIB Objects

```
wccpStatisticsTable  
  wccpStatsServiceId
```

---

## show ip wccp status

Displays the WCCP admin status.

**show ip wccp status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A.

### Examples

```
-> show ip wccp status
Admin status           : Enabled
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

[ip wccp admin-state](#) Enable or disable the WCCP globally on the switch.

### MIB Objects

```
wccpServiceTable
  wccpAdminEnabled
```

---

## show ip wccp services

Displays the list of service groups created on the switch and their related information.

**show ip wccp services**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip wccp services
```

Service	Status	RcvId	Chgs	Caches	Type	Version	Password	Redirects
95	Enable	42	20	1	Dynamic	2	Yes	0

#### *output definitions*

---

<b>Service</b>	Indicates the WCCP service ID.
<b>Status</b>	Indicates the admin status of the WCCP service.
<b>RcvId</b>	Indicates the current Receive Id from the router for the WCCP service. This is incremented every time a WCCP message is sent.
<b>Chgs</b>	Indicates the current change number for the service. This gets updated each time there is a WCCP topology change.
<b>Caches</b>	Indicates the total number of cache servers currently active on the WCCP service.
<b>Type</b>	Indicates the WCCP service type.
<b>Version</b>	Indicates the WCCP service version.
<b>Password</b>	Indicates if password has been specified for the WCCP service.
<b>Redirects</b>	Indicates the number of packets WCCP has redirected for the service.

---

### Release History

Release 6.4.4; command was introduced.

## Related Commands

- ip wccp admin-state** Enable or disable the WCCP globally on the switch.
- ip wccp service-group web-cache md5** Allows to configure or remove a service group.

## MIB Objects

```
wccpServiceTable  
  wccpServiceId  
  wccpServiceAdminEnabled  
  wccpServiceRecieveId  
  wccpServiceChangeNumber  
  wccpServiceWebCacheCount  
  wccpServiceType  
  wccpServiceVersion  
  wccpServicePassword  
  wccpStatsPacketsRedir
```

---

## show ip wccp cache-engines

Displays the various cache servers learned for the service groups created and their related information.

**show ip wccp cache-engines**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip wccp cache-engines
Service      Status      RcvId      Chgs      IP          RcvId      Chgs      Routers      Caches
-----+-----+-----+-----+-----+-----+-----+-----+-----
          95      Enable      14781      161        40.1.1.2   14781      1           1           1
```

#### *output definitions*

---

<b>Service</b>	Indicates the WCCP service ID.
<b>Status</b>	Indicates the admin status of the WCCP service..
<b>RcvId</b>	Indicates the current Receive Id from the router for the WCCP service. This is incremented every time a WCCP message is sent.
<b>Chgs</b>	Indicates the current change number for the service. This gets updated each time there is a WCCP topology change.
<b>IP</b>	Indicates the IP address of the Cache-Engine.
<b>Routers</b>	Indicates how many WCCP routers the Cache-Engine is in contact with.
<b>Caches</b>	Indicates the total count of cache servers currently active on the WCCP service.

---

### Release History

Release 6.4.4; command was introduced.

## Related Commands

**ip wccp admin-state** Enable or disable the WCCP globally on the switch.

## MIB Objects

wccpServiceTable

    wccpServiceId

    wccpServiceAdminEnabled

    wccpServiceReceiveId

    wccpServiceChangeNumber

wccpWebCacheTable

    wccpWebCacheIpAddress

    wccpWebCacheNumberOfRouters

    wccpServiceWebCacheCount

---

## show ip wccp restricts

Displays the restricted ports, VLANs and cache server IPs for the created service group.

**show ip wccp [service-group {web-cache | *service-id*}] restricts**

---

### Syntax Definitions

**web-cache**                                The well-known service (ID = 0).  
*service-id*                                A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If no service group is specified, the restrictions for all the service groups created is displayed..

### Examples

```
-> show ip wccp restricts
Service      Port
-----+-----
95           1/23

Service      VLAN
-----+-----
95           100

Service      IP              Mask
-----+-----+-----
65           50.0.0.90       255.255.255.255
95           60.0.0.0         255.255.255.0
```

#### *output definitions*

---

<b>Service</b>	Indicates the WCCP service ID.
<b>Port</b>	Indicates the restricted port number for the respective service group.
<b>VLAN</b>	Indicates the restricted VLAN Id for the respective service group.
<b>IP</b>	Indicates the restricted IP address for the respective service group.
<b>Mask</b>	Indicates the IP mask of the restricted IP address.

---

### Release History

Release 6.4.4; command was introduced.



## Related Commands

**ip wccp service-group web-cache restrict**

Allows to restrict a port, VLAN or IP in a service group from processing WCCP messages.

## MIB Objects

wccpRestrictPortTable

    wccpRestrictPortServiceId

    wccpRestrictPortIndex

wccpRestrictVlanTable

    wccpRestrictVlanServiceId

    wccpRestrictVlanVlanId

wccpRestrictWebCacheTable

    wccpRestrictWebCacheServiceId

    wccpRestrictWebCacheIpAddress

    wccpRestrictWebCacheIpMask

---

## show ip wccp service-group

Displays the WCCP statistics related to the specified service group.

```
show ip wccp service-group {web-cache | service-id}
```

---

### Syntax Definitions

**web-cache** The well-known service (ID = 0).

**service-id** A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If no service group is specified the information for all the service groups created is displayed.

### Examples

```
-> show ip wccp service-group web-cache
```

Global WCCP Information:

```
Service Name/ID      : web-cache,
Protocol             : TCP,
Ports                : 80, 0, 0, 0, 0, 0, 0, 0, 0,
Port Type           : Source,
Precedence           : 240,
Number of Cache Engines : 1,
Number of Routers    : 1,
Type of Message      : Unicast,
Total Packets Redirected : 50,
Total WCCP Messages Dropped : 0,
Total Authentication failures : 0
```

### output definitions

---

<b>Service Name/ID</b>	Indicates the WCCP service ID.
<b>Protocol</b>	Indicates the protocol type for the WCCP service.
<b>Ports</b>	Indicates the list of TCP/UDP ports identified for the service group.
<b>Port Type</b>	Indicates the port type.
<b>Precedence</b>	Indicates the priority of the service group. The lowest priority is 0, the highest is 255.
<b>Number of Cache Engines</b>	Indicates the total number of cache servers currently active on the WCCP service.

*output definitions (continued)*

---

<b>Number of Routers</b>	Indicates the total number WCCP routers the Cache-Engine is connected.
<b>Type of Message</b>	Indicates the mode of WCCP message exchange used (unicast/multicast).
<b>Total Packets Redirected</b>	Indicates the count of how many packet the WCCP has redirected for the service.
<b>Total WCCP Messages Dropped</b>	Indicates the count of how many WCCP packet were dropped for the service.
<b>Total Authentication failures</b>	Indicates the count of how many WCCP packets resulted in authentication failure because of mismatch in the password used for the service on the Router and Cache-Engine.

---

**Release History**

Release 6.4.4; command was introduced.

**Related Commands**

[ip wccp service-group web-cache md5](#) Allows to configure or remove a service group.

**MIB Objects**

```
wccpServiceTable
  wccpServiceId
  wccpServiceProtocol
  wccpServicePortPortNum
wccpWebCacheTable
  wccpServiceWebCacheCount
  wccpWebCacheNumberOfRouters
wccpStatisticsTable
  wccpServiceMessageType
  wccpStatsPacketsRedir
  wccpStatsInvalidMessages
  wccpStatsAuthFailures
```

---

## show ip wccp service-group detail

Displays detailed statistics of the switch and the cache engine for specified service group.

**show ip wccp [service-group {web-cache | *service-id*}] detail**

---

### Syntax Definitions

**web-cache**                               The well-known service (ID = 0).  
*service-id*                               A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If the service group is not specified, then the statistics related to all the service groups are displayed.

### Examples

```
-> show ip wccp service-group web-cache detail
WCCP Detail:
Service ID: web-cache
  Router information:
    IP Address       : 10.135.38.120,
    Protocol Version : 2.0

  Cache-Engine Information
    IP Address       : 135.254.38.155,
    Protocol Version : 2.0,
    State            : Usable,
    Connect Time     : 01:10:55

-> show ip wccp detail
WCCP Detail:
Service ID: web-cache
  Router information:
    IP Address       : 10.135.38.120,
    Protocol Version : 2.0

  Cache-Engine Information
    IP Address       : 135.254.38.155,
    Protocol Version : 2.0,
    State            : Usable,
    Connect Time     : 01:10:55

Service ID: 95
  Router information:
    IP Address       : 10.135.38.120,
```

```
Protocol Version      : 2.0

Cache-Engine Information
IP Address           : 135.254.38.107,
Protocol Version     : 2.0,
State                : Usable,
Connect Time        : 00:10:17
```

### *output definitions*

---

<b>Service ID</b>	Indicates the WCCP service ID.
<b>Router information</b>	Indicates the IP address of the router and the WCCP service version supported by the Router.
<b>Cache-Engine Information</b>	
<b>IP Address</b>	Indicates the IP address of the Cache-Engine.
<b>Protocol Version</b>	Indicates the WCCP service version supported by the Cache-Engine.
<b>State</b>	Indicates the state of the Cache-Engine.
<b>Connect Time</b>	Indicates the time at which the cache server became active for the service.

---

### **Release History**

Release 6.4.4; command was introduced.

### **Related Commands**

[ip wccp admin-state](#) Enable or disable the WCCP globally on the switch.

### **MIB Objects**

```
wccpServiceTable
  wccpServiceId
  wccpServiceVersion
wccpWebCacheTable
  wccpWebCacheIpAddress
  wccpServiceVersion
  wccpWebCacheState
  wccpWebCacheConnectTime
```

---

## show ip wccp service-group view

Displays the WCCP view for the specified service group.

**show ip wccp [service-group {web-cache | *service-id*}] view**

---

### Syntax Definitions

**web-cache**                                The well-known service (ID = 0).  
*service-id*                                A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If the service group is not specified, then the information related to all the service groups are displayed.

### Examples

```
-> show ip wccp service-group 95 view
WCCP View:
Service ID : 95
  Routers Participating:
    10.135.38.120,
    10.135.38.140
  Cache Engines Usable:
    135.254.38.155, Connect Since: 01:10:55,
    135.254.38.170, Connect Since: 01:10:30
  Cache Engines Un-Usable:
    -none-

-> show ip wccp view
WCCP View:
Service ID: web-cache
  Routers Participating:
    10.135.38.120,
    10.135.38.140
  Cache Engines Usable:
    135.254.38.155, Connected Since: 01:10:55,
    135.254.38.170, Connected Since: 01:10:30
  Cache Engines Un-Usable:
    -none-

Service ID : 95
  Routers Participating:
    10.135.38.120
  Cache Engines Usable:
    135.254.38.20, Connected Since: 02:50:06,
```

```
135.254.38.50, Connected Since: 00:30:10
Cache Engines Un-Usable:
135.254.38.80, Disconnected Since: 00:35:10
```

### *output definitions*

---

<b>Service ID</b>	Indicates the WCCP service ID.
<b>Routers Participating</b>	Indicates the IP addresses of the routers participating in the service group.
<b>Cache Engines Usable</b>	Indicates the IP addresses of the Usable Cache-Engines participating in the service group, and the time when the cache server became active.
<b>Cache Engines Un-Usable</b>	Indicates the IP addresses of the Un-Usable Cache-Engines participating in the service group, and the time when the cache server became inactive.

---

### **Release History**

Release 6.4.4; command was introduced.

### **Related Commands**

<a href="#">ip wccp admin-state</a>	Enable or disable the WCCP globally on the switch.
<a href="#">show ip wccp service-group</a>	Displays the global statistics related to the WCCP.

### **MIB Objects**

```
wccpServiceTable
  wccpServiceId
wccpWebCacheTable
  wccpWebCacheServiceId
  wccpWebCacheIpAddress
  wccpWebCacheConnectTime
wccpRouterTable
  wccpRouterServiceId
  wccpRouterIpAddressType
  wccpRouterIpAddress
```

---

## show ip wccp service-group statistics

Displays the total number of WCCP messages transmitted, received and dropped for the specified service group.

**show ip wccp [service-group {web-cache | *service-id*}] statistics**

---

### Syntax Definitions

**web-cache**                                The well-known service (ID = 0).  
*service-id*                                A WCCP service ID number (1 to 255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If the service group is not specified, then the statistics related to all the service groups will be displayed including the total of all such statistics, along with the total number of invalid WCCP messages received.

### Examples

```
-> show ip wccp service-group 95 statistics
Service ID: 95
    Total WCCP messages Received      : 338,
    Total WCCP messages Transmitted   : 339,
    Total WCCP messages Dropped       : 0

-> show ip wccp statistics
Service ID: web-cache
    Total WCCP messages Received      : 0,
    Total WCCP messages Transmitted   : 0,
    Total WCCP messages Dropped       : 0

Service ID: 95
    Total WCCP messages Received      : 358,
    Total WCCP messages Transmitted   : 359,
    Total WCCP messages Dropped       : 0

Total:
    Total WCCP messages Received      : 358,
    Total WCCP messages Transmitted   : 359,
    Total WCCP messages Dropped       : 0,
    Total WCCP messages Invalid       : 12
```



**output definitions**

---

<b>Service ID</b>	Indicates the WCCP service ID.
<b>Total WCCP messages Received</b>	Indicates the total number of WCCP messages received by the router for the service group (if specified), else it displays the total for all the service groups created.
<b>Total WCCP messages Transmitted</b>	Indicates the total number of WCCP messages transmitted by the router for the service group (if specified), else it displays the total for all the service groups created.
<b>Total WCCP messages Dropped</b>	Indicates the total number of WCCP Messages dropped due to WCCP restrictions applied to Port/Vlan/Ip for a service group (if specified), else it displays the total for all the service groups created.

---

**Release History**

Release 6.4.4; command was introduced.

**Related Commands**

<a href="#">ip wccp admin-state</a>	Enable or disable the WCCP globally on the switch.
<a href="#">clear ip wccp</a>	Clears the statistics for the given service group.

**MIB Objects**

```
wccpStatisticsTable
  wccpServiceId
  wccpStatsMessagesReceived
  wccpStatsMessagesTransmitted
  wccpStatsMessagesDropped
```

---



# 15 IPv6 Commands

This chapter details Internet Protocol Version 6 (IPv6) commands for the switch (including RIPng commands). IPv6 (documented in RFC 2460) is designed as a successor to IPv4. The changes from IPv4 to IPv6 fall primarily into the following categories:

**Expanded Routing and Addressing Capabilities** - IPv6 increases the IP address size from 32 bits to 128 bits, to support more levels of addressing hierarchy and a much greater number of addressable nodes, and simpler auto-configuration of addresses. The scalability of multicast routing is improved by adding a "scope" field to multicast addresses.

**Header Format Simplification** - Some IPv4 header fields were dropped or made optional, to reduce the common-case processing cost of packet handling and to keep the bandwidth cost of the IPv6 header as low as possible despite the increased size of the addresses. Even though the IPv6 addresses are four times longer than the IPv4 addresses, the IPv6 header is only twice the size of the IPv4 header.

**Anycast Addressing** - A new type of address called a "anycast address" is defined, to identify sets of nodes where a packet sent to an anycast address is delivered to one of the nodes. The use of anycast addresses in the IPv6 source route allows nodes to control the path on which their traffic flows.

**Improved Support for Options** - Changes in the way IP header options are encoded allows for more efficient forwarding, less stringent limits on the length of options, and greater flexibility for introducing new options in the future.

**Authentication and Privacy Capabilities** - IPv6 includes the definition of extensions which provide support for authentication, data integrity, and confidentiality. This is included as a basic element of IPv6 and will be included in all implementations.

MIB information for the IPv6 and RIPng commands is as follows:

*Filename:* Ipv6.mib  
*Module:* Ipv6-MIB, Ipv6-TCP-MIB, Ipv6-UDP-MIB

*Filename:* AlcatelIND1Ipv6.mib  
*Module:* alcatelIND1IPV6MIB

*Filename:* AlcatelIND1Iprmv6.mib  
*Module:* alcatelIND1Iprmv6MIB

*Filename:* AlcatelIND1Ripng.mib  
*Module:* alcatelIND1RipngMIB

A summary of the IPv6 commands is listed here:

---

<b>IPv6</b>	<ul style="list-style-type: none"> <li>ipv6 interface</li> <li>ipv6 address</li> <li>ipv6 address global-id</li> <li>ipv6 address local-unicast</li> <li>ipv6 dad-check</li> <li>ipv6 hop-limit</li> <li>ipv6 pmtu-lifetime</li> <li>ipv6 host</li> <li>ipv6 neighbor stale-lifetime</li> <li>ipv6 neighbor</li> <li>ipv6 prefix</li> <li>ipv6 route</li> <li>ipv6 static-route</li> <li>ipv6 route-pref</li> <li>ping6</li> <li>traceroute6</li> <li>show ipv6 hosts</li> <li>show ipv6 icmp statistics</li> <li>show ipv6 interface</li> <li>show ipv6 pmtu table</li> <li>clear ipv6 pmtu table</li> <li>show ipv6 neighbors</li> <li>clear ipv6 neighbors</li> <li>show ipv6 prefixes</li> <li>show ipv6 routes</li> <li>show ipv6 route-pref</li> <li>show ipv6 router database</li> <li>show ipv6 tcp ports</li> <li>show ipv6 traffic</li> <li>clear ipv6 traffic</li> <li>show ipv6 tunnel</li> <li>show ipv6 udp ports</li> <li>show ipv6 information</li> </ul>
<b>IPv6 Route Map Redistribution</b>	<ul style="list-style-type: none"> <li>ipv6 redistrib</li> <li>ipv6 access-list</li> <li>ipv6 access-list address</li> <li>show ipv6 redistrib</li> <li>show ipv6 access-list</li> </ul>
<b>IPv6 RIP</b>	<ul style="list-style-type: none"> <li>ipv6 load rip</li> <li>ipv6 rip status</li> <li>ipv6 rip invalid-timer</li> <li>ipv6 rip garbage-timer</li> <li>ipv6 rip holddown-timer</li> <li>ipv6 rip jitter</li> <li>ipv6 rip route-tag</li> <li>ipv6 rip update-interval</li> <li>ipv6 rip triggered-sends</li> <li>ipv6 rip interface</li> <li>ipv6 rip interface metric</li> <li>ipv6 rip interface rcv-status</li> <li>ipv6 rip interface send-status</li> <li>ipv6 rip interface horizon</li> <li>show ipv6 rip</li> <li>show ipv6 rip interface</li> <li>show ipv6 rip peer</li> <li>show ipv6 rip routes</li> </ul>

---

## ipv6 interface

Configures an IPv6 interface on a VLAN or IPv6 tunnel.

```

ipv6 interface if_name [vlan vid | tunnel {tid | 6to4}] [enable | disable]
[base-reachable-time time]
[ra-send {yes | no}]
[ra-max-interval interval]
[ra-managed-config-flag {true | false}]
[ra-other-config-flag {true | false}]
[ra-reachable-time time]
[ra-retrans-timer time]
[ra-default-lifetime time / no ra-default-lifetime]
[ra-send-mtu] {yes | no}

no ipv6 interface if_name

```

---

### Syntax Definitions

<i>if_name</i>	IPv6 interface name.
<b>vlan</b>	Creates a VLAN interface.
<i>vid</i>	VLAN ID number.
<b>tunnel</b>	Creates a tunnel interface.
<i>tid</i>	Tunnel ID number.
<b>6to4</b>	Enables 6to4 tunneling.
<b>base-reachable-time</b> <i>time</i>	Base value used to compute the reachable time for neighbors reached via this interface.
<b>ra-send</b>	Specifies whether the router advertisements are sent on this interface.
<b>ra-max-interval</b> <i>interval</i>	Maximum time, in seconds, allowed between the transmission of unsolicited multicast router advertisements in this interface. The range is 4 - 1,800.
<b>ra-managed-config-flag</b>	Value to be placed in the managed address configuration flag field in router advertisements sent on this interface.
<b>ra-other-config-flag</b>	Value to be placed in the other stateful configuration flag in router advertisements sent on this interface.
<b>ra-reachable-time</b> <i>time</i>	Value, in milliseconds, to be placed in the reachable time field in router advertisements sent on this interface. The range is 0 - 3,600,000. The special value of zero indicates that this time is unspecified by the router.
<b>ra-retrans-timer</b> <i>time</i>	Value, in milliseconds, to be placed in the retransmit timer field in router advertisements sent on this interface. The value zero indicates that the time is unspecified by the router.

<b>ra-default-lifetime</b> <i>time</i>	Value, in seconds, to be placed in the router lifetime field in router advertisements sent on this interface. The time must be zero or between the value of “ra-max-interval” and 9,000 seconds. A value of zero indicates that the router is not to be used as a default router. The “no ra-default-lifetime” option will calculate the value using the formula (3 * ra-max-interval).
<b>enable   disable</b>	Administratively enable or disable the interface.
<b>ra-send-mtu</b>	Specifies whether the MTU option is included in the router advertisements sent on the interface.

## Defaults

parameter	default
<b>ra-send</b>	yes
<b>ra-max-interval</b>	600
<b>ra-managed-config-flag</b>	false
<b>ra-reachable-time</b>	0
<b>ra-retrans-timer</b>	0
<b>ra-default-lifetime</b>	no
<b>ra-send-mtu</b>	no

## Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete an interface.
- When you create an IPv6 interface, it is enabled by default.
- All IPv6 VLAN and tunnel interfaces must have a name.
- When creating an IPv6 interface you must specify a VLAN ID, Tunnel ID, or **6to4**. When modifying or deleting an interface, you do not need to specify one of these options unless the name assigned to the interface is being changed. If it is present with a different value from when the interface was created, the command will be in error.
- A 6to4 interface cannot send advertisements (**ra-send**).
- To enable IPv6 routing you must first create a VLAN, then create an IPv6 interface on the VLAN. See [Chapter 5, “VLAN Management Commands,”](#) for information on creating VLANs.
- To route IPv6 traffic over an IPv4 network, you must create an IPv6 tunnel using the **ipv6 address global-id** command.

## Examples

```
-> ipv6 interface Test vlan 1
-> ipv6 interface Test_Tunnel tunnel 2
-> ipv6 interface Test_6to4 tunnel 6to4
```

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **base-reachable-time** parameter added.

## Related Commands

[show ipv6 interface](#)

Displays IPv6 Interface Table.

[show ipv6 tunnel](#)

Displays IPv6 Tunnel information and whether the 6to4 tunnel is enabled.

## MIB Objects

IPv6IfIndex

alaIPv6InterfaceTable

- alaIPv6InterfaceName
- alaIPv6InterfaceMtu
- alaIPv6InterfaceSendRouterAdvertisements
- alaIPv6InterfaceMaxRtrAdvInterval
- alaIPv6InterfaceAdvManagedFlag
- alaIPv6InterfaceAdvOtherConfigFlag
- alaIPv6InterfaceAdvRetransTimer
- alaIPv6InterfaceAdvDefaultLifetime
- alaIPv6InterfaceAdminStatus
- alaIPv6InterfaceAdvReachableTime
- alaIPv6InterfaceBaseReachableTime
- alaIPv6InterfaceAdvSendMtu
- alaIPv6InterfaceRowStatus

---

## ipv6 address

Configures an IPv6 address for an IPv6 interface on a VLAN, configured tunnel, or a 6to4 tunnel. There are different formats for this command depending on the address type.

```
ipv6 address ipv6_address /prefix_length [anycast] {if_name | loopback}
```

```
no ipv6 address ipv6_address [anycast] {if_name | loopback}
```

```
ipv6 address ipv6_prefix eui-64 {if_name | loopback}
```

```
no ipv6 address ipv6_prefix eui-64 {if_name | loopback}
```

---

### Syntax Definitions

<i>ipv6_address</i>	IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask). (3..128).
<b>anycast</b>	Indicates the address is an anycast address.
<b>eui-64</b>	Append an EUI-64 identifier to the prefix.
<i>if_name</i>	Name assigned to the interface.
<b>loopback</b>	Configures the loopback interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an address.
- You can assign multiple IPv6 addresses to an IPv6 interface.
- No default value for prefix length.
- The “eui” form of the command is used to add or remove an IPv6 address for a VLAN or configured tunnel using an EUI-64 interface ID in the low order 64 bits of the address.
- To enable IPv6 routing you must first create a VLAN, then create an IPv6 interface on the VLAN. See [Chapter 5, “VLAN Management Commands,”](#) for information on creating VLANs.
- To route IPv6 traffic over and IPv4 network, you must create an IPv6 tunnel using the **ipv6 address global-id** command.



## Examples

```
-> ipv6 address 4132:86::19A/64 Test_Lab  
-> ipv6 address 2002:d423:2323::35/64 Test_6to4
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[show ipv6 interface](#) Displays IPv6 Interface Table.

## MIB Objects

```
IPv6IfIndex  
alaIPv6InterfaceAddressTable  
  alaIPv6InterfaceAddress  
  alaIPv6InterfaceAddressAnycastFlag  
  alaIPv6InterfaceEUI64AddressPrefixLength  
  alaIPv6InterfaceEUI64AddressRowStatus
```

For EUI-64 Addresses:

```
alaIPv6InterfaceEUI64AddresssTable  
  alaIPv6InterfaceEUI64Address  
  alaIPv6InterfaceEUI64AddressPrefixLength  
  alaIPv6InterfaceEUI64AddressRowStatus
```

---

## ipv6 address global-id

Automatically generates or allows a new global ID to be entered.

```
ipv6 address global-id {generate | globalID}
```

---

### Syntax Definitions

<b>generate</b>	Automatically generates the global ID.
<i>globalID</i>	A 5-byte global ID value specified in the form hh:hhh:hhh

### Defaults

By default, the IPv6 global ID is set to all zeros.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Global ID needs to be automatically generated or configured explicitly.
- A 40-bit global identifier is used to make the local IPv6 address prefixes globally unique.
- The global ID will be generated the first time a local unicast address is added via the [ipv6 address local-unicast](#) command or when the [ipv6 address global-id](#) command is executed.

### Examples

```
-> ipv6 address global-id generate
-> ipv6 address global-id 32:57a3:8fed
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ipv6 address local-unicast</a>	Creates a IPv6 local unicast address using the configured global ID.
<a href="#">ipv6 bgp unicast</a>	Enables or disables unicast IPv6 updates for the BGP routing process.
<a href="#">show ip bgp</a>	Displays the current global settings for the local BGP speaker.

### MIB Objects

alaIPv6GlobalID

---

## ipv6 address local-unicast

Creates a IPv6 local unicast address using the configured global ID.

**ipv6 address local-unicast** [**global-id** *globalID*] [**subnet-id** *subnetID*] {**interface-id** *interfaceID* | **eui-64**} [**prefix-length** *prefixLength*] {*if-name* | **loopback**}

**[no] ipv6 address local-unicast** [**global-id** *globalID*] [**subnet-id** *subnetID*] {**interface-id** *interfaceID* | **eui-64**} [**prefix-length** *prefixLength*] {*if-name* | **loopback**}

---

### Syntax Definitions

<i>globalID</i>	A 5-byte global ID value specified in the form hh:hhh:hhh.
<i>subnetID</i>	A 2-byte Subnet ID specified in the form 0xhhh. The valid range is 0x0000-0xffff or 0-65535.
<i>interfaceID</i>	An interface identifier specified in the form hhhh:hhh:hhh:hhh.
<b>eui-64</b>	Automatically-generated EUI-64 value to be used for interface identifier.
<i>prefixLength</i>	The number of bits that are significant in the IPv6 address (mask). The valid range is 0-128; however, the default value should rarely be overridden.
<i>if-name</i>	The name assigned to the interface.
<b>loopback</b>	The loopback for the loopback interface.

### Defaults

parameter	default
<i>prefixLength</i>	64

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the local unicast address. However, addresses are normally deleted using the **ipv6 address** command.
- If the global ID value is not explicitly specified, the default global ID set by the **ipv6 address global-id** command is used.
- If the global ID value is explicitly configured using the **ipv6 address local-unicast** command, the address' global ID will not be changed if the **ipv6 address global-id** command is executed.
- The use of a double-colon abbreviation for the interface identifier similar to that used for full IPv6 addresses is allowed.

## Examples

```
-> ipv6 address local-unicast global-id 0073:110:255 subnet-id 23 interface-id  
215:60ff:fe7a:adc0 prefix-length 64 loopback
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

**ipv6 address global-id** Automatically generates or allows a new global ID to be entered.

.

**show ipv6 information** Displays IPv6 information.

## MIB Objects

```
alaIPv6LocalUnicastGlobalID  
alaIPv6LocalUnicastSubnetID  
alaIPv6LocalUnicastInterfaceID  
alaIPv6LocalUnicastEUI64  
alaIPv6LocalUnicastPrefixLength
```

---

## ipv6 interface tunnel source destination

Configures the source and destination IPv4 addresses for a configured tunnel.

```
ipv6 interface if_name tunnel {[source ipv4_source] [destination ipv4_destination]}
```

---

### Syntax Definitions

<i>if_name</i>	Name assigned to the tunnel interface.
<i>ipv4_source</i>	Source IPv4 address for the configured tunnel.
<i>ipv4_destination</i>	Destination IPv4 address for the configured tunnel.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the [ipv6 interface](#) command to create an IPv6 tunnel interface.

### Examples

```
-> ipv6 interface Test tunnel 2 source 10.255.11.242 destination 10.255.11.12
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ipv6 interface</a>	Creates an IPv6 tunnel interface.
<a href="#">show ipv6 tunnel</a>	Displays IPv6 tunnel information.

### MIB Objects

IPv6IfIndex  
alaIPv6ConfigTunnelv4Source  
alaIPv6ConfigTunnelv4Dest  
alaIPv6ConfigTunnelRowStatus

---

---

## ipv6 dad-check

Runs a Duplicate Address Detection (DAD) check on an address that was marked as duplicated.

```
ipv6 dad-check ipv6_address if_name
```

---

### Syntax Definitions

<i>ipv6_address</i>	IPv6 address.
<i>if_name</i>	Name assigned to the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The switch performs DAD check when an interface is attached to the stack and its VLAN first enters the active state. Use this command to rerun a DAD check on an address that was marked as duplicated.

### Examples

```
-> ipv6 dad-check fe80::2d0:95ff:fe6a:f458/64 Test_Lab
```

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

### MIB Objects

```
alaIPv6InterfaceAddressTable  
  alaIPv6InterfaceAddressDADStatus
```

---

## ipv6 hop-limit

Configures the value placed in the hop limit field in the header of all IPv6 packets that are originated by the switch. It also configures the value placed in the hop limit field in router advertisements.

**ipv6 hop-limit** *value*

**no ipv6 hop-limit**

---

### Syntax Definitions

*value* Hop limit value. The range is 0 - 255.

### Defaults

parameter	default
<i>value</i>	64

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to return the hop limit to its default value.
- Inputting the value 0 (zero) will result in the default (64) hop-limit.

### Examples

```
-> ipv6 hop-limit 64
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 information](#) Displays IPv6 information.

### MIB Objects

ipv6MibObjects  
Ipv6DefaultHopLimit

---

## ipv6 pmtu-lifetime

Configures the minimum lifetime for entries in the path MTU Table.

**ipv6 pmtu-lifetime** *time*

---

### Syntax Definitions

*time* Minimum path MTU entry lifetime, in minutes. Valid range is 10–1440.

### Defaults

parameter	default
<i>time</i>	60

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ipv6 pmtu-lifetime 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ipv6 pmtu table</a>	Displays the IPv6 path MTU Table.
<a href="#">show ipv6 information</a>	Displays IPv6 information.
<a href="#">clear ipv6 pmtu table</a>	Removes all the entries from the IPv6 path MTU Table.

### MIB Objects

alaIPv6ConfigTable  
alaIPv6PMTUMinLifetime

---



## ipv6 host

Configures a static host name to IPv6 address mapping to the local host table.

**ipv6 host** *name ipv6\_address*

**no ipv6 host** *name ipv6\_address*

---

### Syntax Definitions

<i>name</i>	Host name associated with the IPv6 address (1 - 255 characters).
<i>ipv6_address</i>	IPv6 address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to remove the mapping from the host table.

### Examples

```
-> ipv6 host Lab 4235::1200:0010
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 hosts](#) Displays IPv6 Local Hosts Table.

### MIB Objects

```
alaIPv6HostTable  
  alaIPv6HostName  
  alaIPv6HostAddress  
  alaIPv6HostRowStatus
```

---

## ipv6 neighbor stale-lifetime

Configures the minimum lifetime for all neighbor entries.

**ipv6 neighbor stale-lifetime** *stale-lifetime*

---

### Syntax Definitions

*stale-lifetime* Minimum lifetime for neighbor entries in the stale state (5–2800).

### Defaults

parameter	default
<i>stale-lifetime</i>	1440

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ipv6 neighbor stale-lifetime 1400
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[show ipv6 neighbors](#) Displays IPv6 Neighbor Table.  
[show ipv6 information](#) Displays IPv6 information.

### MIB Objects

IPv6IfIndex  
alaIPv6NeighborTable  
alaIPv6NeighborStaleLifetime

---

## ipv6 neighbor

Configures a static entry in IPv6 Neighbor Table.

**ipv6 neighbor** *ipv6\_address hardware\_address {if\_name} slot/port*

**no ipv6 neighbor** *ipv6\_address {if\_name}*

---

### Syntax Definitions

<i>ipv6_address</i>	IPv6 address that corresponds to the hardware address.
<i>hardware_address</i>	MAC address in hex format (e.g., 00:00:39:59:F1:0C).
<i>if_name</i>	Name assigned to the interface on which the neighbor resides.
<i>slot/port</i>	Slot/port used to reach the neighbor.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to remove an entry from IPv6 Neighbor Table.

### Examples

```
-> ipv6 neighbor 4132:86::203 00:d0:c0:86:12:07 Test 1/1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ipv6 neighbors</a>	Displays IPv6 Neighbor Table.
<a href="#">show ipv6 information</a>	Displays IPv6 information.

**MIB Objects**

IPv6IfIndex

alaIPv6NeighborTable

alaIPv6NeighborNetAddress

alaIPv6NeighborPhysAddress

alaIPv6NeighborSlot

alaIPv6NeighborPort

alaIPv6NeighborRowStatus

    alaIPv6NeighborStaleLifetime

---

## ipv6 prefix

Configures an IPv6 prefix on an interface. Used for configuring prefixes for router advertisements.

```
ipv6 prefix ipv6_address /prefix_length if_name  
[valid-lifetime time]  
[preferred-lifetime time]  
[on-link-flag {true | false}]  
[autonomous-flag {true | false}] if_name  
no ipv6 prefix ipv6_address /prefix_length if_name
```

---

### Syntax Definitions

<i>ipv6_address</i>	IPv6 address of the interface.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask). (1...127).
<b>valid-lifetime</b> <i>time</i>	Length of time, in seconds, that this prefix will remain valid, i.e. time until deprecation. A value of 4,294,967,295 represents infinity.
<b>preferred-lifetime</b> <i>time</i>	Length of time, in seconds, that this prefix will remain preferred, i.e. time until deprecation. A value of 4,294,967,295 represents infinity.
<b>on-link-flag</b>	On-link configuration flag. When “true” this prefix can be used for on-link determination.
<b>autonomous-flag</b>	Autonomous address configuration flag. When “true”, indicates that this prefix can be used for autonomous address configuration (i.e., can be used to form a local interface address).
<i>if_name</i>	Name assigned to the interface.

### Defaults

parameter	default
<b>valid-lifetime</b> <i>time</i>	2,592,000
<b>preferred-lifetime</b> <i>time</i>	604,800
<b>on-link-flag</b>	true
<b>autonomous-flag</b>	true

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to delete a prefix.

### Examples

```
-> ipv6 prefix 4132:86::/64 Test
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**show ipv6 prefixes**                      Displays IPv6 prefixes used in router advertisements.

## MIB Objects

```
IPv6IfIndex  
alaIPv6InterfacePrefixTable  
  alaIP6vInterfacePrefix  
  alaIP6vInterfacePrefixLength  
  alaIP6vInterfacePrefixValidLifetime  
  alaIP6vInterfacePrefixPreferredLifetime  
  alaIP6vInterfacePrefixonLinkFlag  
  alaIP6vInterfacePrefixAutonomousFlag  
  alaIP6vInterfacePrefixRowStatus
```

---

## ipv6 route

Configures a static entry in the IPv6 route. *This command is currently not supported. Please use the new [ipv6 static-route](#) command.*

**ipv6 route** *ipv6\_prefix/prefix\_length ipv6\_address [if\_name]*

**no ipv6 route** *ipv6\_prefix/prefix\_length ipv6\_address [if\_name]*

---

### Syntax Definitions

<i>ipv6_prefix</i>	IPv6 network that is the destination of this static route.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask). (0...128).
<i>ipv6_address</i>	IPv6 address of the next hop used to reach the specified network.
<i>if_name</i>	If the next hop is a link-local address, the name of the interface used to reach it.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a static route.

### Examples

```
-> ipv6 route 212:95:5::/64 fe80::2d0:95ff:fe6a:f458 v6if-137
```

### Release History

Release 6.1; command was introduced.

Release 6.1.3; command was deprecated.

### Related Commands

[show ipv6 routes](#) Displays IPv6 Forwarding Table.

### MIB Objects

```
alaIPv6StaticRouteTable  
  alaIPv6StaticRouteNextHop  
  alaIPv6StaticRouteIfIndex  
  alaIPv6StaticRouteDest  
  alaIPv6StaticRoutePrefixLength  
  alaIPv6StaticRouteRowStatus
```

---

## ipv6 static-route

Creates/deletes an IPv6 static route. Static routes are user-defined; they carry a higher priority than routes created by dynamic routing protocols. That is, static routes always have priority over dynamic routes, regardless of the metric value.

**ipv6 static-route** *ipv6\_prefix/prefix\_length* **gateway** *ipv6\_address* [*if\_name*] [**metric** *metric*]

**no ipv6 static-route** *ipv6\_prefix/prefix\_length* **gateway** *ipv6\_address* [*if\_name*]

---

### Syntax Definitions

<i>ipv6_prefix</i>	IPv6 network that is the destination of this static route.
<i>/prefix_length</i>	The number of bits (0...128) that are significant in the IPv6 address (mask).
<b>gateway</b> <i>ipv6_address</i>	IPv6 address of the next hop used to reach the destination IPv6 address.
<i>if_name</i>	If the next hop is a link-local address, the name of the interface used to reach it.
<i>metric</i>	Metric or cost (hop count) for the static route. You can set a priority for the static route by assigning a metric value. The lower the metric value, the higher the priority. Valid range is 1–15.

### Defaults

parameter	default
<i>metric</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a static route.

### Examples

```
-> ipv6 static-route 212:95:5::/64 gateway fe80::2d0:95ff:fe6a:f458 v6if-137 metric 3
```

### Release History

Release 6.1.3; command was introduced.



## Related Commands

**show ipv6 routes**

Displays IPv6 Forwarding Table.

**show ipv6 router database**

Displays a list of all routes (static and dynamic) that exist in the IPv6 router database.

## MIB Objects

```
alaIprmv6StaticRouteTable  
  alaIprmv6StaticRouteDest  
  alaIprmv6StaticRoutePrefixLength  
  alaIprmv6StaticRouteNextHop  
  alaIprmv6StaticRouteIfIndex  
  alaIprmv6StaticRouteMetric  
  alaIprmv6StaticRouteRowStatus
```

---

## ipv6 route-pref

Configures the route preference of a router.

```
ipv6 route-pref {static | ospf | rip | ebgp | ibgp} value
```

---

### Syntax Definitions

<b>static</b>	Configures the route preference of static routes.
<b>ospf</b>	Configures the route preference of OSPF3 routes.
<b>rip</b>	Configures the route preference of RIPng routes.
<b>ebgp</b>	Configures the route preference of external BGP routes.
<b>ibgp</b>	Configures the route preference of internal BGP routes.
<i>value</i>	Route preference value.

### Defaults

parameter	default
<b>static</b> <i>value</i>	2
<b>ospf</b> <i>value</i>	110
<b>rip</b> <i>value</i>	120
<b>ebgp</b> <i>value</i>	190
<b>ibgp</b> <i>value</i>	200

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Route preference of local routes cannot be changed.
- The valid route preference range is 1–255.
- The IPv6 version of BGP is not supported currently.

### Examples

```
-> ipv6 route-pref ospf 20
-> ipv6 route-pref rip 60
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

**show ipv6 route-pref**

Displays the configured route preference of a router.

## MIB Objects

```
alaIprmRtPrefTable  
  alaIprmRtPrefLocal  
  alaIprmRtPrefStatic  
  alaIprmRtPrefOspf  
  alaIprmRtPrefRip  
  alaIprmRtPrefEbgp  
  alaIprmRtPrefIbgp
```

---

## ping6

Tests whether an IPv6 destination can be reached from the local switch. This command sends an ICMPv6 echo request to a destination and then waits for a reply. To ping a destination, enter the **ping6** command and enter either the destination's IPv6 address or hostname. The switch will ping the destination using the default frame count, packet size, and interval (6 frames, 64 bytes, and 1 second respectively). You can also customize any or all of these parameters as described below.

```
ping6 {ipv6_address / hostname} [if_name] [count count] [size data_size] [interval seconds]
```

---

### Syntax Definitions

<i>ipv6_address</i>	IP address of the system to ping.
<i>hostname</i>	DNS name of the system to ping.
<i>if_name</i>	If the target is a link-local address, the name of the interface used to reach it.
<i>count</i>	Number of packets to be transmitted.
<i>size</i>	Size of the data portion of the packet sent for this ping, in bytes.
<i>seconds</i>	Interval, in seconds, at which ping packets are transmitted.

### Defaults

parameter	default
<i>count</i>	6
<i>size</i>	56
<b>interval</b> <i>seconds</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If you change the default values, they will only apply to the current ping. The next time you use the ping command, the default values will be used unless you again enter different values.
- When the next hop address is a local link address, the name of the interface used to reach the destination must be specified.

## Examples

```
-> ping6 fe80::2d0:95ff:fe6a:f458/64
```

## Release History

Release 6.1; command was introduced.

## Related Commands

### [traceroute6](#)

Finds the path taken by an IPv6 packet from the local switch to a specified destination.

---

## traceroute6

Finds the path taken by an IPv6 packet from the local switch to a specified destination. This command displays the individual hops to the destination as well as some timing information.

**traceroute6** {*ipv6\_address* | *hostname*} [*if\_name*] [**max-hop** *hop\_count*] [**wait-time** *time*] [**port** *port\_number*] [**probe-count** *probe*]

---

### Syntax Definitions

<i>ipv6_address</i>	Destination IPv6 address. IPv6 address of the host whose route you want to trace.
<i>hostname</i>	DNS name of the host whose route you want to trace.
<i>if_name</i>	If the target is a link-local address, the name of the interface used to reach it.
<i>hop_count</i>	Maximum hop count for the trace.
<i>time</i>	Delay time, in seconds between probes
<i>port</i>	Specific UDP port destination. By default, the destination port is chosen by traceroute6.
<i>probe</i>	Number of probes to be sent to a single hop.

### Defaults

parameter	default
<i>hop_count</i>	30
<i>time</i>	5
<i>probe</i>	3

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When using this command, you must enter the name of the destination as part of the command line (either the IPv6 address or hostname).
- Use the optional **max-hop** parameter to set a maximum hop count to the destination. If the trace reaches this maximum hop count without reaching the destination, the trace stops.

### Examples

```
-> traceroute6 41EA:103::65C3
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ping6](#)

Tests whether an IPv6 destination can be reached from the local switch.

---

## show ipv6 hosts

Displays IPv6 Local Hosts Table.

**show ipv6 hosts** [*substring*]

---

### Syntax Definitions

*substring* Limits the display to host names starting with the specified substring.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not specify a substring, all IPv6 hosts are displayed.

### Examples

-> show ipv6 hosts

Name	IPv6 Address
-----+-----	
ipv6-test1.alcatel-lucent.com	4235::1200:0010
ipv6-test2.alcatel-lucent.com	4235::1200:0020
otheripv6hostname	4143:1295:9490:9303:00d0:6a63:5430:9031

### output definitions

---

<b>Name</b>	Name associated with the IPv6 address.
<b>IPv6 Address</b>	IPv6 address associated with the host name.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 host](#) Configures a static host name to the IPv6 address mapping to the local host table.

### MIB Objects

alaIPv6HostTable  
 alaIPv6HostName  
 alaIPv6HostAddress

---



## show ipv6 icmp statistics

Displays IPv6 ICMP statistics.

**show ipv6 icmp statistics** [*if\_name*]

---

### Syntax Definitions

*if\_name*                                      Display statistics only for this interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the ICMP table to monitor and troubleshoot the switch.

### Examples

-> show ipv6 icmp statistics

Message	Received	Sent
Total	0	0
Errors	0	0
Destination Unreachable	0	0
Administratively Prohibited	0	0
Time Exceeded	0	0
Parameter Problems	0	0
Packet Too Big	0	0
Echo Requests	0	0
Echo Replies	0	0
Router Solicitations	0	0
Router Advertisements	0	0
Neighbor Solicitations	0	0
Neighbor Advertisements	0	0
Redirects	0	0
Group Membership Queries	0	0
Group Membership Responses	0	0
Group Membership Reductions	0	0

### output definitions

---

<b>Total</b>	Total number of ICMPv6 messages the switch received or attempted to send.
<b>Errors</b>	Number of ICMPv6 messages the switch sent or received but was unable to process because of ICMPv6-specific errors (bad checksums, bad length, etc.).
<b>Destination Unreachable</b>	Number of Destination Unreachable messages that were sent or received by the switch.

*output definitions (continued)*


---

<b>Administratively Prohibited</b>	Number of Destination Unreachable/Communication Administratively Prohibited messages sent or received by the switch.
<b>Time Exceeded</b>	Number of Time Exceeded messages sent or received by the switch.
<b>Parameter Problems</b>	Number of Parameter Problem messages sent or received by the switch.
<b>Packet Too Big</b>	Number of Packet Too Big messages sent or received by the switch.
<b>Echo Requests</b>	Number of Echo Request messages sent or received by the switch.
<b>Echo Replies</b>	Number of Echo Reply messages sent or received by the switch.
<b>Router Solicitations</b>	Number of Router Solicitations sent or received by the switch.
<b>Router Advertisements</b>	Number of Router Advertisements sent or received by the switch.
<b>Neighbor Solicitations</b>	Number of Neighbor Solicitations sent or received by the switch.
<b>Neighbor Advertisements</b>	Number of Neighbor Advertisements sent or received by the switch.
<b>Redirects</b>	Number of Redirect messages sent or received by the switch.
<b>Group Membership Queries</b>	Number of Group Membership Queries sent or received by the switch.
<b>Group Membership Responses</b>	Number of Group Membership Responses sent or received by the switch.
<b>Group Membership Reductions</b>	Number of Group Membership Reductions sent or received by the switch.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show ipv6 traffic](#) Displays IPv6 traffic statistics.

**MIB Objects**

```
ipv6IfIcmpTable
  ipv6IfIcmpInMsgs
  ipv6IfIcmpInErrors
  ipv6IfIcmpInDestUnreachs
  ipv6IfIcmpInAdminProhibs
  ipv6IfIcmpInTimeExcds
  ipv6IfIcmpInParmProblems
  ipv6IfIcmpInPktTooBigS
  ipv6IfIcmpInEchos
  ipv6IfIcmpInEchoReplies
  ipv6IfIcmpInRouterSolicits
  ipv6IfIcmpInRouterAdvertisements
  ipv6IfIcmpInNeighborSolicits
  ipv6IfIcmpInNeighborAdvertisements
  ipv6IfIcmpInRedirects
  ipv6IfIcmpInGroupMembQueries
  ipv6IfIcmpInGroupMembResponses
  ipv6IfIcmpInGroupMembReductions
  ipv6IfIcmpOutMsgs
  ipv6IfIcmpOutErrors
  ipv6IfIcmpOutDestUnreachs
  ipv6IfIcmpOutAdminProhibs
  ipv6IfIcmpOutTimeExcds
  ipv6IfIcmpOutParmProblems
  ipv6IfIcmpOutPktTooBigS
  ipv6IfIcmpOutEchos
  ipv6IfIcmpOutEchoReplies
  ipv6IfIcmpOutRouterSolicits
  ipv6IfIcmpOutRouterAdvertisements
  ipv6IfIcmpOutNeighborSolicits
  ipv6IfIcmpOutNeighborAdvertisements
  ipv6IfIcmpOutRedirects
  ipv6IfIcmpOutGroupMembQueries
  ipv6IfIcmpOutGroupMembResponses
  ipv6IfIcmpOutGroupMembReductions
```

---

## show ipv6 interface

Displays IPv6 Interface Table.

**show ipv6 interface** [*if\_name* / **loopback**]

---

### Syntax Definitions

*if\_name* Interface name. Limits the display to a specific interface.

**loopback** Limits display to loopback interfaces.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If you do not specify an interface name, all IPv6 interfaces are displayed.
- Specify an interface name (e.g., VLAN 12) to obtain a more detailed information about a specific interface.

### Examples

-> show ipv6 interface

Name	IPv6 Address/Prefix Length	Status	Device
smbif-5	fe80::2d0:95ff:fe12:f470/64	Active	VLAN 955
	212:95:5::35/64		
	212:95:5::/64		
v6if-to-eagle	fe80::2d0:95ff:fe12:f470/64	Disabled	VLAN 1002
	195:35::35/64		
	195:35::/64		
V6if-6to4-137	2002:d423:2323::35/64	Active	6to4 Tunnel
	2002:d423:2323::/64		
v6if-tunnel-137	fe80::2d0:95ff:fe12:f470/64	Disabled	Tunnel 2
	137:35:35::35/64		
	137:35:35::/64		
loopback	::1/128	Active	loopback

#### output definitions

---

<b>Name</b>	Interface name. This is usually the VLAN on which the interface is configured.
<b>IPv6 Address/Prefix Length</b>	IPv6 address and prefix length assigned to the interface. If an interface has more than one IPv6 address assigned to it, each address is shown on a separate line.
<b>Status</b>	Interface status (e.g., Active/Inactive).
<b>Device</b>	The device on which the interface is configured (e.g., VLAN 955).

---

```
-> show ipv6 interface v6if-6to4-137
```

```
v6if-6to4-137
```

```
IPv6 interface index      = 16777216(0x01000000)
Administrative status     = Enabled
Operational status       = Active
Link-local address(es):
Global unicast address(es):
  2002:d423:2323::35/64
Anycast address(es):
  2002:d423:2323::/64
Joined group addresses:
  ff02::1:ff00:0
  ff02::2:93da:681b
  ff02::1
  ff02::1:ff00:35
Maximum Transfer Unit (MTU) = 1280
Send Router Advertisements = No
Maximum RA interval (sec)  = 600
Minimum RA interval (sec) = 198
RA managed config flag    = False
RA other config flag      = False
RA reachable time (ms)    = 30000
RA retransmit timer (ms)  = 1000
RA default lifetime (sec) = 1800
Packets received          = 215686
Packets sent              = 2019
Bytes received            = 14108208
Bytes sent                = 178746
Input errors              = 0
Output errors             = 0
Collisions                = 0
Dropped                   = 0
```

```

-> show ipv6 interface v6if-tunnel-137

v6if-tunnel-137
  IPv6 interface index          = 16777216(0x01000000)
  Administrative status         = Disabled
  Operational status            = Inactive
  Link-local address(es):
    fe80::2d0:95ff:fe12:f470/64
  Global unicast address(es):
    137:35:35:35/64
  Anycast address(es):
    137:35:35:35/64
  Joined group addresses:
    ff02::1:ff00:0
    ff02::1:ff00:35
    ff02::2:93da:681b
    ff02::1
    ff02::1:ff12:f470
  Maximum Transfer Unit (MTU) = 1280
  Send Router Advertisements = Yes
  Maximum RA interval (sec)   = 600
  Minimum RA interval (sec)   = 198
  RA managed config flag      = False
  RA other config flag        = False
  RA reachable time (ms)      = 30000
  RA retransmit timer (ms)    = 1000
  RA default lifetime (sec)   = 1800
  Packets received            = 0
  Packets sent                 = 2
  Bytes received               = 0
  Bytes sent                   = 144
  Input errors                 = 0
  Output errors                = 2
  Collisions                   = 0
  Dropped                      = 0

```

### *output definitions*

<b>IPv6 interface index</b>	IPv6IfIndex value that should be used in SNMP requests pertaining to this interface.
<b>Administrative status</b>	Administrative status of this interface (Enabled/Disabled).
<b>Operational status</b>	Indicates whether the physical interface is connected to a device (Active/Inactive).
<b>Hardware address</b>	Interface's MAC address.
<b>Link-local address</b>	Link-local address assigned to the interface.
<b>Global unicast address(es)</b>	Global unicast address(es) assigned to the interface.
<b>Joined group address(es)</b>	Addresses of the multicast groups that this interface has joined.
<b>Maximum Transfer Unit</b>	Interface MTU value.
<b>Send Router Advertisements</b>	Indicates if the router sends periodic router advertisements and responds to router solicitations on the interface.
<b>Maximum RA interval (sec)</b>	Maximum time between the transmission of unsolicited router advertisements over the interface.
<b>Minimum RA interval (sec)</b>	Minimum time between the transmission of unsolicited router advertisements over the interface (0.33 * Maximum RA Interval).

*output definitions (continued)*

---

<b>RA managed config flag</b>	True/False value in the managed address configuration flag field in router advertisements.
<b>RA other config flag</b>	The True/False value in the other stateful configuration flag field in router advertisements sent over this interface.
<b>RA reachable time (ms)</b>	Value placed in the reachable time field in the router advertisements sent over this interface.
<b>RA retransmit timer (ms)</b>	Value placed in the retransmit timer field in router advertisements sent over this interface.
<b>RA default lifetime (ms)</b>	The value placed in the router lifetime field in the router advertisements sent over this interface.
<b>Packets received</b>	Number of IPv6 packets received since the last time the counters were reset.
<b>Packets sent</b>	Number of IPv6 packets sent since the last time the counters were reset.
<b>Bytes received</b>	Number of bytes of data received since the last time the counters were reset.
<b>Bytes sent</b>	Number of bytes of data sent since the last time the counters were reset.
<b>Input errors</b>	Number of input errors received since the last time the counters were reset.
<b>Output errors</b>	Number of output errors received since the last time the counters were reset.
<b>Collisions</b>	Number of collisions since the last time the counters were reset.
<b>Dropped</b>	Number of packets dropped since the last time the counters were reset.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">ipv6 address</a>	Configures an IPv6 address on a VLAN, configured tunnel, or a 6to4 tunnel.
<a href="#">ipv6 interface</a>	Configures an IPv6 interface on a VLAN.

**MIB Objects**

```
ipv6InterfaceTable
  ipv6AdminStatus
  ipv6PhysicalAddress
  ipv6InterfaceAddress
  ipv6Address
  ipv6AddressPrefix
  ipv6IfEffectiveMtu
  ipv6IfStatsInReceives
  ipv6IfStatsOutRequests
  ipv6IfStatsOutForwDatagrams
```

```
alaIPv6InterfaceTable
  alaIPv6InterfaceName
  alaIPv6InterfaceAddress
  alaIPv6InterfaceAdminStatus
  alaIPv6InterfaceRowStatus
  alaIPv6InterfaceDescription
  alaIPv6InterfaceMtu
  alaIPv6InterfaceType
  alaIPv6InterfaceAdminStatus
  alaIPv6InterfaceSendRouterAdvertisements
  alaIPv6InterfaceMaxRtrAdvInterval
  alaIPv6InterfaceAdvManagedFlag
  alaIPv6InterfaceAdvOtherConfigFlag
  alaIPv6InterfaceAdvReachableTime
  alaIPv6InterfaceAdvRetransTimer
  alaIPv6InterfaceAdvDefaultLifetime
  alaIPv6InterfaceName
  alaIPv6InterfaceAdvSendMtu
```

---



## show ipv6 pmtu table

Displays the IPv6 Path MTU Table.

**show ipv6 pmtu table**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pmtu table
```

```
1-PMTU Entry
```

```
PMTU entry minimum lifetime = 10m
```

Destination Address	MTU	Expires
-----+-----+-----		
fe80::02d0:c0ff:fe86:1207	1280	1h 0m

#### *output definitions*

---

<b>Destination Address</b>	IPv6 address of the path's destination.
<b>MTU</b>	Path's MTU.
<b>Expires</b>	Minimum remaining lifetime for the entry.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

- ipv6 pmtu-lifetime** Configures the minimum lifetime for entries in the path MTU Table.
- clear ipv6 pmtu table** Removes all the entries from the IPv6 path MTU Table.

## MIB Objects

```
alaIPv6ConfigTable  
  alaIPv6PMTUDest  
  alaIPv6PMTUexpire
```

---

## clear ipv6 pmtu table

Removes all the entries from the IPv6 path MTU Table.

```
clear ipv6 pmtu table
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> clear ipv6 pmtu table
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                      |                                                                                  |
|--------------------------------------|----------------------------------------------------------------------------------|
| <a href="#">ipv6 pmtu-lifetime</a>   | Configures the configure the minimum lifetime for entries in the path MTU Table. |
| <a href="#">show ipv6 pmtu table</a> | Displays the IPv6 path MTU Table.                                                |

### MIB Objects

```
alaIPv6ConfigTable  
  alaIpv6ClearPMTUTable
```

---

## show ipv6 neighbors

Displays IPv6 Neighbor Table.

**show ipv6 neighbors** [*ipv6\_prefix/prefix\_length* | *if\_name* | **hw** *hardware\_address* | **static**]

---

### Syntax Definitions

<i>ipv6_prefix/prefix_length</i>	IPv6 prefix. Restricts the display to those neighbors starting with the specified prefix.
<i>if_name</i>	Interface name. Restricts the display to those neighbors reached via the specified interface.
<i>hardware_address</i>	MAC address. Restricts the display to the specified MAC address.
<b>static</b>	Restricts display to statically configured neighbors.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not specify an option (e.g., *if\_name*), all IPv6 neighbors are displayed.

### Examples

-> show ipv6 neighbors

IPv6 Address	Hardware Address	State	Type	Port	Interface
fe80::02d0:c0ff:fe86:1207	00:d0:c0:86:12:07	Probe	Dynamic	1/15	vlan_4
fe80::020a:03ff:fe71:fe8d	00:0a:03:71:fe:8d	Reachable	Dynamic	1/ 5	vlan_17

#### *output definitions*

---

<b>IPv6 Address</b>	The neighbor's IPv6 address.
<b>Hardware Address</b>	The MAC address corresponding to the IPv6 address.
<b>State</b>	The neighbor's state: - <b>Unknown</b> - <b>Incomplete</b> - <b>Reachable</b> - <b>Stale</b> - <b>Delay</b> - <b>Probe</b> .
<b>Type</b>	Indicates whether the neighbor entry is a <b>Static</b> or <b>Dynamic</b> entry.
<b>Port</b>	The port used to reach the neighbor.
<b>Interface</b>	The neighbor's interface name (e.g., <i>vlan_1</i> )

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[ipv6 neighbor](#)

Configures a static entry in the IPv6 Neighbor Table.

## MIB Objects

ipv6IfIndex

alaIPv6NeighborTable

alaIPv6NeighborNetAddress

alaIPv6NeighborPhysAddress

alaIPv6NeighborSlot

alaIPv6NeighborPort

alaIPv6NeighborType

alaIPv6NeighborState

---

## clear ipv6 neighbors

Removes all entries, except static entries, from IPv6 Neighbor Table.

**clear ipv6 neighbors**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

This commands only clears dynamic entries. If static entries have been added to the table, they must be removed using the **no** form of the [ipv6 neighbor](#) command.

### Examples

```
-> clear ipv6 neighbors
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ipv6 neighbor</a>	Configures a static entry in IPv6 Neighbor Table.
<a href="#">show ipv6 neighbors</a>	Displays IPv6 Neighbor Table.

### MIB Objects

```
alaIPv6NeighborTable  
  alaIPv6ClearNeighbors
```

---

## show ipv6 prefixes

Displays IPv6 prefixes used in router advertisements.

**show ipv6 prefixes**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show ipv6 prefixes

Legend: Flags: A = Autonomous Address Configuration, L = OnLink

Name	IPv6 Address/Prefix Length	Valid Lifetime	Preferred Lifetime	Flags	Source
vlan 955	212:95:5::/64	2592000	604800	LA	dynamic
vlan 1002	195:35::/64	2592000	604800	LA	dynamic
6to4tunnel	2002:d423:2323::/64	2592000	604800	LA	dynamic
tunnel 2	137:35:35::/64	2592000	604800	LA	dynamic

#### output definitions

---

<b>Name</b>	The interface name. This is usually the VLAN on which the interface is configured.
<b>IPv6 Address/Prefix Length</b>	The IPv6 prefix and prefix length for a Router Advertisement Prefix Option.
<b>Valid Lifetime</b>	Length of time, in seconds, that this prefix will remain valid (i.e., time until deprecation). A value of 4,294,967,295 represents infinity.
<b>Preferred Lifetime</b>	Length of time, in seconds, that this prefix will remain preferred (i.e. time until deprecation). A value of 4,294,967,295 represents infinity.
<b>Flags</b>	<b>L</b> - Prefix can be used for onlink determination. <b>A</b> - Prefix can be used for autonomous address configuration (i.e., can be used to form a local interface address).
<b>Source</b>	<b>config</b> - Prefix has been configured by management. <b>dynamic</b> - Router Advertisements are using interface prefixes.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### **ipv6 prefix**

Configures an IPv6 prefix on an interface. Used for configuring prefixes for router advertisements.

## MIB Objects

IPv6AddrPrefixTable

- IPv6AddressPrefixEntry
- IPv6AddressPrefixLength
- IPv6AddressPrefixLinkFlag
- IPv6AddressPrefixAdvvalidLifetime
- IPv6AddressPrefixAdvPreferredLifetime

alaIPv6InterfacePrefixTable

- alaIPv6InterfacePrefix
- alaIPv6InterfacePrefixLength
- alaIPv6InterfacePrefixValidLifetime
- alaIPv6InterfacePrefixPreferredLifetime
- alaIPv6InterfacePrefixOnLinkFlag
- alaIPv6InterfacePrefixsource

---



## show ipv6 routes

Displays IPv6 Forwarding Table.

**show ipv6 routes** [*ipv6\_prefix/prefix\_length* | **static**]

---

### Syntax Definitions

*ipv6\_prefix/prefix\_length* IPv6 prefix. Restricts the display to those routes starting with the specified prefix.

**static** Restricts display to statically configured routes.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not specify an option (e.g., “static”), all IPv6 interfaces are displayed.

### Examples

-> show ipv6 routes

Legend:Flags:U = Up, G = Gateway, H = Host, S = Static, C = Cloneable, D = Dynamic,  
M = Modified, R = Unreachable, X = Externally resolved, B = Discard,  
L = Link-layer, 1 = Protocol specific, 2 = Protocol specific

Destination Prefix	Gateway Address	Interface	Age	Protocol	Flags
::/0	2002:d468:8a89::137	v6if-6to4-137	18h 47m 26s	Static	UGS
137:35:35::/64	fe80::2d0:95ff:fe12:f470	v6if-tunnel-137	18h 51m 55s	Local	UC
195:35::/64	fe80::2d0:95ff:fe12:f470	v6if-to-eagle	18h 51m 55s	Local	UC
212:95:5::/64	fe80::2d0:95ff:fe12:f470	smbif-5	18h 51m 55s	Local	UC
2002::/16	2002:d423:2323::35	v6if-6to4-137	18h 51m 55s	Other	U

### output definitions

---

<b>Destination Prefix</b>	IPv6 destination address and prefix.
<b>Gateway Address</b>	IPv6 address of the gateway used to reach the destination network.
<b>Interface</b>	The device the interface is using (e.g., VLAN 6to4tunnel); or loopback.
<b>Age</b>	Age of the entry. Entries less than 1 day old are displayed in hh:mm:ss format. Entries more than 1 day old are displayed in dd:hh format.
<b>Protocol</b>	Protocol by which the route was learned.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

**ipv6 route** Configures a static entry in the IPv6 route.

## MIB Objects

```
IPv6RouteTable
  IPv6Routes
  IPv6RoutesPrefix
  IPv6RoutesStatic
alaIPv6StaticRouteTable
  alaIPv6StaticRouteEntry
```

---

## show ipv6 route-pref

Displays the IPv6 routing preference of the router.

```
show ipv6 route-pref
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The IPv6 version of BGP is not supported currently.

### Examples

```
-> show ipv6 route-pref
  Protocol      Route Preference Value
-----+-----
  Local         1
  Static        2
  OSPF          110
  RIP           120
  EBGP          190
  IBGP          200
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[ipv6 route-pref](#) Configures the IPv6 route preference of a router.

---

## show ipv6 router database

Displays a list of all routes (static and dynamic) that exist in the IPv6 router database. This database serves as a central repository where routes are first processed for redistribution and where duplicate routes are compared to determine the best route to use. If a route does not appear in the IPv6 router database list, then the switch does not know about it. In the case of dynamically learned routes, this could indicate that the route was never received by the switch.

**show ipv6 router database** [**protocol** *type* / **gateway** *ipv6\_address* / **dest** *ipv6\_prefix/prefix\_length*]

---

### Syntax Definitions

<i>type</i>	Routing protocol type (local, static, OSPF, RIP, or BGP).
<b>gateway</b> <i>ipv6_address</i>	IPv6 address of the next hop used to reach the destination IPv6 address.
<i>ipv6_prefix</i>	IPv6 network that is the destination of this static route.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask). (0...128).

### Defaults

By default, all routes are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The IPv6 forwarding table is derived from IPv6 router database processing performed by the switch and contains only unique routes that the switch currently uses. Use the **show ipv6 routes** command to view the forwarding table.
- If an expected route does not appear in the IPv6 forwarding table, use the **show ipv6 router database** command to see if the switch knows about the route and/or if a duplicate route with a higher precedence was selected instead.
- The switch compares the protocol of duplicate routes to determine which one to use. Regardless of whether or not a route has a higher priority metric value, protocol determines precedence. Local routes are given the highest level of precedence followed by static, OSPF, RIP, then BGP routes. As a result, a route that is known to the switch may not appear in the IP forwarding table if a duplicate route with a higher protocol precedence exists.
- A list of inactive static routes is also included in the **show ipv6 router database** output display. A route becomes inactive if the interface for its gateway goes down. Inactive routes are unable to get to their destination and further investigation is warranted to determine why their gateway is unavailable.
- Routes that appear as inactive are not included in the main IP router database listing. If an inactive route becomes active, however, it is removed from the inactive list and added to the active route list.

## Examples

-> show ipv6 router database  
Legend: + indicates routes in use

Total IPRM IPv6 routes: 5

Destination/Prefix	Gateway Address	Interface	Protocol	Metric
::/0	2002:d468:8a89::137	v6if-6to4-137	Static	1
137:35:35::/64	fe80::2d0:95ff:fe12:f470	v6if-tunnel-137	OSPF	2
195:35::/64	fe80::2d0:95ff:fe12:f470	v6if-to-eagle	OSPF	2
212:95:5::/64	fe80::2d0:95ff:fe12:f470	smbif-5	Local	1
2002::/16	2002:d423:2323::35	v6if-6to4-137	Local	1

Inactive Static Routes:

VLAN	Destination/Prefix	Gateway Address	Metric
1510	212:95:5::/64	fe80::2d0:95ff:fe6a:f458	1

### output definitions

<b>Destination/Prefix</b>	IPv6 destination address and prefix.
<b>Gateway Address</b>	IPv6 address of the gateway used to reach the destination network.
<b>Interface</b>	The device the interface is using (e.g., VLAN 6to4tunnel); or loopback.
<b>Protocol</b>	Protocol by which this IPv6 address was learned: LOCAL, STATIC, OSPF, RIP, BGP).
<b>Metric</b>	RIP metric or cost (hop count) for the route. Indicates a priority for the route. The lower the metric value, the higher the priority.
<b>VLAN</b>	The VLAN on which the route was <i>learned</i> , not forwarded. Note that <b>N/A</b> appears in this field for static routes as they are not learned on a VLAN.

## Release History

Release 6.1.3; command was introduced.

## Related Commands

[show ipv6 routes](#) Displays the IPv6 Forwarding Table.

## show ipv6 tcp ports

Displays TCP Over IPv6 Connection Table. This table contains information about existing TCP connections between IPv6 endpoints.

**show ipv6 tcp ports**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Only connections between IPv6 addresses are contained in this table.

### Examples

-> show ipv6 tcp ports

Local Address	Port	Remote Address	Port	Interface	State
::	21	::	0		listen
::	23	::	0		listen
2002:d423:2323::35	21	212:61:61:0:2b0:d0ff:fe43:d4f8	34144	v6if-6to4-137	established
2002:d423:2323::35	49153	212:61:61:0:2b0:d0ff:fe43:d4f8	34144	v6if-6to4-137	established

#### output definitions

---

<b>Local Address</b>	Local address for this TCP connection. For ports in the “Listen” state, which accepts connections on any IPv6 interface, the address is ::0.
<b>Port</b>	Local port number for the TCP connection.
<b>Remote Address</b>	Remote IPv6 address for the connection. If the connection is in the “Listen” state, the address is ::0.
<b>Port</b>	Remote port number for the TCP connection. If the connection is in the “Listen” state, the port number is 0.
<b>Interface</b>	Name of the interface (or “unknown”) over which the connection is established.
<b>State</b>	State of the TCP connection as defined in RFC 793.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

[show ipv6 udp ports](#) Displays the UDP Over IPv6 Listener Table.

## MIB Objects

IPv6TcpConnTable  
  IPv6TcpConnEntry  
  IPv6TcpConnLocalAddress  
  IPv6TcpConnLocalPort  
  IPv6TcpConnRemAddress  
  IPv6TcpConnRemPort  
  IPv6TcpConnIfIndex  
  IPv6TcpConnState

---

## show ipv6 traffic

Displays IPv6 traffic statistics.

**show ipv6 traffic** [*if\_name*]

---

### Syntax Definitions

*if\_name* Interface name. Restricts the display to the specified interface instead of global statistics.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The statistics show the cumulative totals since the last time the switch was powered on, the last reset of the switch was executed or the traffic statistics were cleared using the command.

### Examples

```
-> show ipv6 traffic
```

```
Global IPv6 Statistics
Packets received
  Total                = 598174
  Header errors        = 0
  Too big              = 12718
  No route             = 4
  Address errors       = 0
  Unknown protocol     = 0
  Truncated packets    = 0
  Local discards        = 0
  Delivered to users   = 582306
  Reassembly needed    = 0
  Reassembled          = 0
  Reassembly failed    = 0
  Multicast Packets    = 118
Packets sent
  Forwarded            = 3146
  Generated             = 432819
  Local discards        = 0
  Fragmented           = 0
  Fragmentation failed = 0
  Fragments generated  = 0
  Multicast packets     = 265
```



*output definitions*

---

<b>Total</b>	Total number of input packets received, including those received in error.
<b>Header errors</b>	Number of input packets discarded due to errors in their IPv6 headers (e.g., version number mismatch, other format errors, hop count exceeded, and errors discovered in processing their IPv6 options).
<b>Too big</b>	Number of input packets that could not be forwarded because their size exceeded the link MTU of the outgoing interface.
<b>No route</b>	Number of input packets discarded because no route could be found to transmit them to their destination.
<b>Address errors</b>	Number of input packets discarded because the IPv6 address in their IPv6 header's destination field was not a valid address to be received at this entity. This count includes invalid addresses (e.g., ::0) and unsupported addresses (e.g., addresses with unallocated prefixes).
<b>Unknown protocol</b>	Number of locally-addressed packets received successfully but discarded because of an unknown or unsupported protocol.
<b>Truncated packets</b>	Number of input packets discarded because the packet frame did not carry enough data.
<b>Local discards</b>	Number of input IPv6 packets for which no problems were encountered to prevent their continued processing, but which were discarded (e.g., for lack of buffer space). Note that this counter does not include any packets discarded while awaiting re-assembly.
<b>Delivered to users</b>	Total number of packets successfully delivered to IPv6 user protocols (including ICMP).
<b>Reassembly needed</b>	Number of IPv6 fragments received that needed to be reassembled.
<b>Reassembled</b>	Number of IPv6 packets successfully reassembled.
<b>Reassembly failed</b>	Number of failures detected by the IPv6 reassembly algorithm (for whatever reason: timed out, errors, etc.).
<b>Multicast packets</b>	Number of multicast packets received.
<b>Forwarded</b>	Number of output packets that this entity received and forwarded to their final destinations.
<b>Generated</b>	Total number of IPv6 packets that local IPv6 user-protocols (including ICMP) supplied to IPv6 in requests for transmission. Note that this counter does not include any packets counted by the Forwarded statistic.
<b>Local discards</b>	Number of output IPv6 packets for which no problem was encountered to prevent their transmission to their destination, but were discarded (e.g., for lack of buffer space). Note that this counter would include packets counted by the Forwarded statistic if any such packets met this (discretionary) discard criterion.
<b>Fragmented</b>	Number of IPv6 packets successfully fragmented.
<b>Fragmentation failed</b>	Number of IPv6 packets discarded because they needed to be fragmented but could not be.
<b>Fragments generated</b>	Number of output packet fragments generated as a result of fragmentation.
<b>Multicast packets</b>	Number of multicast packets transmitted.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

**show ipv6 icmp statistics**      Displays IPv6 ICMP statistics.

## MIB Objects

```
ipv6IfStatsTable  
  ipv6IfStatsInReceives  
  ipv6IfStatsInHdrErrors  
  ipv6IfStatsInTooBigErrors  
  ipv6IfStatsInNoRoutes  
  ipv6IfStatsInAddrErrors  
  ipv6IfStatsInUnknownProtos  
  ipv6IfStatsInTruncatedPkts  
  ipv6IfStatsInDiscards  
  ipv6IfStatsInDelivers  
  ipv6IfStatsOutForwDatagrams  
  ipv6IfStatsOutRequests  
  ipv6IfStatsOutDiscards  
  ipv6IfStatsOutFragOKs  
  ipv6IfStatsOutFragFails  
  ipv6IfStatsOutFragCreates  
  ipv6IfStatsReasmReqds  
  ipv6IfStatsReasmOKs  
  ipv6IfStatsReasmFails  
  ipv6IfStatsInMcastPkts  
  ipv6IfStatsOutMcastPkts
```

---

## clear ipv6 traffic

Resets all IPv6 traffic counters.

**clear ipv6 traffic**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the [show ipv6 traffic](#) command to view current IPv6 traffic statistics.

### Examples

```
-> clear ipv6 traffic
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 traffic](#) Displays IPv6 traffic statistics.

### MIB Objects

```
alaIPv6ConfigTable  
  alaIPv6ClearTraffic
```

---

## show ipv6 tunnel

Displays IPv6 tunnel information and whether the 6to4 tunnel is enabled.

**show ipv6 tunnel**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 tunnel
```

```
IPv6 6to4 tunnel: Enabled
```

```
Configured Tunnels:
```

Tunnel	IPv6 Address/Prefix Length	Source IPv4	Destination IPv4
1	2001:0000:0200::101/48	192.16.10.101	192.28.5.254
23	2001:0000:0200::102/48	192.15.10.102	10.27.105.25
v6if-tunnel-137	fe80::2d0:95ff:fe12:f470/64	212.35.35.35	212.104.138.137

### *output definitions*

---

<b>IPv6 6to4 tunnel</b>	Indicates whether 6to4 tunneling is enabled or disabled on the switch.
<b>Tunnel</b>	Tunnel ID.
<b>IPv6 Address/Prefix Length</b>	IPv6 address associated with the tunnel.
<b>Source IPv4</b>	Source IPv4 address for the tunnel.
<b>Destination IPv4</b>	Destination IPv4 address for the tunnel.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

[ipv6 address global-id](#)

Configures the source and destination IPv4 addresses for a configured tunnel.

## MIB Objects

```
alaIPv6ConfigTunnelTable  
  alaIPv6Tunnel6to4  
  alaIPv6ConfigTunnelv4Source  
  alaIPv6ConfigTunnelv4Dest
```

---

## show ipv6 udp ports

Displays UDP Over IPv6 Listener Table. This table contains information about UDP/IPv6 endpoints.

**show ipv6 udp ports**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Only endpoints utilizing IPv6 addresses are displayed in this table.

### Examples

```
-> show ipv6 udp ports
```

```
Local Address                               Port  Interface
-----+-----+-----
::                                           521
```

#### *output definitions*

---

<b>Local Address</b>	Local IPv6 address for this UDP listener. If a UDP listener accepts packets for any IPv6 address associated with the switch, the value is ::0.
<b>Port</b>	Local Port number for the UDP connection.
<b>Interface</b>	Name of the interface the listener is using or “unknown.”

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 tcp ports](#) Displays TCP Over IPv6 Connection Table.

## **MIB Objects**

IPv6UdpTable

    IPv6UdpEntry

    IPv6UdpLocalAddress

    IPv6UdpLocalPort

    IPv6UdpIfIndex

---

## show ipv6 information

Displays the global IPv6 configuration values.

**show ipv6 information**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 information
```

```
Default hop limit                = 64
Path MTU entry minimum lifetime (min) = 60
Neighbor stale lifetime (min)    = 1440
Local Unicast Global ID          = 32:57a3:8fed
```

### *output definitions*

---

<b>Default hop limit</b>	The value placed in the hop limit field in router advertisements
<b>Path MTU entry minimum lifetime</b>	Minimum lifetime for entries in the path MTU.
<b>Neighbor stale lifetime</b>	Minimum lifetime for neighbor entries in the stale state.
<b>Local Unicast Global ID</b>	40-bit global identifier which makes the local IPv6 address prefixes globally unique.

---

### Release History

Release 6.1.1; command was introduced.

Release 6.3.4; **Local Unicast Global ID** field added.



## Related Commands

**ipv6 neighbor**

Configures a static entry in the IPv6 Neighbor Table.

**ipv6 pmtu-lifetime**

Configures the minimum lifetime for entries in the path MTU Table.

**ipv6 hop-limit**

Configures the value placed in the hop limit field in the header of all IPv6 packet.

## MIB Objects

ipv6MibObjects

    Ipv6DefaultHopLimit

alaIPv6ConfigTable

    alaIPv6PMTUMinLifetime

alaIPv6NeighborTable

    alaIPv6NeighborStaleLifetime

alaIPv6GlobalID

---

## ipv6 redist

Controls the conditions for redistributing IPv6 routes between different protocols.

```
ipv6 redist {local | static | rip | ospf | isis | bgp} into {rip | ospf | isis | bgp} route-map route-map-name
[status {enable | disable}]
```

```
no ipv6 redist {local | static | ospf | isis | bgp} into {rip | ospf | isis | bgp} [route-map route-map-name]
```

---

### Syntax Definitions

<b>local</b>	Redistributes local IPv6 routes.
<b>static</b>	Redistributes static IPv6 routes.
<b>rip</b>	Specifies RIP as the source or destination (into) protocol.
<b>ospf</b>	Specifies OSPF as the source or destination (into) protocol.
<b>bgp</b>	This parameter is currently not supported.
<b>isis</b>	This parameter is currently not supported.
<i>route-map-name</i>	Name of an existing route map that will control the redistribution of routes between the source and destination protocol.
<b>enable</b>	Enables the administrative status of the redistribution configuration.
<b>disable</b>	Disables the administrative status of the redistribution configuration.

### Defaults

parameter	default
enable   disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a route map redistribution configuration. Note that if a route map name is not specified, all route maps associated with the redistribution configuration are removed.
- The source and destination protocols must be loaded and enabled before redistribution occurs.
- The IPv6 version of BGP is not supported currently.
- Use the **ip route-map** commands described in the “IP Commands” chapter of this guide to create a route map. Refer to the “Configuring IP” chapter in the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about how to create a route map.

## Examples

```
-> ipv6 redist rip into ospf route-map rip-to-ospf1
-> ipv6 redist rip into ospf route-map rip-to-ospf2
-> no ipv6 redist rip into ospf route-map rip-to-ospf2
-> ipv6 redist local into rip route-map local-to-rip
-> ipv6 redist local into rip route-map local-to-rip disable
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

[show ipv6 redist](#) Displays the route map redistribution configuration.

## MIB Objects

```
alaRouteMapRedistProtoTable
  alaRouteMapRedistSrcProtoId
  alaRouteMapRedistDestProtoId
  alaRouteMapRedistRouteMapIndex
  alaRouteMapRedistStatus
  alaRouteMapRedistAddressType
  alaRouteMapRedistRowStatus
```

---

## ipv6 access-list

Creates an IPv6 access list that is used to specify multiple IPv6 addresses for a route map configuration.

**ipv6 access-list** *access-list-name*

**no ipv6 access-list** *access-list-name*

---

### Syntax Definitions

*access-list-name*                      Name of the IPv6 access list (up to 20 characters).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to delete the access list.

### Examples

```
-> ipv6 access-list access1  
-> no ipv6 access-list access1
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

**ipv6 access-list address**              Adds IPv6 addresses to an existing IPv6 access list.

**show ipv6 access-list**                Displays the contents of an IPv6 access list.

### MIB Objects

```
alaRouteMapAccessListNameTable  
  alaRouteMapAccessListName  
  alaRouteMapAccessListNameIndex  
  alaRouteMapAccessListNameAddressType  
  alaRouteMapAccessListNameRowStatus
```

---

## ipv6 access-list address

Adds IPv6 addresses to the specified IPv6 access list.

**ipv6 access-list** *access-list-name* **address** *address/prefixLen* [**action** {**permit** | **deny**}]  
[**redist-control** {**all-subnets** | **no-subnets** | **aggregate**}]

**no ipv6 access-list** *access-list-name* **address** *address/prefixLen*

---

### Syntax Definitions

<i>access-list-name</i>	Name of the IPv6 access list (up to 20 characters).
<i>address/prefixLen</i>	IPv6 address along with the prefix length to be added to the access list.
<b>permit</b>	Permits the IPv6 address for redistribution.
<b>deny</b>	Denies the IPv6 address for redistribution.
<b>all-subnets</b>	Redistributes or denies all the subnet routes that match the network portion of the IP address as specified by the mask length.
<b>no-subnets</b>	Redistributes or denies only those routes that exactly match the IP address and the mask length.
<b>aggregate</b>	Redistributes an aggregate route if there are one or more routes that match or are subnets of this address.

### Defaults

parameter	default
<b>permit</b>   <b>deny</b>	<b>permit</b>
<b>all-subnets</b>   <b>no-subnets</b>   <b>aggregate</b>	<b>all-subnets</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the address from the access list.
- The *access-list-name* should exist before you add multiple IPv6 addresses to the IPv6 access list.
- The **action** parameters (**permit** and **deny**) determine if a route that matches the **redist-control** configuration for the IP address is allowed or denied redistribution.
- The **redist-control** parameters (**all-subnets**, **no-subnets**, and **aggregate**) defines the criteria used to determine if a route matches an address in the access list.
- Note that configuring the combination of **redist-control aggregate** with **action deny** is not allowed.

- Use this command multiple times with the same access list name to add multiple addresses to the existing IPv6 access list.

## Examples

```
-> ipv6 access-list access1 address 2001::1/64 action permit
-> ipv6 access-list access1 address 2001::1/64 redist-control aggregate
-> no ipv6 access-list access1 address 2001::1/64
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">ipv6 access-list</a>	Creates an IPv6 access list that is used to specify multiple IPv6 addresses for a route map configuration.
<a href="#">show ipv6 access-list</a>	Displays the contents of an IPv6 access list.

## MIB Objects

```
alaRouteMapAccessListTable
  alaRouteMapAccessListIndex
  alaRouteMapAccessListAddress
  alaRouteMapAccessListAddressType
  alaRouteMapAccessListPrefixLength
  alaRouteMapAccessListAction
  alaRouteMapAccessListRedistControl
  alaRouteMapAccessListRowStatus
```

---

## show ipv6 redist

Displays the IPv6 route map redistribution configuration.

```
show ipv6 redist [rip | ospf | bgp]
```

---

### Syntax Definitions

<b>rip</b>	Displays the route map redistribution configurations that specify RIP as the destination (into) protocol.
<b>ospf</b>	Displays the route map redistribution configurations that specify OSPF as the destination (into) protocol.
<b>bgp</b>	This parameter is not supported.

### Defaults

By default all route map redistribution configurations are shown.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Specify a destination protocol with this command to display only those configurations that redistribute routes into the specified protocol.
- The IPv6 version of BGP is not supported currently.

### Release History

Release 6.1.3; command was introduced.

### Examples

```
-> show ipv6 redist
```

Source Protocol	Destination Protocol	Status	Route Map
localIPv6	RIPng	Enabled	ipv6rm
RIPng	OSPFv3	Enabled	ipv6rm

```
-> show ipv6 redist ospf
```

Source Protocol	Destination Protocol	Status	Route Map
RIPng	OSPFv3	Enabled	ipv6rm

---

*output definitions*

---

<b>Source Protocol</b>	The protocol from which the routes are learned.
<b>Destination Protocol</b>	The protocol into which the source protocol routes are redistributed..
<b>Status</b>	The administrative status ( <b>Enabled</b> or <b>Disabled</b> ) of the route map redistribution configuration.
<b>Route Map</b>	The name of the route map that is applied with this redistribution configuration.

---

**Related Commands**

**ipv6 redistrib** Controls the conditions for redistributing IPv6 routes between different protocols.

**MIB Objects**

```
alaRouteMapRedistProtoTable  
  alaRouteMapRedistSrcProtoId  
  alaRouteMapRedistDestProtoId  
  alaRouteMapRedistRouteMapIndex  
  alaRouteMapRedistStatus  
  alaRouteMapRedistAddressType  
  alaRouteMapRedistRowStatus
```

---



## show ipv6 access-list

Displays the contents of the specified IPv6 access list.

**show ip access-list** [*access-list-name*]

---

### Syntax Definitions

*access-list-name*                      Name of the IPv6 access list.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the *access-list-name* is not specified in this command, all the access lists will be displayed.

### Examples

```
-> show ipv6 access-list
Name                Address /
                   Prefix Length    Effect    Redistribution
-----+-----+-----+-----
al_3                128::/64      permit   all-subnets
al_4                124::/64      permit   no-subnets
```

```
-> show ipv6 access-list 4
Name                Address /
                   Prefix Length    Effect    Redistribution
-----+-----+-----+-----
al_4                124::/64      permit   no-subnets
```

### *output definitions*

---

<b>Name</b>	Name of the IPv6 access list.
<b>Address/Prefix Length</b>	IPv6 address that belongs to the access list.
<b>Effect</b>	Indicates whether the IPv6 address is permitted or denied for redistribution.
<b>Redistribution Control</b>	Indicates the conditions specified for redistributing the matched routes.

---

### Release History

Release 6.1.3; command was introduced

## Related Commands

- ipv6 access-list** Creates an IPv6 access list for adding multiple IPv6 addresses to route maps.
- ipv6 access-list address** Adds multiple IPv6 addresses to the IPv6 access list.

## MIB objects

```
alaRouteMapAccessListIndex  
  alaRouteMapAccessListAddressType  
  alaRouteMapAccessListAddress  
  alaRouteMapAccessListPrefixLength  
  alaRouteMapAccessListAction  
  alaRouteMapAccessListRedistControl
```

---

## ipv6 load rip

Loads RIPng into memory. When the switch is initially configured, you must load RIPng into memory to enable RIPng routing.

**ipv6 load rip**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- RIPng will support a maximum of 1,000 routes.
- RIPng will support a maximum of 20 interfaces.
- Use the [ipv6 rip status](#) command to enable RIPng on the switch.

### Examples

```
-> ipv6 load rip
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip status](#)

Enables/disables RIPng routing on the switch.

[show ipv6 rip](#)

Displays RIPng status and general configuration parameters.

### MIB Objects

alaDrcTmConfig

alaDrcTmIPRipngStatus

---

## ipv6 rip status

Enables or disables RIPng on the switch.

```
ipv6 rip status {enable | disable}
```

---

### Syntax Definitions

N/A

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

RIPng must be loaded on the switch ([ipv6 load rip](#)) to enable RIP on the switch.

### Examples

```
-> ipv6 rip status enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 load rip](#)

Loads RIPng into memory.

[show ipv6 rip](#)

Displays RIPng status and general configuration parameters.

### MIB Objects

alaProtocolripng

alaRipngProtoStatus

---

## ipv6 rip invalid-timer

Configures the amount of time a route remains active in RIB before being moved to the "Garbage" state.

**ipv6 rip invalid-timer** *seconds*

---

### Syntax Definitions

*seconds* Time, in seconds, that a route will remain in an "Active" state. Valid range is 1 - 300.

### Defaults

parameter	default
<i>seconds</i>	180

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

This timer is reset each time a routing update is received.

### Examples

```
-> ipv6 rip invalid-timer 300
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip garbage-timer](#) Configures the RIPng garbage timer value.  
[ipv6 rip holddown-timer](#) Configures the amount of time a route is placed in a holddown state.

### MIB Objects

alaProtocolripng  
alaRipngInvalidTimer

---

## ipv6 rip garbage-timer

Configures the RIPng garbage timer value. When a route in the RIB exceeds the configured Invalid Timer Value, the route is moved to a “Garbage” state in the the RIB. The garbage timer is the length of time a route will stay in this state before it is flushed from the RIB.

**ipv6 rip garbage-timer** *seconds*

---

### Syntax Definitions

*seconds* Time, in seconds, that a route will remain in the RIPng Routing Table before it is flushed from the RIB. Valid range is 0 - 180.

### Defaults

parameter	default
<i>seconds</i>	120

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the [ipv6 rip invalid-timer](#) command to set the Invalid Timer Value.

### Examples

```
-> ipv6 rip garbage-timer 180
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip invalid-timer](#) Configures the amount of time a route remains active in RIB before being moved to the "Garbage" state.

[ipv6 rip holddown-timer](#) Configures the amount of time a route is placed in a holddown state.

### MIB Objects

alaProtocolripng  
alaRipngGarbageTimer

---

## ipv6 rip holddown-timer

Configures the amount of time a route is placed in a holddown state. Whenever a route is seen from the same gateway with a higher metric than the route in RIB, the route goes into holddown. This excludes route updates with an INFINITY metric.

**ipv6 rip holddown-timer** *seconds*

---

### Syntax Definitions

*seconds* Time, in seconds, that a route will remain in a holddown state. Valid range is 0 - 120.

### Defaults

parameter	default
<i>seconds</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

While in holddown, the route continues being announced as usual and used in RIB. This interval is used to control route flap dampening.

### Examples

```
-> ipv6 rip holddown-timer 60
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip invalid-timer](#) Configures the amount of time a route remains active in RIB before being moved to the "Garbage" state.

[ipv6 rip garbage-timer](#) Configures the RIPng garbage timer value.

### MIB Objects

```
alaProtocolripng  
  alaRipngHolddownTimer
```

---

## ipv6 rip jitter

Configures an offset value for RIPng updates. This is the maximum (positive or negative) value that can be used to offset the update interval. For example, with an update interval of 30 seconds, and a jitter value of 5 seconds, the RIPng update packet would be sent somewhere (random) between 25 and 35 seconds from the previous update.

**ipv6 rip jitter** *value*

---

### Syntax Definitions

*value* Time, in seconds, that a routing update is offset. Valid range is 0 to one-half the updated interval value (e.g., if the updated interval is 30, the range would be 0 - 300).

### Defaults

parameter	default
<i>value</i>	5

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

As you increase the number of RIPng interfaces/peers, it is recommended that you increase the Jitter value to reduce the number of RIPng updates being sent over the network.

### Examples

```
-> ipv6 rip jitter 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip update-interval](#) Configures the RIPng update interval.  
[show ipv6 rip](#) Displays RIPng status and general configuration information.

### MIB Objects

alaProtocolripng  
 alaRipngJitter

---



## ipv6 rip route-tag

Configures the route tag value for RIP routes generated by the switch.

**ipv6 rip route-tag** *value*

---

### Syntax Definitions

*value* Route tag value. Valid range is 0 – 65535.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

This value does not apply to routes learned from other routers. For these routes, the route tag propagates with the route.

### Examples

```
-> ipv6 rip route-tag 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 rip](#) Displays RIPng status and general configuration information.

### MIB Objects

```
alaProtocolripng  
  alaRipngRouteTag
```

---

## ipv6 rip update-interval

Configures the RIPng update interval. This is the interval, in seconds, that RIPng routing updates will be sent out.

**ipv6 rip update-interval** *seconds*

---

### Syntax Definitions

*seconds* Interval, in seconds, that RIPng routing updates are sent out. Valid range is 0–120.

### Defaults

parameter	default
<i>seconds</i>	30

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use this command, along with the [ipv6 rip jitter](#) command to configure RIPng updates.

### Examples

```
-> ipv6 rip update-interval 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip jitter](#) Configures an offset value for RIPng updates.  
[show ipv6 rip](#) Displays RIPng status and general configuration information.

### MIB Objects

alaRipng  
 alaRipngUpdateInterval

---

## ipv6 rip triggered-sends

Configures the behavior of triggered updates.

**ipv6 rip triggered-sends {all | updated-only | none}**

---

### Syntax Definitions

<b>all</b>	All RIPng routes are added to any triggered updates.
<b>updated-only</b>	Only route changes that are causing the triggered update are included in the update packets.
<b>none</b>	RIPng routes are not added to triggered updates.

### Defaults

---

parameter	default
all   updated-only   none	updated-only

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If set to **all**, all routes are sent in the update, not just route changes, which increases RIPng traffic on the network.
- If set to **none**, no triggered updates are sent, which can cause delays in network convergence.

### Examples

```
-> ipv6 rip triggered-sends none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ipv6 rip](#) Displays RIPng status and general configuration information.

### MIB Objects

alaProtocolripng  
alaRipngTriggeredSends

---

## ipv6 rip interface

Creates or deletes a RIPng interface.

**ipv6 rip interface** *if\_name*

**[no] ipv6 rip interface** *if\_name*

---

### Syntax Definitions

*if\_name* IPv6 interface name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- By default, a RIPng interface is created in the enabled state.
- Routing is enabled on a VLAN when you create a router port. However, to enable RIPng routing, you must also configure and enable a RIPng routing interface on the VLAN's IP router port. For more information on VLANs and router ports, see [Chapter 5, "VLAN Management Commands"](#).
- RIPng will support a maximum of 20 interfaces.

### Examples

```
-> ipv6 rip interface Test_Lab
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ipv6 redist</b>	Loads RIPng into memory.
<b>ipv6 rip status</b>	Enables or disables RIPng on the switch.
<b>ipv6 rip interface rcv-status</b>	Configures IPv6 RIPng interface “Receive” status. When this status is set to "enable", packets can be received on this interface.
<b>ipv6 rip interface send-status</b>	Configures IPv6 RIPng interface “Send” status. When this status is set to "enable", packets can be sent on this interface.
<b>show ipv6 rip interface</b>	Displays information for all or specified RIPng interfaces.

## MIB Objects

alaRipngInterfaceTable  
    alaRipngInterfaceStatus

---

## ipv6 rip interface metric

Configures the RIPng metric or cost for a specified interface. You can set priorities for routes generated by a switch by assigning a metric value to routes generated by that switch's RIPng interface. For example, routes generated by a neighboring switch may have a hop count of 1. However, you can lower the priority of routes generated by that switch by increasing the metric value for routes generated by the RIPng interface.

**ipv6 rip interface** *if\_name* **metric** *value*

---

### Syntax Definitions

*if\_name* IPv6 interface name.

*value* Metric value. Valid range is 1 - 15.

### Defaults

parameter	default
<i>value</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

When you configure a metric for a RIPng interface, this metric cost is added to the metric of the incoming route.

### Examples

```
-> ipv6 rip Test_Lab metric 1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 rip interface](#) Creates or deletes a RIPng interface.

[show ipv6 rip interface](#) Displays information for all or specified RIPng interfaces.

### MIB Objects

alaRipngInterfaceTable  
 alaRipngInterfaceMetric

---

## ipv6 rip interface recv-status

Configures IPv6 RIPng interface “Receive” status. When this status is set to "enable", packets can be received on this interface. When it is set to "disable", packets will not be received on this interface.

**ipv6 rip interface *if\_name* recv-status {enable | disable}**

---

### Syntax Definitions

*if\_name* IPv6 interface name.  
**enable | disable** Interface “Receive” status.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>enable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

RIPng must be loaded ([ipv6 load rip](#)) and enabled ([ipv6 rip status](#)) on the switch to send or receive packets on the interface.

### Examples

```
-> ipv6 rip interface Test_Lab recv-status disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ipv6 redist](#) Loads RIPng into memory.  
[ipv6 rip status](#) Enables/disables RIPng on the switch.  
[ipv6 rip interface send-status](#) Configures IPv6 RIPng interface “Send” status.

### MIB Objects

alaRipngInterfaceTable  
  alaRipngInterfaceRecvStatus

---

## ipv6 rip interface send-status

Configures IPv6 RIPng interface “Send” status. When this status is set to "enable", packets can be sent from this interface. When it is set to "disable", packets will not be sent from this interface.

**ipv6 rip interface *if\_name* send-status {enable | disable}**

---

### Syntax Definitions

<i>if_name</i>	IPv6 interface name.
<b>enable   disable</b>	Interface “Send” status.

### Defaults

parameter	default
<b>enable   disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

RIPng must be loaded ([ipv6 load rip](#)) and enabled ([ipv6 rip status](#)) on the switch to send or receive packets on the interface.

### Examples

```
-> ipv6 rip interface Test_Lab send-status enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ipv6 redistrib</a>	Loads RIPng into memory.
<a href="#">ipv6 rip status</a>	Enables/disables RIPng on the switch.
<a href="#">ipv6 rip interface rcv-status</a>	Configures IPv6 RIPng interface “Receive” status.

### MIB Objects

alaRipngInterfaceTable  
 alaRipngInterfaceSendStatus

---



## ipv6 rip interface horizon

Configures the routing loop prevention mechanisms.

```
ipv6 rip interface if_name horizon {none | split-only | poison}
```

---

### Syntax Definitions

<i>if_name</i>	IPv6 interface name.
<b>none</b>   <b>split-only</b>   <b>poison</b>	<b>none</b> - Disables loop prevention mechanisms. <b>split-only</b> - Enables split-horizon, without poison-reverse. <b>poison</b> - Enables split-horizon with poison-reverse.

### Defaults

---

parameter	default
<b>none</b>   <b>split-only</b>   <b>poison</b>	<b>poison</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If set to **none** the route is not sent back to the peer.
- If set to **split-only**, the route received from the peer is sent back with an increased metric.
- If set to **poison** the route received from the peer is sent back with an “infinity” metric.

### Examples

```
-> ipv6 rip interface Test_Lab none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ipv6 rip interface</a>	Displays information for all or specified RIPng interfaces.
<a href="#">show ipv6 rip routes</a>	Displays all or a specific set of routes in the RIPng Routing Table.

### MIB Objects

```
alaRipngInterfaceTable  
  alaRipngInterfaceHorizon
```

---

## show ipv6 rip

Displays the RIPng status and general configuration parameters.

```
show ipv6 rip
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 rip
```

```
Status                = Enabled,
Number of routes      = 10,
Route tag             = 0,
Update interval       = 30,
Invalid interval      = 180,
Garbage interval      = 120,
Holddown interval     = 0,
Jitter interval       = 5,
Triggered Updates     = All Routes,
```

### *output definitions*

---

<b>Status</b>	RIPng protocol status (enabled or disabled).
<b>Number of routes</b>	Number of RIPng routes in Forwarding Information Base (FIB).
<b>Route tag</b>	Route tag value for RIP routes generated by the switch. Valid range is 0-65535. Default is 0.
<b>Invalid interval</b>	Invalid Timer setting, in seconds.
<b>Garbage interval</b>	Garbage Timer setting, in seconds.
<b>Holddown interval</b>	Holddown Timer setting, in seconds.
<b>Jitter interval</b>	Jitter setting.
<b>Triggered updates</b>	Triggered Updates setting (All Routes, Updated Routes, and None).

---

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>ipv6 rip status</b>	Enables or disables RIPng routing on the switch.
<b>ipv6 rip route-tag</b>	Configures the route tag value for RIP routes generated by the switch.
<b>ipv6 rip update-interval</b>	Configures the Interval, in seconds, so that RIPng routing updates are sent out.
<b>ipv6 rip invalid-timer</b>	Configures the amount of time a route remains active in RIB before being moved to the "garbage" state.
<b>ipv6 rip invalid-timer</b>	Configures the RIPng garbage timer value. Routes move into the garbage collection state because the timer expired or a route update with an INFINITY metric was received.
<b>ipv6 rip holddown-timer</b>	Configures the amount of time a route is placed in a holddown state.
<b>ipv6 rip jitter</b>	Configures an offset value for RIPng updates. This is the maximum (positive or negative) value that can be used to offset the update interval.
<b>ipv6 rip triggered-sends</b>	Configures the behavior of triggered updates.

## MIB Objects

```
alaRipngInterfaceTable  
  alaRipngInterfaceStatus  
  alaRipngRouteTag  
  laRipngInvalidTimer  
  alaRipngGarbageTimer  
  alaRipngHolddownTimer  
  alaRipngJitter  
  alaRipngTriggeredSends
```

---

## show ipv6 rip interface

Displays information for all or specified RIPng interfaces.

**show ipv6 rip interface** [*if\_name*]

---

### Syntax Definitions

*if\_name* IPv6 interface name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not specify an interface, all IPv6 RIP interfaces are displayed.

### Examples

```
-> show ipv6 rip interface
```

Interface Name	Status	Packets		Metric
		Recvd	Sent	
Test_Lab	Active	12986	12544	1
Test_Lab_2	Active	12556	12552	1

```
-> show ipv6 rip interface if3
```

```
Name = Test_Lab,
IPv6 interface index = 3,
Interface status = Active,
Next Update = 27 secs,
Horizon Mode = Split and Poison-reverse,
MTU size = 1500,
Metric = 1,
Send status = Enabled,
Receive status = Enabled,
Packets received = 12986,
Packets sent = 12544,
```

### output definitions

---

<b>Interface name</b>	Interface name.
<b>IPv6 interface index</b>	IPv6 index of this interface.
<b>Status</b>	Interface status (Active/Inactive).
<b>Packets Recvd</b>	Number of packets received by the interface.

*output definitions (continued)*

---

<b>Packets Sent</b>	Number of packets sent by the interface.
<b>Metric</b>	RIPng metric (cost) configured for the interface.
<b>IPv6 interface index</b>	IPv6 interface index number.
<b>Interface status</b>	Interface status (Active/Inactive).
<b>Next update</b>	Seconds remaining until the next update on this interface.
<b>Horizon mode</b>	Interface Horizon Mode (routing loop prevention mechanisms). Displayed modes are none/split-only/poison-reverse.
<b>MTU size</b>	Maximum transmission size for RIPng packets on the interface.
<b>Send status</b>	Interface "Send" status. When this status is set to "enable", packets can be sent from this interface. When it is set to "disable", packets will not be sent from this interface.
<b>Receive status</b>	Interface "Receive" status. When this status is set to "enable", packets can be received by this interface. When it is set to "disable", packets cannot be received by this interface.
<b>Packets received</b>	Number of packets received by the interface.
<b>Packets sent</b>	Number of packets sent by the interface.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>ipv6 rip interface</b>	IPv6 interface name.
<b>ipv6 rip status</b>	Enables or disables RIPng routing on the switch.
<b>ipv6 rip interface rcv-status</b>	Configures the interface "Receive" status. When this status is set to "enable", packets can be received by this interface. When it is set to "disable", packets cannot be received by this interface.
<b>ipv6 rip interface send-status</b>	Configures the interface "Send" status. When this status is set to "enable", packets can be sent from this interface. When it is set to "disable", packets will not be sent from this interface.
<b>ipv6 rip interface metric</b>	Configures the RIPng metric (cost) for the interface.
<b>ipv6 rip interface horizon</b>	Configures the interface Horizon Mode (routing loop prevention mechanisms).
<b>show ipv6 rip</b>	Displays RIPng status and general configuration parameters (e.g., force holddown timer).

**MIB Objects**

```
alaRipngInterfaceTable  
  alaRipngInterfaceEntry  
  alaRipngInterfaceStatus  
  alaRipngInterfacePacketsRcvd  
  alaRipngInterfacePacketsSent  
  alaRipngInterfaceMetric  
  alaRipngInterfaceIndex  
  alaRipngInterfaceNextUpdate  
  alaRipngInterfaceHorizon  
  alaRipngInterfaceMTU  
  alaRipngInterfaceSendStatus  
  alaRipngInterfaceRecvStatus
```

---

## show ipv6 rip peer

Displays a summary of the observed RIPng peers, or specific information about a peer when a peer address is provided.

**show ipv6 rip peer** [*ipv6\_address*]

---

### Syntax Definitions

*ipv6\_address* IPv6 address of the peer.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not specify a peer, all IPv6 RIP peers are displayed.

### Examples

```
-> show ipv6 peer
```

Address	Seen on Interface	Packets Recv	Last Update
fe80::200:39ff:fe1f:710c	vlan172	23	20
fe80::2d0:95ff:fe12:da40	bkbone20	33	2
fe80::2d0:95ff:fe12:da40	vlan150	26	25
fe80::2d0:95ff:fe6a:5d41	nssa23	20	25

```
-> show ipv6 rip peer fe80::2d0:95ff:fe12:da40
```

```
Peer#1 address      = fe80::2d0:95ff:fe12:da40,
Seen on interface   = bkbone20,
Last Update         = 8 secs,
Received packets    = 33,
Received bad packets = 0
Received routes     = 5,
Received bad routes = 0
```

```
Peer#2 address      = fe80::2d0:95ff:fe12:da40,
Seen on interface   = vlan150,
Last Update         = 1 secs,
Received packets    = 27,
Received bad packets = 0
Received routes     = 2,
Received bad routes = 0
```

*output definitions*


---

<b>Address</b>	IPv6 address of the peer.
<b>Seen on Interface</b>	Interface used to reach the peer.
<b>Packets Recvd</b>	Number of packets received from the peer.
<b>Last Update</b>	Number of seconds since the last update was received from the peer.
<b>Peer address</b>	Peer IPv6 address.
<b>Received packets</b>	Number of packets received from the peer.
<b>Received bad packets</b>	Number of bad packets received from the peer.
<b>Received routes</b>	Number of RIPng routes received from the peer.
<b>Received bad routes</b>	Number of bad RIPng routes received from the peer.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show ipv6 rip interface</a>	Displays all or specified RIPng interface status.
<a href="#">show ipv6 rip routes</a>	Displays all or a specific set of routes in RIPng Routing Table.

**MIB Objects**

```
alaRipngPeerTable
  alaRipngPeerEntry
  alaRipngPeerAddress
  alaRipngPeerIndex
  alaRipngPeerLastUpdate
  alaRipngPeerNumUpdates
  alaRipngPeerBadPackets
  alaRipngPeerNumRoutes
  alaRipngPeerBadRoutes
```

---



## show ipv6 rip routes

Displays all or a specific set of routes in RIPng Routing Table.

```
show ipv6 rip routes [dest <ipv6_prefix/prefix_length>] / [gateway <ipv6_addr>] | [detail <ipv6_prefix/prefix_length>]
```

---

### Syntax Definitions

<b>dest</b>	Displays all routes whose destination matches the IPv6 prefix/prefix length.
<b>gateway</b>	Displays all routes whose gateway matches the specified IPv6 address.
<b>detail</b>	Displays detailed information about a single route matching the specified destination.
<i>ipv6_addr</i>	IPv6 address.
<i>ipv6_prefix/prefix length</i>	IPv6 address and prefix/prefix length.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

If you do not enter one of the optional parameters, all IPv6 RIP routes are displayed.

### Examples

```
-> show ipv6 rip routes
```

Legends: State: A = Active, H = Holddown, G = Garbage

Destination	Gateway	State	Metric	Proto
100::1/128	+fe80::200:39ff:fe1f:710c	A	2	Rip
100::100:1/128	+fe80::200:39ff:fe1f:710c	A	2	Rip
400::/100	+fe80::2d0:95ff:fe12:e050	A	1	Local
900::/100	+fe80::2d0:95ff:fe12:e050	A	1	Local
8900::/100	+fe80::2d0:95ff:fe12:da40	A	2	Rip
9800::/100	+fe80::2d0:95ff:fe12:da40	A	2	Rip
9900::/100	+fe80::2d0:95ff:fe12:e050	A	1	Local

```
-> show ipv6 rip routes detail 9900::/100
```

```

Destination      = 9900::,
Mask length      = 100,
Gateway(1)       = fe80::2d0:95ff:fe12:e050,
Protocol         = Local,
Out Interface    = nssa23,
Metric           = 1,
Status           = Installed,
State            = Active,
Age              = 10544s,
Tag              = 0,
Gateway(2)       = fe80::2d0:95ff:fe12:da40,
Protocol         = Rip,
Out Interface    = bkbone20,
Metric           = 2,
Status           = Not Installed,
State            = Active,
Age              = 15s,
Tag              = 0,

```

### *output definitions*

---

<b>Destination</b>	IPv6 address/address length of the destination.
<b>Gateway</b>	IPv6 gateway used to reach the destination.
<b>State</b>	Route status (Active/Inactive).
<b>Metric</b>	Routing metric for this route.
<b>Protocol</b>	Protocol used to learn the route.
<b>Mask Length</b>	Prefix Length.
<b>Out Interface</b>	The interface used to reach the destination.
<b>Status</b>	Route status (Active/Inactive).
<b>Age</b>	The number of seconds since the route was last updated.
<b>Tag</b>	The route tag value for the route.

---

## **Release History**

Release 6.1; command was introduced.

## **Related Commands**

<a href="#">ipv6 rip interface</a>	Creates/deletes a RIPng interface.
<a href="#">ipv6 rip interface metric</a>	Configures the RIPng metric or cost for a specified interface.
<a href="#">show ipv6 rip interface</a>	Displays all or specified RIPng interface status.

## **MIB Objects**

alaRipngRouteTable  
  alaRipngRouteEntry  
  alaRipngRoutePrefixLen  
  alaRipngRouteNextHop  
  alaRipngRouteType  
  alaRipngRouteAge  
  alaRipngRouteTag  
  alaRipngRouteStatus  
  alaRipngRouteMetric

---



# 16 IPsec commands

IPsec is a suite of protocols for securing IPv6 communications by authenticating and/or encrypting each IPv6 packet in a data stream. IPsec provides security services such as encrypting traffic, integrity validation, authenticating the peers, and anti-replay.

IPsec protocols operate at network layer using appropriate security protocols, cryptographic algorithms, and cryptographic keys. The security services are provided through use of two security protocols, the Authentication Header (AH) and the Encapsulating Security Payload (ESP), and through the use of cryptographic key management procedures and protocols.

This implementation of IPsec supports the transport mode of operation. In this mode, only the data you transfer (payload) in the IPv6 packet is encrypted and/or authenticated and only the payloads that are originated and destined between two endpoints are processed with IPsec.

The pre-configured Security Policy determines the traffic that is to be rendered with IPsec protection. A Security Association (SA) specifies the actual IPsec actions to be performed (e.g encryption using 3DES, authentication with HMAC-SHA1). A security association is a bundle of algorithms and parameters (such as keys) that is being used to encrypt and authenticate a particular flow in one direction. Security Associations are manually configured.

A summary of the available commands is listed here:.

---

- [ipsec key](#)
- [ipsec security-key](#)
- [ipsec policy](#)
- [ipsec policy rule](#)
- [ipsec sa](#)
- [show ipsec policy](#)
- [show ipsec sa](#)
- [show ipsec key](#)
- [show ipsec ipv6 statistics](#)

---

## ipsec key

Configures the authentication and encryption keys for a manually configured IPsec SA.

**ipsec key** *key\_name* {**sa-authentication** | **sa-encryption**} *key*

**no ipsec key** *key\_name* {**sa-authentication** | **sa-encryption**}

---

### Syntax Definitions

<i>key_name</i>	The name of this key (maximum 20 characters).
<b>sa-authentication</b>	Indicates that the key value is used by an authentication algorithm.
<b>sa-encryption</b>	Indicates that the key value is used by an encryption algorithm.
<i>key</i>	Specifies the key value. The key value can be either in the hexadecimal format or as a string.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the authentication key or the encryption key from a manually configured IPsec SA.
- The *name* parameter should be the same as the name of the manually configured SA that will use this SA authentication or encryption key.
- The length of the key value must match the value that is required by the encryption or authentication algorithm that will use the key. The required key length for the supported algorithm are as follows:

algorithm	key length
des-cbc	64 bits
3des-cbc	192 bits
aes-cbc	128, 192, or 256 bits
aes-ctr	160, 224, or 288 bits
hmac-md5	128 bits
hmac-sha1	160 bits
aes-xcbc-mac	128 bits

- The combination of the key's name and type must be unique.
- The **encrypted** option will be used when the key commands are written to the **boot.cfg** or other snapshot file. This option should not be specified when entering this command through the switch CLI.

## Examples

```
-> ipsec key sal_ah sa-authentication 0x11223344556677889900112233445566  
-> ipsec key sal_esp sa-encryption "Quoth, Nevermore"
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">ipsec sa</a>	Configures an IPsec Security Association (SA).
<a href="#">show ipsec key</a>	Displays the keys for the manually configured IPsec SA.

## MIB Objects

```
AlaIPsecKeyTable  
  alaIPsecKeyName  
  alaIPsecKeyType  
  alaIPsecKeyEncrypted  
  alaIPsecKey
```

---

## ipsec security-key

Sets the master security key for the switch. The master security key is used to encrypt and decrypt the configured SA keys that are saved to permanent storage (e.g., **boot.cfg** file).

**ipsec security-key** [*old\_key*] *new\_key*

---

### Syntax Definitions

<i>old_key</i>	The current master security key. The key can be specified either in the hexadecimal format (16 bytes in length) or as a string (16 characters in length).
<i>new_key</i>	The new key value. The key can be specified either in the hexadecimal format (16 bytes in length) or as a string (16 characters in length).

### Defaults

By default, no master security key is set for the switch.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- The *old\_key* parameter should always be specified when you modify an existing key. Setting the key for first time does not require the *old\_key*.
- If the value of the *old\_key* is incorrect, the attempt to set a new key will fail.
- When there is no master security key configured for the switch, the SA key values are written unencrypted to permanent storage (**boot.cfg** or other configuration file). A warning message is logged when this occurs.
- If the master security key is reset using **debug clear ipsec security-key** command, the currently configured SA keys will be deleted.
- When the master security key is set or changed, its value is immediately propagated to the secondary CMM. In a stacked configuration, the master security key is saved to all modules in case a stack split occurs or there is a simultaneous failure of both CMM modules. When the master security key is changed, save and synchronize the current configuration to ensure the proper operation of IPsec in the event of a switch reboot or takeover.

### Examples

```
-> ipsec security-key alcatel_corp_001 alcatel_lucent01
```

### Release History

Release 6.3.4; command was introduced.



## Related Commands

### [ipsec key](#)

Adds, modifies or deletes the authentication and encryption keys for a manually configured IPsec SA.

## MIB Objects

```
AlaIPsecSecurityKeyTable  
  alaIPsecSecurityKeyCurrent  
  alaIPsecSecurityKeyNew
```

---

## ipsec policy

Configures a security policy.

**ipsec policy** *policy\_name* [**priority** *priority*] [**source** {*ipv6\_address* [/*prefix\_length*]}] [**port** *port*] [**destination** {*ipv6\_address* [/*prefix\_length*]}] [**port** *port*] [**protocol** *protocol*] [**in** | **out**] [**discard** | **ipsec** | **none**] [**description** *description*] [**no shutdown** | **shutdown**]

**no ipsec policy** *policy\_name*

---

### Syntax Definitions

<i>policy_name</i>	The name for the policy
<i>priority</i>	The priority for the policy. Values range from 1 to 1000. The higher the value, the higher the priority.
<i>ipv6_address</i>	The IPv6 address to which the policy applies.
<i>prefix_length</i>	An IPv6 address prefix used to identify a range of addresses to which the policy applies.
<i>port</i>	The upper-layer protocol port number to which the policy applies.
<i>protocol</i>	Specifies the upper-layer protocol to which the policy applies (refer to the table in the “Usage Guidelines” section below for various protocol options).
<b>in</b>	Specifies that the policy is applied to the inbound IPv6 traffic.
<b>out</b>	Specifies that the policy is applied to the outbound IPv6 traffic.
<b>discard</b>	Specifies that traffic to which this policy applies is discarded.
<b>ipsec</b>	Specifies that IPsec processing is required on traffic to which this policy applies.
<b>none</b>	Specifies that no IPsec processing is done on traffic to which this policy applies.
<i>description</i>	The detailed description of the policy.
<b>no shutdown</b>	Administratively enables the policy.
<b>shutdown</b>	Administratively disables the policy.

## Defaults

<b>parameter</b>	<b>default</b>
<i>priority</i>	100
<i>port</i>	any port
<b>any   icmp6   tcp   udp   ospf   vrrp   number</b>	<b>any</b>
<b>discard   ipsec   none</b>	<b>ipsec</b>
<b>no shutdown   shutdown</b>	<b>no shutdown</b>

## Platforms Supported

OmniSwitch 6850, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove an IPsec policy rule from the switch configuration.
- If traffic matches more than one policy, the policy with the highest priority is applied. If two policies have the same priority, the one configured first has precedence.
- The following table lists the various **protocol** options for this command:

<b>protocol</b>
<b>any</b>
<b>icmp6</b> [ <i>type type</i> ]
<b>tcp</b>
<b>udp</b>
<b>ospf</b>
<b>vrrp</b>
<b>number</b> <i>protocol</i>

The **any** option should be used to apply the policy to all protocol traffic. Otherwise, an upper-layer protocol (or protocol number) may be specified to restrict the policy to the specified protocol traffic. The optional *type* parameter of **icmp6** can also be specified to restrict the policy for certain type of ICMPv6 packets.

- If the **ipsec** option is specified, then the IPv6 packets that matches the criteria will be processed by the the IPsec as defined with the **ipsec policy rule** command and this policy may not be enabled until at least one rule has been defined.

## Examples

```
-> ipsec policy tcp_in source ::/0 destination 3ffe:200:200:4001::99 protocol tcp
in ipsec description "IPsec on all inbound TCP" no shutdown
-> no ipsec policy tcp_in
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">ipsec policy rule</a>	Adds, modifies, or removes an IPsec rule for a security policy.
<a href="#">show ipsec policy</a>	Displays information about the security policies.

## MIB Objects

```
AlaIPsecSecurityPolicyTable
  alaIPsecSecurityPolicyName
  alaIPsecSecurityPolicyPriority
  alaIPsecSecurityPolicySource
  alaIPsecSecurityPolicySourceType
  alaIPsecSecurityPolicySourcePrefixLength
  alaIPsecSecurityPolicySourcePort
  alaIPsecSecurityPolicyDestination
  alaIPsecSecurityPolicyDestinationType
  alaIPsecSecurityPolicyDestinationPrefixLength
  alaIPsecSecurityPolicyDestinationPort
  alaIPsecSecurityPolicyULProtocol
  alaIPsecSecurityPolicyICMPv6Type
  alaIPsecSecurityPolicyDirection
  alaIPsecSecurityPolicyAction
  alaIPsecSecurityPolicyDescription
  alaIPsecSecurityPolicyAdminState
```

---

## ipsec policy rule

Configures an IPsec rule for an IPsec security policy.

**ipsec policy** *policy\_name* **rule** *index* [**ah** | **esp**]

**no ipsec policy** *policy\_name* **rule** *index*

---

### Syntax Definitions

<i>policy_name</i>	The name of an existing IPsec security policy.
<i>index</i>	The index of this rule. Values range from 1 to 10.
<b>ah</b>	Specifies that the rule requires the presence of an Authentication Header (AH).
<b>esp</b>	Specifies that the rule requires the presence of an Encrypted Security Payload (ESP).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- The IPsec security policy name specified with this command must already exist in the switch configuration. Use the **ipsec policy** command to create a new security policy.
- The index value configured for the IPsec policy rule determines the order in which a rule is applied to the original payload. For example, to first enclose the original contents of an IPv6 packet in an ESP and then authenticate the encrypted payload with an AH, configure the ESP rule with an index of one and the AH rule with an index of two.

### Examples

```
-> ipsec policy tcp_in rule 1 esp
-> ipsec policy tcp_in rule 2 ah
-> no ipsec policy tcp_in rule 2
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ipsec policy</a>	Configures an IPsec security policy.
<a href="#">show ipsec policy</a>	Displays the IPsec security policy configuration for the switch.

**MIB Objects**

AlaIPsecSecurityPolicyRuleTable  
  alaIPsecSecurityPolicyName  
  alaIPsecSecurityPolicyRuleIndex  
  alaIPsecSecurityPolicyRuleProtocol

---

## ipsec sa

Configures an IPsec Security Association (SA).

```
ipsec sa sa_name {esp | ah} [source ipv6_address] [destination ipv6_address] [spi spi] [encryption
{null | des-cbc | 3des-cbc | aes-cbc [key-size key_length] | aes-ctr [key-size key_length]}] [authentication
{none | hmac-md5 | hmac-sha1 | aes-xcbc-mac}] [description description] [no shutdown | shut-
down]
```

**no ipsec sa** *name*

---

### Syntax Definitions

<i>sa_name</i>	The name assigned to this IPsec SA.
<b>esp</b>	Specifies the type of security association as ESP.
<b>ah</b>	Specifies the type of security association as AH.
<b>source</b> <i>ipv6_address</i>	Specifies the source address of the IPv6 traffic that will be covered by the SA.
<b>destination</b> <i>ipv6_address</i>	Specifies the destination address of the IPv6 traffic that will be covered by the SA.
<i>spi</i>	The Security Parameters Index (SPI) for the SA.
<b>encryption</b>	Specifies the encryption algorithm to be used for traffic covered by the SA. This parameter is used only when the SA type is ESP.
<i>key_length</i>	Key length for the specified encryption algorithm.
<b>authentication</b>	Specifies the authentication algorithm to be used for traffic covered by the SA.
<i>description</i>	The detailed description of the SA.
<b>no shutdown</b>	Administratively enables the SA.
<b>shutdown</b>	Administratively disables the SA.

### Defaults

parameter	Defaults
<b>authentication</b> { <b>none</b>   <b>hmac-md5</b>   <b>hmac-sha1</b>   <b>aes-xcbc-mac</b> }	<b>none</b> (ESP SAs only; no default value for AH SAs)
<b>no shutdown</b>   <b>shutdown</b>	<b>no shutdown</b>

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

## Usage Guidelines

- When using **ESP** to verify integrity only, use the **null** option with the **encryption** parameter.
- If the **null** option is used with the **encryption** parameter, specify an integrity algorithm using the **authentication** parameter.
- To override the default key length for the **aes-cbc** or **aes-ctr** encryption algorithm, specify the key length value after the protocol name. The following key length values are supported:

encryption algorithm	key length (in bits)
aes-cbc	128(default), 192, and 256
aes-ctr	160(default), 224, and 288

- There are two ways to configure an ESP confidentiality-only SA: use the **none** option with the **authentication** parameter, or simply omit the **authentication** parameter from the command.
- For an integrity-only SA or an encryption and integrity SA, specify one of the authentication algorithms (**aes-xcbc-mac**, **hmac-md5** or **hmac-sha1**).
- For AH SAs, specify one of the authentication algorithms (**aes-xcbc-mac**, **hmac-md5** or **hmac-sha1**).
- Note that enabling an SA is not allowed if the required encryption and/or authentication keys have not been configured.

## Examples

```
-> ipsec sa ah_in ah source 3ffe:200:200:4001::99 destination 3ffe:200:200:4001::1
spi 9901 authentication hmac-sha1 description "HMAC SHA1 on traffic from 99 to 1"
-> ipsec sa esp_out esp source 3ffe:200:200:4001::1 destination
3ffe:200:200:4001::1ae7 spi 12901 encryption aes-cbc authentication aes-xcbc-mac
description "ESP confidentiality and integrity on traffic from 1 to 1ae7"
-> no ipsec sa ah_in
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">ipsec key</a>	Configures the authentication and encryption keys for a manually configured IPsec SA.
<a href="#">show ipsec sa</a>	Displays information about manually configured IPsec Security Associations.



## **MIB Objects**

AlaIPsecSAConfigTable

alaIPsecSAConfigName  
alaIPsecSAConfigType  
alaIPsecSAConfigSource  
alaIPsecSAConfigSourceType  
alaIPsecSAConfigDestination  
alaIPsecSAConfigDestinationType  
alaIPsecSAConfigSPI  
alaIPsecSAConfigEncryptionAlgorithm  
alaIPsecSAConfigEncryptionKeyLength  
alaIPsecSAConfigAuthenticationAlgorithm  
alaIPsecSAConfigDescription  
alaIPsecSAConfigAdminState

---

## show ipsec policy

Displays the IPsec security policy configuration for the switch.

```
show ipsec policy [policy_name]
```

---

### Syntax Definitions

*policy\_name*                      The name of an existing IPsec policy.

### Defaults

By default, information is displayed for all security policies configured for the switch.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the *policy\_name* parameter to display information about a specific security policy.

### Examples

```
-> show ipsec policy
Name          Priority  Source-> Destination      Protocol Direction Action  State
-----+-----+-----+-----+-----+-----+-----+-----
ftp-in-drop   100      ::/0->fe80::1:1::1      TCP      in      discard active
telnet-in-1   100      2000::/48->3ffe::200(23) TCP      in      ipsec  active
telnet-out-1  100      3ffe::200(23)->2000::/48 TCP      out     ipsec  active
```

#### *output definitions*

---

<b>Name</b>	The name of the security policy.
<b>Priority</b>	The priority value assigned to the policy. If the same traffic is covered by multiple policies, the policy with the highest priority is applied.
<b>Source -&gt; Destination</b>	Indicates the source and destination of traffic covered by this policy.
<b>Protocol</b>	Indicates the protocol traffic covered by this policy. The protocol name (TCP) or protocol number (80) will be displayed in this field.
<b>Direction</b>	Indicates whether the policy has been applied to the incoming or outgoing traffic.
<b>Action</b>	Indicates the action to be taken on the traffic covered by this policy.
<b>State</b>	Indicates the operational state of this policy.

---

```
-> show ipsec policy telnet-out-1
Name          = telnet-out-1
Priority      = 100
Source        = 3ffe::200(23)
Destination   = 2000::/48
Protocol      = TCP
Direction     = out
Action        = ipsec
State         = active
Rules:
  1) esp
  2) ah
Description:
  Require AH and ESP headers on outgoing telnet traffic.
```

### *output definitions*

---

<b>Name</b>	The name of the security policy.
<b>Priority</b>	The priority value assigned to the policy. If the same traffic is covered by multiple policies, the policy with the highest priority is applied.
<b>Source</b>	Indicates the source of the traffic covered by this policy.
<b>Destination</b>	Indicates the destination of the traffic covered by this policy.
<b>Protocol</b>	Indicates the protocol traffic covered by this policy. The protocol name (TCP) or protocol number (80) will be displayed in this field.
<b>Direction</b>	Indicates whether the policy has been applied to the incoming or outgoing traffic.
<b>Action</b>	Indicates the action to be taken on the traffic covered by this policy.
<b>State</b>	Indicates the operational state of this policy.
<b>Rules</b>	Indicates the rules specified for this policy.
<b>Description</b>	The description for this policy.

---

## Release History

Release 6.3.4; command was introduced.

## Related Commands

[ipsec policy](#) Configures an IPsec security policy.

## MIB Objects

```
AlaIPsecSecurityPolicyTable
  alaIPsecSecurityPolicyName
  alaIPsecSecurityPolicySource
  alaIPsecSecurityPolicySourceType
  alaIPsecSecurityPolicySourcePrefixLength
  alaIPsecSecurityPolicySourcePort
  alaIPsecSecurityPolicyDestination
  alaIPsecSecurityPolicyDestinationType
  alaIPsecSecurityPolicyDestinationPrefixLength
  alaIPsecSecurityPolicyDestinationPort
  alaIPsecSecurityPolicyProtocol
```

alaIPsecSecurityPolicyDirection  
alaIPsecSecurityPolicyAction  
alaIPsecSecurityPolicyOperationalState  
alaIPsecSecurityPolicyRuleIndex  
alaIPsecSecurityPolicyRuleProtocol  
alaIPsecSecurityPolicyDescription

---

## show ipsec sa

Displays information about manually configured IPsec Security Associations.

**show ipsec sa** [*sa\_name* | **esp** | **ah**]

---

### Syntax Definitions

<i>sa_name</i>	The name of the Security Association (SA).
<b>esp</b>	Restricts the display to ESP SAs.
<b>ah</b>	Restricts the display to AH SAs.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the *sa\_name* parameter to display information about a specific SA.
- Use the **esp** or **ah** options to display information about a specific SA type.

### Examples

```
-> show ipsec sa
Name          Type  Source-> Destination[SPI]      Encryption  Authentication State
-----+-----+-----+-----+-----+-----+-----
telnet-in-esp ESP  2000::/49->3ffe::200[8920]  aes-cbc(128) hmac-shal active
telnet-out-esp ESP  3ffe::200->2000::/48[100120]  aes-cbc(128) hmac-shal active
```

#### *output definitions*

---

<b>Name</b>	The SA name.
<b>Type</b>	The SA type ( <b>AH</b> or <b>ESP</b> ).
<b>Source -&gt; Destination [SPI]</b>	The traffic source, destination, and SPI for this SA.
<b>Encryption</b>	The encryption algorithm used for this SA.
<b>Authentication</b>	The authentication algorithm used for this SA.
<b>State</b>	The operational state of this SA.

---

```

-> show ipsec sa telnet-in-esp

Name          = telnet-in-esp
Type          = ESP
Source        = 2000::/49
Destination   = 3ffe::200
SPI           = 8920
Encryption    = aes-cbc(128)
Authentication = hmac-shal
State         = active
Description:
  Security association for traffic from 2000::/49 to
  3ffe::200.

```

### *output definitions*

---

<b>Name</b>	The SA name.
<b>Type</b>	The SA type ( <b>AH</b> or <b>ESP</b> ).
<b>Source</b>	The traffic source for this SA.
<b>Destination</b>	The traffic destination for this SA.
<b>SPI</b>	The SPI for this SA.
<b>Encryption</b>	The encryption algorithm used for this SA.
<b>Authentication</b>	The authentication algorithm used for this SA.
<b>State</b>	The operational state of this SA.
<b>Description</b>	The description for this SA.

---

## Release History

Release 6.3.4; command was introduced.

## Related Commands

[ipsec sa](#) Configures an IPsec Security Association (SA).

## MIB Objects

```

AlaIPsecSAConfigTable
  alaIPsecSAConfigName
  alaIPsecSAConfigType
  alaIPsecSAConfigSource
  alaIPsecSAConfigSourceType
  alaIPsecSAConfigDestination
  alaIPsecSAConfigDestinationType
  alaIPsecSAConfigSPI
  alaIPsecSAConfigOperationalState
  alaIPsecSAConfigEncryptionAlgorithm
  alaIPsecSAConfigEncryptionKeyLength
  alaIPsecSAConfigAuthenticationAlgorithm
  alaIPsecSAConfigAuthenticationKeyLength
  alaIPsecSAConfigDescription

```

---

## show ipsec key

Displays the encryption and authentication key values for the manually configured IPsec security association (SA).

```
show ipsec key {sa-encryption | sa-authentication}
```

---

### Syntax Definitions

**sa-encryption**                      Displays encryption SA key information.

**sa-authentication**                 Displays authentication SA key information.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

The key values will not be displayed due to security reasons.

### Examples

```
-> show ipsec key sa-encryption
Encryption Keys
Name                               Length (bits)
-----+-----
sa_1                               192
sa_2                               160
sa_3                               64

-> show ipsec key sa-authentication

Authentication Keys
Name                               Length (bits)
-----+-----
sa_1                               128
sa_5                               160
```

#### *output definitions*

---

<b>Name</b>	The name of the manually configured SA for which the key will be used. The keys may be created for SAs that do not exist.
<b>Length</b>	The length of the key, in bits.

---

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### [ipsec key](#)

Configures the authentication and encryption keys for a manually configured IPsec SA.

## MIB Objects

AlaIPsecKeyTable

    alaIPsecKeyName

    alaIPsecKey

---



## show ipsec ipv6 statistics

Displays IPsec statistics.

**show ipsec ipv6 statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

Inbound:

```
Successful                = 2787
Discarded                  = 18
Policy violation           = 0
No SA found                = 0
Unknown SPI                = 0
AH replay check failed    = 0
ESP replay check failed   = 0
AH authentication success = 93
AH authentication failure = 0
ESP authentication success = 25
ESP authentication failure = 0
Packet not valid          = 0
No memory available       = 0
```

Outbound:

```
Successful                = 5135
Discarded                  = 0
Policy violation           = 0
No SA found                = 19
Packet not valid          = 0
No memory available       = 0
```

### *output definitions*

---

<b>Successful (inbound)</b>	The number of incoming packets requiring IPsec processing that were successfully handled.
<b>Discarded (inbound)</b>	The number of incoming packets discarded because they matched a discard policy.
<b>Policy violation (inbound)</b>	The number of incoming packets dropped due to policy violations.

*output definitions*


---

<b>No SA found (inbound)</b>	The number of incoming packets dropped because no matching SA was found.
<b>Unknown SPI (inbound)</b>	The number of incoming packets dropped because the SPI was unknown.
<b>AH replay check failed (inbound)</b>	The number of incoming packets that failed the AH replay check.
<b>ESP replay check failed (inbound)</b>	The number of incoming packets that failed the ESP replay check.
<b>AH authentication success (inbound)</b>	The number of incoming packets that successfully passed AH authentication.
<b>AH authentication failure (inbound)</b>	The number of incoming packets that failed AH authentication.
<b>ESP authentication success (inbound)</b>	The number of incoming packets that successfully passed ESP authentication.
<b>ESP authentication failure (inbound)</b>	The number of incoming packets that failed ESP authentication.
<b>Packet not valid (inbound)</b>	The number of incoming packets requiring IPsec processing that were not valid.
<b>No memory available (inbound)</b>	The number of incoming packets requiring IPsec processing that were dropped because memory was not available.
<b>Successful (outbound)</b>	The number of outgoing packets requiring IPsec processing that were successfully handled.
<b>Discarded (outbound)</b>	The number of outbound packets discarded because they matched a discard policy.
<b>Policy violation (outbound)</b>	The number of outgoing packets dropped due to policy violation.
<b>No SA found (outbound)</b>	The number of outgoing packets dropped because no matching SA was found.
<b>Packet not valid (outbound)</b>	The number of outgoing packets requiring IPsec processing that were not valid.
<b>No memory available (outbound)</b>	The number of outgoing IPsec packets dropped because memory was not available.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<a href="#">show ipsec policy</a>	Displays the IPsec security policy configuration for the switch.
<a href="#">show ipsec sa</a>	Displays information about manually configured IPsec Security Associations.
<a href="#">show ipsec key</a>	Displays the encryption and authentication key values for the manually configured IPsec security association (SA).

## **MIB Objects**

### AlaIPsecStatisticsTable

- alaIPsecStatisticsInSuccessful
- alaIPsecStatisticsInPolicyViolation
- alaIPsecStatisticsInNoSA
- alaIPsecStatisticsInUnknownSPI
- alaIPsecStatisticsInAHReplay
- alaIPsecStatisticsInESPReplay
- alaIPsecStatisticsInAHAuthenticationSuccess
- alaIPsecStatisticsInAHAuthenticationFail
- alaIPsecStatisticsInESPAuthenticationSuccess
- alaIPsecStatisticsInESPAuthenticationFail
- alaIPsecStatisticsInBadPacket
- alaIPsecStatisticsInNoMemory
- alaIPsecStatisticsOutSuccessful
- alaIPsecStatisticsOutPolicyViolation
- alaIPsecStatisticsOutNoSA
- alaIPsecStatisticsOutBadPacket
- alaIPsecStatisticsOutNoMemory

---



# 17 RIP Commands

Routing Information Protocol (RIP) is an Interior Gateway Protocol (IGP) that uses hop count as its routing metric. RIP-enabled switches update neighboring switches by transmitting a copy of their own routing table. The RIP routing table always uses the most efficient route to a destination, that is, the route with the fewest hops and longest matching prefix.

The switch supports RIP version 1 (RIPv1), RIP version 2 (RIPv2), and RIPv2 that is compatible with RIPv1. It also supports simple and MD5 authentication, on an interface basis, for RIPv2.

The RIP commands comply with the following RFCs: RFC1058, RFC2453, RFC1722, RFC1723, and RFC1724.

MIB information for the RIP commands is as follows:

*Filename:* RIPv2.mib

*Module:* rip2

*Filename:* AlcatelIND1Rip.mib

*Module:* alaRipMIB

A summary of the available commands is listed here:

---

**ip load rip**  
**ip rip status**  
**ip rip interface**  
**ip rip interface status**  
**ip rip interface metric**  
**ip rip interface send-version**  
**ip rip interface recv-version**  
**ip rip force-holddowntimer**  
**ip rip host-route**  
**ip rip route-tag**  
**ip rip interface auth-type**  
**ip rip interface auth-key**  
**ip rip update-interval**  
**ip rip invalid-timer**  
**ip rip garbage-timer**  
**ip rip holddown-timer**  
**show ip rip**  
**show ip rip routes**  
**show ip rip interface**  
**show ip rip peer**

---

## ip load rip

Loads RIP into memory. When the switch is initially configured, you must load RIP into memory before it can be enabled.

### ip load rip

---

#### Syntax Definitions

N/A

#### Defaults

N/A

#### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

#### Usage Guidelines

- In simple networks where only IP forwarding is required, you may not want to use RIP. If you are not using RIP, it is best not to load it to save switch resources.
- To remove RIP from switch memory, you must manually edit the **boot.cfg** file. The **boot.cfg** file is an ASCII text-based file that controls many of the switch parameters. Open the file and delete all references to RIP. You must reboot the switch when this is complete.
- Use the [ip rip status](#) command to enable RIP on the switch.

#### Examples

```
-> ip load rip
```

#### Release History

Release 6.1; command was introduced.

#### Related Commands

<a href="#">ip rip status</a>	Enables/disables RIP routing on the switch.
<a href="#">show ip rip</a>	Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

#### MIB Objects

```
alaDrcTmConfig  
  alaDrcTmIPRipStatus
```

---

## ip rip status

Enables/disables RIP on the switch. RIP performs well in small networks. By default, RIP packets are broadcast every 30 seconds, even if no change has occurred anywhere in a route or service. Depending on the size and speed of the network, these periodic broadcasts can consume a significant amount of bandwidth.

**ip rip status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables RIP routing on the switch.
<b>disable</b>	Disables RIP routing on the switch.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- RIP must be loaded on the switch (**ip load rip**) to enable RIP on the switch.
- A RIP network can be no more than 15 hops (end-to-end). If there is a 16th hop, that network is identified as infinity and the packet is discarded.

### Examples

```
-> ip rip status enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>ip load rip</b>	Loads RIP into the switch memory.
<b>show ip rip</b>	Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

```
alaProtocolRip  
  alaRipProtoStatus
```

---

## ip rip interface

Creates/deletes a RIP interface. Routing is enabled on a VLAN when you create a router interface. However, to enable RIP routing, you must also configure and enable a RIP routing interface on the VLAN's IP router interface.

```
ip rip interface {interface_name}
```

```
no ip rip interface {interface_name}
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- By default, a RIP interface is created in the disabled state. To enable RIP routing on the interface, you must enable the interface by using the [ip rip interface status](#) command.
- You can create a RIP interface even if an IP router interface has not been configured. However, RIP will not function unless an IP router interface is configured with the RIP interface.
- For more information on VLANs and router ports, see [Chapter 5, "VLAN Management Commands"](#).

### Examples

```
-> ip rip interface rip-1
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.



## Related Commands

<a href="#">ip interface</a>	Creates a VLAN router interface.
<a href="#">ip load rip</a>	Loads RIP into memory. When the switch is initially configured, you must load RIP into memory before it can be enabled.
<a href="#">ip rip status</a>	Enables/disables RIP routing on the switch.
<a href="#">ip rip interface status</a>	Enables/disables a RIP interface.

## MIB Objects

```
rip2IfConfTable  
    rip2IfConfAddress  
    rip2IfConfStatus
```

---

## ip rip interface status

Enables/disables a RIP interface. By default, a RIP interface is created in the disabled state. After creating a RIP interface, you must use this command to enable the interface.

```
ip rip interface {interface_name} status {enable | disable}
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You must first create a RIP interface by using the [ip rip interface](#) command before enabling the interface.
- You can create a RIP interface even if an IP router interface has not been configured. However, RIP will not function unless an IP router interface is configured with the RIP interface.
- For more information on VLANs and router ports, see [Chapter 5, “VLAN Management Commands”](#).

### Examples

```
-> ip rip interface rip-1 status enable
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

**ip interface**

Creates a VLAN router interface.

**ip load rip**

Loads RIP into memory. When the switch is initially configured, you must load RIP into memory before it can be enabled.

**ip rip status**

Enables/disables RIP routing on the switch.

**ip rip interface**

Creates/deletes a RIP interface.

## MIB Objects

rip2IfConfTable

    rip2IfConfAddress

    rip2IfConfStatus

---

## ip rip interface metric

Configures the RIP metric or cost for a specified interface. You can set priorities for routes generated by a switch by assigning a metric value to routes generated by that switch's RIP interface. For example, routes generated by a neighboring switch may have a hop count of 1. However, you can lower the priority of routes generated by that switch by increasing the metric value for routes generated by the RIP interface.

**ip rip interface** *{interface\_name}* **metric** *value*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*value*                                      Metric value. Valid range is 1–15.

### Defaults

parameter	default
<i>value</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

When you configure a metric for a RIP interface, this metric cost is added to the metric of the incoming route.

### Examples

```
-> ip rip interface rip-1 metric 2
```

### Release History

Release 6.1; command was introduced.  
Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

**ip rip interface**                      Enables/disables RIP on a specific interface.

**show ip rip peer**                      Displays active RIP neighbors (peers). An active peer is a switch that has sent a RIP packet within the last 180 seconds.

### MIB Objects

rip2IfConfTable  
  rip2IfConfAddress  
  rip2IfConfDefaultMetric

---

## ip rip interface send-version

Configures the send option for a RIP interface. This defines the type(s) of RIP packets that the interface will send.

**ip rip interface** {*interface\_name*} **send-version** {**none** | **v1** | **v1compatible** | **v2**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>none</b>	RIP packets will not be sent by the interface.
<b>v1</b>	Only RIPv1 packets will be sent by the interface.
<b>v1compatible</b>	Only RIPv2 broadcast packets (not multicast) will be sent by the interface.
<b>v2</b>	Only RIPv2 packets will be sent by the interface.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>none   v1   v2   v1compatible</b>	<b>v2</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Using this command will override RIP default behavior.
- Other devices must be able to interpret the information provided by this command or there will not be proper routing information exchanged between the switch and other devices on the network.

### Examples

```
-> ip rip interface rip-1 send-version v1
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

**ip rip interface recv-version** Configures the receive option for a RIP interface.

## MIB Objects

```
rip2IfConfTable  
  rip2IfConfAddress  
  rip2IfConfSend
```

---

## ip rip interface recv-version

Configures the receive option for a RIP interface. This defines the type(s) of RIP packets that the interface will accept.

**ip rip interface** {*interface\_name*} **recv-version** {**v1** | **v2** | **both** | **none**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>v1</b>	Only RIPv1 packets will be received by the interface.
<b>v2</b>	Only RIPv2 packets will be received by the interface.
<b>both</b>	Both RIPv1 and RIPv2 packets will be received by the interface.
<b>none</b>	Interface ignores any RIP packets received.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>v1   v2   both   none</b>	<b>both</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Using this command will override RIP default behavior.
- Other devices must be able to interpret the information provided by this command or there will not be proper routing information exchanged between the switch and other devices on the network.

### Examples

```
-> ip rip interface rip-1 recv-version both
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

**ip rip interface send-version** Configures the send option for a RIP interface.

## MIB Objects

```
rip2IfConfTable  
  rip2IfConfAddress  
  rip2IfConfReceive
```

---



## ip rip force-holddowntimer

Configures the forced hold-down timer value, in seconds, that defines an amount of time during which routing information regarding better paths is suppressed. A route enters into a forced hold-down state when an update packet is received that indicates the route is unreachable and when this timer is set to a non-zero value. After this timer has expired and if the value is less than 120 seconds, the route enters a hold-down state for the rest of the period until the remainder of the 120 seconds has also expired. During this time the switch will accept any advertisements for better paths that are received.

**ip rip force-holddowntimer** *seconds*

---

### Syntax Definitions

*seconds*                      The forced hold-down time interval, in seconds. The valid range is 0–120.

### Defaults

parameter	default
<i>seconds</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The forced hold-down timer is not the same as the RIP hold-down timer. The forced hold-down timer defines a separate interval that overlaps the hold-down state. During the forced hold-down timer interval, the switch will not accept *better* routes from other gateways.
- The forced hold-down time interval can become a subset of the hold-down timer (120 seconds) by using this command to set a value less than 120.
- To allow the routing switch to use better routes advertised during the entire hold-down time period, leave the forced hold-down timer set to the default value of 0.

### Examples

```
-> ip rip force-holddowntimer 10
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### `show ip rip`

Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

## MIB Objects

`alaProtocolRip`

`alaRipForceHolddownTimer`

---

## ip rip host-route

Specifies whether or not RIP can add host routes (routes with a 32-bit mask) to the RIP table.

**ip rip host-route**

**no ip rip host-route**

---

### Syntax Definitions

N/A

### Defaults

The default is to enable a default host route.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to prevent RIP from adding host routes to the RIP table.
- When enabled, RIPv1 will interpret an incoming route announcement that contains any 1 bit in the host portion of the IP address as a host route, implying a mask of 255.255.255.255.

### Examples

```
-> ip rip host-route
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip rip routes](#) Displays the RIP Routing Database.

### MIB Objects

```
alaProtocolRip  
  alaRipHostRouteSupport
```

---

---

## ip rip route-tag

Configures the route tag value for RIP routes generated by the switch.

**ip rip route-tag** *value*

---

### Syntax Definitions

*value* Route tag value. Valid range is 0–2147483647.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Only RIPv2 supports route tags.

### Examples

```
-> ip rip route-tag 0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip rip](#) Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

alaRipRedistRouteTag

---

## ip rip interface auth-type

Configures the type of authentication that will be used for the RIP interface. By default, there is no authentication used for RIP. However, you can configure a password for a RIP interface. To configure a password, you must first select the authentication type (simple or MD5), then configure a password.

```
ip rip interface {interface_name} auth-type {none | simple | md5}
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>none</b>	No authentication will be used.
<b>simple</b>	Simple authentication will be used.
<b>md5</b>	MD5 authentication will be used.

### Defaults

---

parameter	default
<b>none   simple</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Regardless of which authentication type is used (simple or MD5), both switches on either end of a link must share the same password.

### Examples

```
-> ip rip interface rip-1 auth-type none
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[ip rip interface auth-key](#) Configures the text string that will be used as the password for the RIP interface.

### MIB Objects

```
rip2IfConfTable  
  rip2IfConfAddress  
  rip2IfConfAuthType
```

---

## ip rip interface auth-key

Configures the text string that will be used as the password for the RIP interface. If you configure simple or MD5 authentication, you must configure a text string that will be used as the password for the RIP interface.

```
ip rip interface {interface_name} auth-key string
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>string</i>	16-byte text string.

### Defaults

The default authentication string is a null string.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Regardless of which authentication type is used (simple or MD5), both switches on either end of a link must share the same password.

### Examples

```
-> ip rip interface rip-1 auth-key nms
```

### Release History

Release 6.1; command was introduced.  
Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

<a href="#">ip rip interface auth-type</a>	Configures the type of authentication that will be used for the RIP interface.
--------------------------------------------	--------------------------------------------------------------------------------

### MIB Objects

```
rip2IfConfTable  
  rip2IfConfAddress  
  rip2IfConfAuthKey
```

---

## ip rip update-interval

Configures the time interval during which RIP routing updates are sent out.

**ip rip update-interval** *seconds*

---

### Syntax Definitions

*seconds*                                      The RIP routing update interval, in seconds. The valid range is 1–120.

### Defaults

---

parameter	default
<i>seconds</i>	30

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The update interval value must be less than or equal to one-third the invalid interval value.

### Examples

```
-> ip rip update-interval 45
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ip rip](#)                                      Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

alaProtocolRip  
  alaRipUpdateInterval

---

## ip rip invalid-timer

Configures the RIP invalid timer value that defines the time interval during which a route will remain active in Routing Information Base (RIB) before moving to the invalid state.

**ip rip invalid-timer** *seconds*

---

### Syntax Definition

*seconds*                                          The RIP invalid timer value, in seconds. The valid range is 3–360.

### Defaults

parameter	default
<i>seconds</i>	180

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The invalid time interval value must be three times the update interval value.

### Examples

```
-> ip rip invalid-timer 270
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

**show ip rip**                                          Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

```
alaProtocolRip
  alaRipInvalidTimer
```

---



## ip rip garbage-timer

Configures the RIP garbage timer value that defines the time interval, which must elapse before an expired route is removed from the RIB.

**ip rip garbage-timer** *seconds*

---

### Syntax Definition

*seconds* The RIP garbage timer value, in seconds. The valid range is 0–180.

### Defaults

---

parameter	default
<i>seconds</i>	120

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

During the RIP garbage interval, the router advertises the route with a metric of INFINITY (i.e., 16 hops).

### Examples

```
-> ip rip garbage-timer 180
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ip rip](#) Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

alaProtocolRip  
alaRipGarbageTimer

---

## ip rip holddown-timer

Configures the RIP hold-down timer value that defines the time interval during which a route remains in the hold-down state.

**ip rip holddown-timer** *seconds*

---

### Syntax Definition

*seconds* The hold-down time interval, in seconds. The valid range is 0–120.

### Defaults

parameter	default
<i>seconds</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

When RIP detects a route with higher metric than the route in the RIB, the route with the higher metric goes into the hold-down state. The route updates with a metric of INFINITY are rejected.

### Examples

```
-> ip rip holddown-timer 10
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ip rip](#) Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

### MIB Objects

```
alaProtocolRip  
  alaRipHolddownTimer
```

---

## show ip rip

Displays the RIP status and general configuration parameters (e.g., forced hold-down timer).

**show ip rip**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip rip
```

```
Status = Enabled
Number of routes = 9
Host Route Support = Enabled
Route Tag = 42
Update interval = 30
Invalid interval = 180
Garbage interval = 120
Holddown interval = 0
Forced Hold-Down Timer = 0
```

#### *output definitions*

---

<b>Status</b>	RIP status ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Number of routes</b>	Number of network routes in the RIP routing table.
<b>Host Route Support</b>	Host route status ( <b>Enabled</b> or <b>Disabled</b> ). Indicates whether or not RIP can add host routes (routes with a 32-bit mask) to the RIP table.
<b>Route Tag</b>	Route tag value for RIP routes generated by the switch. Valid values are 0–2147483647.
<b>Update interval</b>	The RIP routing update interval, in seconds. Valid range is 1–120. Default is 30.
<b>Invalid interval</b>	The RIP invalid timer value, in seconds. Valid range is 3–360. Default is 180.
<b>Garbage interval</b>	The RIP garbage timer value, in seconds. Valid range is 0–180. Default is 120.

*output definitions*


---

<b>Holddown interval</b>	The hold-down time interval, in seconds. Valid range is 0–120. Default is 0.
<b>Forced Hold-Down Timer</b>	The forced hold-down time interval, in seconds. The valid range is 0–120. Default is 0.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; new fields added.

**Related Commands**

<b>ip rip status</b>	Enables/disables RIP routing on the switch.
<b>ip rip force-holddowntimer</b>	Configures the interval during which a RIP route remains in the forced hold-down state.
<b>ip rip update-interval</b>	Configures the time interval during which RIP routing updates are sent out.
<b>ip rip invalid-timer</b>	Configures the RIP invalid timer value that defines the time interval during which a route will remain active in Routing Information Base (RIB) before moving to the invalid state.
<b>ip rip garbage-timer</b>	Configures the RIP garbage timer value that defines the time interval, which must elapse before an expired route is removed from the RIB.
<b>ip rip holddown-timer</b>	Configures the RIP hold-down timer value that defines the time interval during which a route remains in the hold down state.

**MIB Objects**

```

alaProtocolRip
  alaRipProtoStatus
  alaRipRouteNumber
  alaRipHostRouteSupport
  alaRipRedistRouteTag
  alaRipUpdateInterval
  alaRipInvalidTimer
  alaRipGarbageTimer
  alaRipHolddownTimer
  alaRipForceHolddownTimer

```

---

## show ip rip routes

Displays the RIP routing database. The routing database contains all of the routes learned through RIP.

**show ip rip routes** [*ip\_address ip\_mask*]

---

### Syntax Definitions

*ip\_address*                                32-bit IP address.

*ip\_mask*                                    The mask corresponding to the IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

To view all RIP routes, enter the basic command syntax (**show ip rip routes**). To view a specific route, enter the destination IP address and mask.

### Examples

-> show ip rip routes

Legends: State: A = Active, H = Holddown, G = Garbage

Destination	Gateway	State	Metric	Proto
2.0.0.0/8	+5.0.0.14	A	2	Rip
	4.0.0.7	A	3	Rip
4.0.0.0/8	+5.0.0.14	A	3	Rip
	2.0.0.14	A	3	Rip
5.0.0.0/8	+2.0.0.14	A	2	Rip
	4.0.0.7	A	3	Rip
10.0.0.0/8	+4.0.0.7	A	2	Rip
	5.0.0.14	A	2	Rip
	2.0.0.14	A	2	Rip
22.0.0.0/8	+5.0.0.14	A	2	Rip
	2.0.0.14	A	2	Rip
	4.0.0.7	A	3	Rip
128.251.40.0/24	+4.0.0.7	A	2	Rip
	5.0.0.14	A	3	Rip
	2.0.0.14	A	3	Rip
150.0.0.0/24	+4.0.0.7	A	2	Rip
	5.0.0.14	A	2	Rip
	2.0.0.14	A	2	Rip
152.0.0.0/24	+4.0.0.7	A	2	Rip
	5.0.0.14	A	3	Rip

*output definitions*


---

<b>Destination</b>	Destination network IP address.
<b>Gateway</b>	The Gateway IP address (switch from which the destination address was learned).
<b>State</b>	The associated state of the route, which can be <b>A (Active)</b> , <b>H (Holddown)</b> , or <b>G (Garbage)</b> .
<b>Metric</b>	Metric associated with this network. Generally, this is the RIP hop count (the number of hops from this switch to the destination switch).
<b>Proto</b>	The type of route ( <b>Local</b> , <b>Rip</b> , or <b>Redist</b> ).

---

```
-> show ip rip routes 2.0.0.0 255.0.0.0
```

```

Destination          = 2.0.0.0,
Mask length          = 8,
Gateway(1)           = 5.0.0.14,
  Protocol            = Rip,
  Out Interface       = intf5,
  Metric              = 2,
  Status              = Installed,
  State                = Active,
  Age                  = 19s,
  Tag                  = 0,
Gateway(2)           = 4.0.0.7,
  Protocol            = Rip,
  Out Interface       = intf4,
  Metric              = 3,
  Status              = Not Installed,
  State                = Active,
  Age                  = 12s,
  Tag                  = 0,

```

*output definitions*


---

<b>Destination</b>	Destination network IP address.
<b>Mask length</b>	Length of the destination network IP subnet mask.
<b>Gateway</b>	The Gateway IP address (switch from which the destination address was learned).
<b>Protocol</b>	The type of the route ( <b>Local</b> , <b>Rip</b> , or <b>Redist</b> ).
<b>Out Interface</b>	The RIP interface through which the next hop is reached.
<b>Metric</b>	Metric associated with this network. Generally, this is the RIP hop count (the number of hops from this switch to the destination switch).
<b>Status</b>	The RIP interface status (Installed or Not Installed).
<b>State</b>	The associated state of the route ( <b>Active</b> , <b>Holddown</b> , or <b>Garbage</b> ).
<b>Age</b>	The age of the route in seconds (the number of seconds since this route was last updated or otherwise determined to be correct).
<b>Tag</b>	The associated route tag.

---

## Release History

Release 6.1; command was introduced.

Release 6.1.5; new fields added.

## Related Commands

[ip rip host-route](#)

Enables/disables a host route to an individual host on a network.

## MIB Objects

```
alaRipEcmpRouteTable
  alaRipEcmpRouteDest
  alaRipEcmpRouteMask
  alaRipEcmpRouteNextHop
  alaRipEcmpRouteType
  alaRipEcmpMetric
  alaRipEcmpStatus
  alaRipEcmpAge
  alaRipEcmpTag
  alaRipEcmpRouteState
  alaRipEcmpRouteStatus
```

---

## show ip rip interface

Displays RIP interface status and configuration.

**show ip rip interface** [*interface\_name*]

---

### Syntax Definitions

*interface\_name*                      The interface name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Enter an IP address to view a specific interface. Enter the basic **show ip rip interface** command to show status for all interfaces.

### Examples

```
-> show ip rip interface rip-1
```

```
Interface IP Name           = rip-1,
Interface IP Address        = 11.11.11.1
IP Interface Number (VLANId) = 4,
Interface Admin status     = enabled,
IP Interface Status        = enabled,
Interface Config AuthType  = None,
Interface Config AuthKey Length = 0,
Interface Config Send-Version = v2,
Interface Config Receive-Version = both,
Interface Config Default Metric = 1,
Received Packets           = 154,
Received Bad Packets       = 0,
Received Bad Routes        = 0,
Sent Updates                = 8
```

#### *output definitions*

---

<b>Interface IP Name</b>	The IP Interface name.
<b>Interface IP Address</b>	Interface IP address.
<b>IP Interface Number</b>	Interface VLAN ID number.
<b>Interface Admin Status</b>	The RIP administrative status (enabled/disabled).
<b>IP Interface Status</b>	Interface status (enabled /disabled).
<b>Interface Config AuthType</b>	The type of authentication that will be used for the RIP interface (None or Simple).



*output definitions (continued)*

---

<b>Interface Config AuthKey Length</b>	The authentication key length used for the RIP interface.
<b>Interface Config Send-Version</b>	Interface send option (none, v1, v2, and v1 compatible). Default is v2.
<b>Interface Config Receive-Version</b>	Interface receive option (none, v1, v2, and both). Default is both.
<b>Interface Config Default Metric</b>	Default redistribution metric. Default is 1.
<b>Received Packets</b>	Number of packets received on the interface.
<b>Received Bad Packets</b>	Number of bad packets received and discarded. Normally this value is zero (0).
<b>Received Bad Routes</b>	Number of bad routes received and discarded. Normally this value is zero (0).
<b>Sent Updates</b>	Number of RIP routing table updates sent.

---

**Release History**

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

Release 6.1.5; **Interface IP Name**, **Interface Admin Status**, **Interface Config AuthKey Length**, and **Received Packets** fields added; **Interface IP Broadcast Address**, **Interface Config AuthKey**, and **RIP Config Status** fields removed.

**Related Commands**

[ip rip interface](#) Enables/disables RIP for a specific interface.

**MIB Objects**

```
alaProtocolRip
  alaRipProtoStatus
alaRip2IfConfAugTable
  alaRip2IfConfName
  alaRip2IfRecvPkts
  alaRip2IfIpConfStatus
rip2IfConfTable
  rip2IfConfAddress
  rip2IfConfAuthType
  rip2IfConfAuthKey
  rip2IfConfSend
  rip2IfConfReceive
  rip2IfConfDefaultMetric
rip2IfStatTable
  rip2IfStatRcvBadPackets
  rip2IfStatRcvBadRoutes
  rip2IfStatSentUpdates
```

---

## show ip rip peer

Displays active RIP neighbors (peers). An active peer is a switch that has sent a RIP packet within the last 180 seconds. If a peer does not send a RIP packet (request or response) within 180 seconds, it is aged out and will not be displayed.

```
show ip rip peer [ip_address]
```

---

### Syntax Definitions

*ip\_address*                      32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip rip peer
```

```

      Total   Bad   Bad           Secs since
      IP Address  Recvd  Packets  Routes  Version  last update
-----+-----+-----+-----+-----+-----
      100.10.10.1    1     0       0       2         3

```

#### *output definitions*

---

<b>IP Address</b>	Peer IP address.
<b>Total recvd</b>	Total number of RIP packets received from the peer.
<b>Bad Packets</b>	Number of bad packets received from peer.
<b>Bad Routes</b>	Number of bad routes received from peer.
<b>Version</b>	Peer's RIP version as seen on the last packet received.
<b>Secs since last update</b>	Number of seconds since the last packet was received from the peer.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**show ip rip interface**

Displays the RIP interface status and configuration.

## MIB Objects

```
rip2PeerTable
  rip2PeerAddress
  rip2PeerDomain
  rip2PeerLastUpdate
  rip2PeerVersion
  rip2PeerRcvBadPackets
  rip2PeerRcvBadRoutes
```

---



# 18 RDP Commands

This chapter details Router Discovery Protocol (RDP) commands for the switch. RDP is an extension of the Internet Control Message Protocol (ICMP) that provides a mechanism for end hosts to discover at least one router in the same network.

This implementation of RDP is based on the router requirements specified in RFC 1256. Switches that serve as a router can enable RDP to advertise themselves to clients on the same network at random intervals between a configurable range of time and in response to client solicitations.

MIB information for the RDP commands is as follows:

*Filename:* AlcatelIND1Rdp.mib  
*Module:* alcatelIND1RDPMIB

A summary of the available commands is listed here:

---

**ip router-discovery**  
**ip router-discovery interface**  
**ip router-discovery interface advertisement-address**  
**ip router-discovery interface max-advertisement-interval**  
**ip router-discovery interface min-advertisement-interval**  
**ip router-discovery interface advertisement-lifetime**  
**ip router-discovery interface preference-level**  
**show ip router-discovery**  
**show ip router-discovery interface**

---

---

## ip router-discovery

Enables or disables the Router Discovery Protocol (RDP) for the switch.

**ip router-discovery {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables RDP on the switch.
<b>disable</b>	Disables RDP on the switch.

### Defaults

By default, RDP is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The **ip router-discovery** command only activates RDP for the switch. No advertisements occur until an IP interface is configured with RDP.
- Note that if VRRP is enabled but there is no VRRP master on the network, RDP will not transmit advertisements. If a VRRP master is identified or VRRP is disabled, however, RDP will transmit advertisements as described in this chapter.

### Examples

```
-> ip router-discovery enable  
-> ip router-discovery disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip router-discovery interface** Enables or disables an RDP interface.

### MIB Objects

```
alaRDPConfig  
  alaRDPStatus
```

---

## ip router-discovery interface

Enables or disables RDP for the specified IP interface. An RDP interface is created for the specified IP interface name, which is then advertised by RDP as an active router on the local network.

**ip router-discovery interface** *name* [**enable** | **disable**]

**no router-discovery interface** *name*

---

### Syntax Definitions

<i>name</i>	The IP interface name that was defined at the time the IP interface was configured.
<b>enable</b>	Enables an RDP interface for the specified IP interface.
<b>disable</b>	Disables an RDP interface for the specified IP interface.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>enable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the RDP interface from the switch configuration.
- Do *not* use the **enable** option the first time this command is used to create an RDP interface, as it is not necessary and will return an error message. Once RDP is enabled and then is subsequently disabled, however, the **enable** option is then required the next time this command is used to enable the RDP interface.
- The RDP interface is not active unless RDP is also enabled for the switch.

## Examples

```
-> ip router-discovery interface Marketing
-> ip router-discovery interface Marketing disable
-> ip router-discovery interface Marketing enable
-> no ip router-discovery interface Marketing
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip router-discovery</a>	Enables or disables RDP for the switch.
<a href="#">ip interface</a>	Configures an IP router interface.

## MIB Objects

```
alaRDPIfTable
  alaRDPIfStatus
```

---



## ip router-discovery interface advertisement-address

Configures the destination address to which RDP will send router advertisement packets from the specified interface. Advertisement packets are sent at configurable intervals by routers to announce their IP addresses on the network.

**ip router-discovery interface** *name* **advertisement-address** {**all-systems-multicast** | **broadcast**}

---

### Syntax Definitions

<i>name</i>	The IP interface name that was defined at the time the IP interface was configured.
<b>all-systems-multicast</b>	Specifies 224.0.0.1 as the destination address for RDP advertisement packets.
<b>Broadcast</b>	Specifies 255.255.255.255 as the destination address for RDP advertisement packets. Use this address if IP multicast links are not available.

### Defaults

parameter	default
<b>all-systems-multicast</b>   <b>broadcast</b>	<b>all-systems-multicast</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The RDP interface advertisement address is not active unless RDP is enabled on the switch and the specified interface is also enabled.
- RFC 1256 recommends the use of **all-system-multicast** on all links with “listening hosts” that support IP multicast.

### Examples

```
-> ip router-discovery interface Marketing advertisement-address all-systems-multicast
-> ip router-discovery interface Accounting advertisement-address broadcast
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- [ip router-discovery](#) Enables or disables RDP on the switch.
- [ip router-discovery interface](#) Enables or disables an RDP interface.

## MIB Objects

alaRDPIfTable

alaRDPIfAdvtAddress

---

## ip router-discovery interface max-advertisement-interval

Configures the maximum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.

**ip router-discovery interface** *name* **max-advertisement-interval** *seconds*

---

### Syntax Definitions

*name* The IP interface name that was defined at the time the IP interface was configured.

*seconds* The maximum amount of time allowed before the next advertisement occurs. The range is 4 to 1800 seconds.

### Defaults

parameter	default
<i>seconds</i>	600

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The RDP interface maximum advertisement time is not active unless RDP is enabled on the switch and the specified interface is also enabled.
- Do not specify a value for the maximum advertisement interval that is *less* than the value specified for the minimum advertisement interval. To set the minimum advertisement interval value, use the **ip router-discovery interface min-advertisement-interval** command.
- Note that the minimum and maximum advertisement values define an interval of time in which RDP transmits advertisement packets. RDP transmits packets at random times within this interval, waiting no longer than the maximum time specified and no sooner than the minimum time specified before the next transmission.

### Examples

```
-> ip router-discovery interface Marketing max-advertisement-interval 350
-> ip router-discovery interface Accounting max-advertisement-interval 20
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip router-discovery</b>	Enables or disables RDP on the switch.
<b>ip router-discovery interface</b>	Enables or disables an RDP interface.
<b>ip router-discovery interface min-advertisement-interval</b>	Configures the minimum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.
<b>ip router-discovery interface advertisement-lifetime</b>	Configures the maximum amount of time, in seconds, that router IP addresses received in advertisement packets are considered valid.

## MIB Objects

alaRDPIfTable  
alaRDPIfMaxAdvtInterval

---

## ip router-discovery interface min-advertisement-interval

Configures the minimum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.

**ip router-discovery interface** *name* **min-advertisement-interval** *seconds*

---

### Syntax Definitions

<i>name</i>	The IP interface name that was defined at the time the IP interface was configured.
<i>seconds</i>	The minimum amount of time allowed before the next advertisement occurs. The range is 3 seconds to the value set for the maximum advertisement interval.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>seconds</i>	0.75 * maximum advertisement interval

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The RDP interface minimum advertisement time is not active unless RDP is enabled on the switch and the specified interface is also enabled.
- Do not specify a value for the minimum advertisement interval that is *greater* than the value specified for the maximum advertisement interval. To set the maximum advertisement interval value, use the **ip router-discovery interface max-advertisement-interval** command.
- Note that the minimum and maximum advertisement values define an interval of time in which RDP transmits advertisement packets. RDP transmits packets at random times within this interval, waiting no longer than the maximum time specified and no sooner than the minimum time specified before the next transmission.

### Examples

```
-> ip router-discovery interface Marketing min-advertisement-interval 20
-> ip router-discovery interface Accounting min-advertisement-interval 3
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip router-discovery</a>	Enables or disables RDP on the switch.
<a href="#">ip router-discovery interface</a>	Enables or disables an RDP interface.
<a href="#">ip router-discovery interface max-advertisement-interval</a>	Configures the maximum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.
<a href="#">ip router-discovery interface advertisement-lifetime</a>	Configures the maximum amount of time, in seconds, that router IP addresses received in advertisement packets are considered valid.

## MIB Objects

alaRDPIfTable  
alaRDPIfMinAdvtInterval

---

## ip router-discovery interface advertisement-lifetime

Configures the maximum amount of time, in seconds, that router IP addresses advertised from the specified interface are considered valid. This value is set in the lifetime field of the advertisement packets transmitted on the specified RDP interface.

**ip router-discovery interface** *name* **advertisement-lifetime** *seconds*

---

### Syntax Definitions

<i>name</i>	The IP interface name that was defined at the time the IP interface was configured.
<i>seconds</i>	The length of time, in seconds, that advertised IP addresses are considered valid by the receiving host.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>seconds</i>	3 * maximum advertisement interval

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The RDP interface advertisement lifetime value is not active unless RDP is enabled on the switch, and the specified interface is also enabled.
- Do not specify an advertisement lifetime value that is less than the value specified for the maximum advertisement interval. To set the maximum advertisement interval value, use the **ip router-discovery interface max-advertisement-interval** command.

### Examples

```
-> ip router-discovery interface Marketing advertisement-lifetime 2000  
-> ip router-discovery interface Accounting advertisement-lifetime 750
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip router-discovery**

Enables or disables RDP on the switch.

**ip router-discovery interface**

Enables or disables an RDP interface.

**ip router-discovery interface  
min-advertisement-interval**

Configures the minimum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.

**ip router-discovery interface  
max-advertisement-interval**

Configures the maximum time, in seconds, RDP allows between each advertisement packet the router transmits on the specified interface.

## MIB Objects

alaRDPIfTable

alaRDPIfAdvLifeTime

---



## ip router-discovery interface preference-level

Configures the preference level for each IP address advertised on the specified RDP interface. The end host selects the address with the highest preference level to use as its default router, if the host is not already redirected or configured to use another default router for a particular destination.

**ip router-discovery interface** *name* **preference-level** *level*

---

### Syntax Definitions

<i>name</i>	The IP interface name that was defined at the time the IP interface was configured.
<i>level</i>	Any positive, integer value. The higher the value, the higher the precedence.

### Defaults

<b>parameter</b>	<b>default</b>
<i>level</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The RDP interface preference level value is not active unless RDP is enabled on the switch and the specified interface is also enabled.
- Set the preference level higher to encourage the use of an advertised router IP address.
- Set the preference level lower to discourage the use of an advertised router IP address.
- The preference level of an advertised router IP address is compared only to the preference levels of other addresses on the same subnet.

### Examples

```
-> ip router-discovery interface Marketing preference-level 10  
-> ip router-discovery interface Accounting preference-level 50
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- [ip router-discovery](#) Enables or disables RDP on the switch.
- [ip router-discovery interface](#) Enables or disables an RDP interface.

## MIB Objects

alaRDPIfTable  
    alaRDPIfPrefLevel

---

## show ip router-discovery

Displays the current RDP status and related statistics for the entire switch.

**show ip router-discovery**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Each time RDP is enabled on the switch, all statistic parameter values are reset to zero for the new session. For example, if the RDP uptime was 160000 seconds when RDP was last disabled, the uptime starts out at zero the next time RDP is enabled.
- Use the **show ip router-discovery interface** command to display information about a specific RDP interface.

### Examples

```
-> show ip router-discovery
Status                = Enabled,
RDP uptime            = 161636 secs
#Packets Tx           = 4,
#Packets Rx           = 0,
#Send Errors          = 0,
#Recv Errors          = 0,
```

### *output definitions*

---

<b>Status</b>	The status of RDP. <b>Enabled</b> allows RDP interfaces to advertise router IP addresses; <b>Disabled</b> stops RDP traffic on all switch interfaces. Use the <b>ip router-discovery</b> command to enable or disable RDP on the switch.
<b>RDP uptime</b>	Indicates the amount of time, in seconds, that RDP has remained active on the switch.
<b>#Packets Tx</b>	The number of RDP packets transmitted from all active RDP interfaces on the switch.
<b>#Packets Rx</b>	The number of RDP packets received on all active RDP interfaces on the switch.
<b>#Send Errors</b>	The number of RDP packet transmission errors that have occurred.
<b>#Recv Errors</b>	The number of errors that occurred when receiving RDP packets.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[show ip router-  
discovery interface](#)

Displays the current RDP status and related statistics for one or more switch router port interfaces.

## MIB Objects

alaRDPConfig  
    alaRDPStatus

---

## show ip router-discovery interface

Displays the current RDP status, related parameter values, and RDP traffic statistics for one or more switch router interfaces.

**show ip router-discovery interface** [*name*]

---

### Syntax Definitions

*name* The IP interface name that was defined at the time the IP interface was configured.

### Defaults

By default, the information for all RDP interfaces is displayed with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When an optional IP interface name is specified with this command, additional information about the RDP interface is displayed.
- Use the **show ip router-discovery** command to display global RDP status and statistics for the entire switch.

### Examples

```
-> show ip router-discovery interface
      Name      IP i/f  RDP i/f  VRRP i/f  Next  #Pkts
                status  status  status(#mast)  Advt sent/recvd
-----+-----+-----+-----+-----+-----
Marketing      Disabled Enabled Disabled(0)  9    0    0
Accounting     Disabled Enabled Disabled(0)  3    0    0
```

### output definitions

---

<b>Name</b>	The user-defined IP interface name defined at the time the IP interface was configured.
<b>IP i/f status</b>	The IP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ).
<b>RDP i/f status</b>	The RDP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ).
<b>VRRP i/f status (#mast)</b>	The VRRP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ), and the number of VRRP masters on the network for this interface.
<b>Next Advt</b>	Time remaining until the next advertisement is sent.
<b>#Pkts sent/recvd</b>	Number of advertisement packets sent from this interface; the number of solicitation packets received on this interface.

---

```

-> show ip router-discovery interface Marketing
Name = Marketing,
IP Address = 11.255.4.1,
IP Mask = 255.0.0.0,
IP Interface status = Enabled,
RDP Interface status = Enabled,
VRRP Interface status = Disabled,
Advertisement address = 224.0.0.1,
Max Advertisement interval = 600 secs,
Min Advertisement interval = 450 secs,
Advertisement lifetime = 1800 secs,
Preference Level = 0x0,
#Packets sent = 3,
#Packets received = 0,

```

### *output definitions*

<b>Name</b>	The user-defined IP interface name defined at the time the IP interface was configured.
<b>IP Address</b>	The IP address associated with the IP interface name.
<b>IP Mask</b>	The subnet mask associated with the interface IP address.
<b>IP Interface status</b>	The IP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ).
<b>RDP Interface status</b>	The RDP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ).
<b>VRRP Interface status</b>	The VRRP status for this interface ( <b>Enabled</b> or <b>Disabled</b> ). See <a href="#">Chapter 21, “VRRP Commands,”</a> for more information.
<b>Advertisement address</b>	The destination address for RDP advertisement packets: <b>224.0.0.1</b> (all-systems-multicast) or <b>255.255.255.255</b> (broadcast). Configured using the <a href="#">ip router-discovery interface advertisement-address</a> command.
<b>Max Advertisement interval</b>	The maximum time, in seconds, RDP allows between each advertisement packet the router transmits from this interface. Configured using the <a href="#">ip router-discovery interface max-advertisement-interval</a> command.
<b>Min Advertisement interval</b>	The minimum time, in seconds, RDP allows between each advertisement packet the router transmits from this interface. Configured using the <a href="#">ip router-discovery interface min-advertisement-interval</a> command.
<b>Advertisement lifetime</b>	The maximum amount of time, in seconds, that router IP addresses advertised from this interface are considered valid. Configured using the <a href="#">ip router-discovery interface advertisement-lifetime</a> command.
<b>Preference Level</b>	The preference level, displayed in hex, for each IP address advertised on this interface. Configured using the <a href="#">ip router-discovery interface preference-level</a> command.
<b>#Packets sent</b>	The number of advertisement packets transmitted from this interface.
<b>#Packets received</b>	The number of solicitation packets received on this interface.

## Release History

Release 6.1; command was introduced.

## Related Commands

### [show ip router-discovery](#)

Displays the current RDP status and related statistics for the entire switch.

### [show vrrp](#)

Displays the virtual router configuration for all virtual routers or for a particular virtual router.

## MIB Objects

alaRDPIfTable

- alaRDPIfAdvtAdress
- alaRDPIfMaxAdvtInterval
- alaRDPIfMinAdvtInterval
- alaRDPIfAdvLifeTime
- alaRDPIfPrefLevel

---





# 19 BFD Commands

Bidirectional Forwarding Detection (BFD) is a hello protocol, which can be configured to interact with routing protocols for the detection of path failures and can reduce the convergence time in a network. BFD is supported with the BGP, OSPF, VRRP, and Static Routes.

When BFD is configured and enabled, BFD sessions are created and timers are negotiated between BFD neighbors. If a system does not receive a BFD control packet within the negotiated time interval, the neighbor system is considered down. Rapid failure detection notices are then sent to the routing protocol, which initiates a routing protocol recalculation. This process can reduce the time of convergence in a network.

BFD can be operated in three different modes: Asynchronous mode, Demand mode or Echo mode.

In Asynchronous mode, the systems continuously send BFD control packets between each other as part of a BFD session. If there are no packets received for a minimum time interval negotiated between the systems, then the neighbor system is considered down.

In Demand mode, a poll sequence is initiated for which there is an exchange of BFD control packets. If the demand mode is active and no control packets are received in response to the poll sequence, the session is declared down.

In Echo mode, a stream of BFD echo packets are transmitted in a forwarding path for which the neighboring system would loop the packets and send them back. If the number of packets transmitted is not echoed back, then the system is declared down. Echo mode can be operated along with Asynchronous mode and Demand mode.

MIB information for the BFD commands is as follows:

*Filename:* ALCATEL-IND1-BFD-MIB  
*Module:* ALCATEL-IND-BFD-MIB

---

A summary of the available commands is listed here:

---

<b>Global BFD commands</b>	<b>ip bfd-std status</b> <b>ip bfd-std transmit</b> <b>ip bfd-std receive</b> <b>ip bfd-std mode</b> <b>ip bfd-std echo interval</b> <b>ip bfd-std l2-hold-timer</b> <b>show ip bfd-std</b> <b>show ip bfd-std sessions</b> <b>show ip bfd-std session</b>
<b>BFD Interface commands</b>	<b>ip bfd-std interface</b> <b>ip bfd-std interface status</b> <b>ip bfd-std interface transmit</b> <b>ip bfd-std interface receive</b> <b>ip bfd-std interface multiplier</b> <b>ip bfd-std interface mode</b> <b>ip bfd-std interface echo-interval</b> <b>ip bfd-std interface l2-hold-timer</b> <b>show ip bfd-std interfaces</b>
<b>Commands to configure BFD supported protocols</b>	<b>ip ospf bfd-std status</b> <b>ip ospf bfd-std all-interfaces</b> <b>ip ospf interface bfd-std</b> <b>ip ospf interface bfd-std drs-only</b> <b>ip ospf interface bfd-std all-nbrs</b> <b>ip bgp bfd-std status</b> <b>ip bgp bfd-std all-neighbors</b> <b>ip bgp neighbors bfd-std</b> <b>vrrp bfd-std</b> <b>vrrp track address bfd-std</b> <b>ip static-route all bfd-std</b> <b>ip static-routes bfd-std status</b>

---

## ip bfd-std status

Enables or disables the global BFD protocol status for the switch.

**ip bfd-std status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables BFD.
<b>disable</b>	Disables BFD.

### Defaults

By default, BFD is disabled for the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Disabling BFD does not remove the existing BFD configuration from the switch.
- When BFD is disabled, all BFD functionality is disabled for the switch, but configuring BFD is still allowed.
- Configuring BFD global parameters is not allowed when BFD is enabled for the switch.

### Examples

```
-> ip bfd-std status enable  
-> ip bfd-std status disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

**show ip bfd-std** Displays the BFD global status and general configuration parameters.

### MIB Objects

alaBfdGlobalAdminStatus

---

## ip bfd-std transmit

Configures the global transmit time interval for BFD control packets. This command specifies the minimum amount of time BFD waits between each transmission of control packets.

**ip bfd-std transmit** *transmit-interval*

---

### Syntax Definitions

*transmit-interval*                      The transmit time interval, in milliseconds. The valid range is 100–999.

### Defaults

parameter	default
<i>transmit-interval</i>	100 milliseconds

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The transmit time interval is also configurable at the BFD interface level. Note that configuring the global value with the **ip bfd-std transmit** command does not override the value set for the interface using the **ip bfd-std interface transmit** command.
- The global transmit time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.

### Examples

```
-> ip bfd-std transmit 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- ip bfd-std interface transmit**      Configures the transmit time interval for a specific BFD interface.
- show ip bfd-std**                      Displays the BFD global status and general configuration parameters.

### MIB Objects

alaBfdGlobalTxInterval

---

## ip bfd-std receive

Configures the global receive time interval for BFD control packets. This command specifies the minimum amount of time BFD waits to receive control packets before determining there is a problem.

**ip bfd-std receive** *receive-interval*

---

### Syntax Definitions

*receive-interval*                      The receive time interval, in milliseconds. The valid range is 100–999.

### Defaults

parameter	default
<i>receive-interval</i>	100 milliseconds

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The minimum receive time interval is also configurable at the BFD interface level. Note that configuring the global value with the **ip bfd-std receive** command does not override the value set for the interface using the **ip bfd-std interface receive** command.
- The global receive time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.

### Examples

```
-> ip bfd-std receive 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- [ip bfd-std interface receive](#)            Configures the receive time interval for a specific BFD interface.
- [show ip bfd-std](#)                            Displays the BFD global status and general configuration parameters.

### MIB Objects

alaBfdGlobalRxInterval

---

## ip bfd-std mode

Configures the global operational mode and echo status for the BFD protocol.

```
ip bfd-std mode {echo-only | demand echo {enable | disable} | asynchronous echo {enable|disable}}
```

---

### Syntax Definitions

<b>echo-only</b>	Specifies echo only mode.
<b>demand echo enable</b>	Specifies demand mode with the echo function enabled.
<b>demand echo disable</b>	Specifies demand mode with the echo function disabled.
<b>asynchronous echo enable</b>	Specifies asynchronous mode with the echo function enabled.
<b>asynchronous echo disable</b>	Specifies asynchronous mode with the echo function disabled.

### Defaults

By default, BFD is set to globally operate in demand mode with the echo function enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global operational mode and echo status is also configurable at the BFD interface level. Note that configuring the global value with the **ip bfd-std mode** command does not override the value set for the interface using the **ip bfd-std interface mode** command.
- The global operational mode and echo status serves as the default mode and status for a BFD interface. The default mode and status is overridden when a specific value is configured for the interface.

### Examples

```
-> ip bfd-std mode echo-only  
-> ip bfd-std mode demand echo enable
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

**ip bfd-std interface mode**

Configures the operational mode and echo status for a BFD interface.

**show ip bfd-std**

Displays the BFD global status and general configuration parameters.

## MIB Objects

alaBfdGlobalOperMode

alaBfdGlobalEchoStatus

---

## ip bfd-std echo interval

Configures the global BFD echo packet time interval. The echo function is available with the asynchronous or demand mode. Echo packets are transmitted to BFD peers to see if they loop back to the peer from which they originated.

**ip bfd-std echo interval** *echo-interval*

---

### Syntax Definitions

*echo-interval*                      The echo time interval, in milliseconds. The valid range is 100–999.

### Defaults

parameter	default
<i>echo-interval</i>	100 milliseconds

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The echo packet time interval is also configurable at the BFD interface level. Note that configuring the global value with the **ip bfd-std echo interval** command does not override the value set for the interface using the **ip bfd-std interface echo interval** command.
- The global echo packet time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.

### Examples

```
-> ip bfd-std echo interval 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- ip bfd-std interface echo-interval**                      Configures the echo packet time interval for a BFD interface.
- show ip bfd-std**                      Displays the BFD global status and general configuration parameters.

### MIB Objects

alaBfdGlobalEchoRxInterval

---



## ip bfd-std l2-hold-timer

Configures the global Layer 2 hold-down (convergence) timer value for the BFD protocol. This command specifies the amount of time BFD remains in a hold-down state after a Layer 2 topology change occurs.

**ip bfd-std l2-hold-timer** *l2-holdtimer-interval*

---

### Syntax Definitions

*l2-holdtimer-interval*                      The Layer 2 hold-down time interval, in milliseconds. The valid range is 100–999.

### Defaults

parameter	default
<i>l2-holdtimer-interval</i>	100 milliseconds

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global Layer 2 hold-down timer is also configurable at the BFD interface level. Note that configuring the global value with the **ip bfd-std l2-hold-timer** command does not override the value set for the interface using the **ip bfd-std interface l2-hold-timer** command.
- The global Layer 2 hold-down timer serves as the default value for a BFD interface. The default timer value is overridden when a specific value is configured for the interface.

### Examples

```
-> ip bfd-std l2-holdtimer 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- [ip bfd-std interface l2-hold-timer](#)                      Configures the Layer 2 hold-down timer value for a BFD interface.
- [show ip bfd-std](#)                                      Displays the BFD global status and general configuration parameters.

### MIB Objects

alaBfdGlobalL2HoldTimer

---

## ip bfd-std interface

Configures a BFD interface.

**ip bfd-std interface** *interface\_name*

**no ip bfd-std interface** *interface\_name*

---

### Syntax Definitions

*interface\_name*                      The name of an existing IP interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a BFD interface.
- The interface name must be an existing IP interface name that is configured with an IP address.

### Examples

```
-> ip bfd-std interface bfd-vlan-101
-> no ip bfd-std interface bfd-vlan-101
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bfd-std interface status</a>	Configures the administrative status of a BFD interface.
<a href="#">show ip bfd-std interfaces</a>	Displays the status and statistics of a BFD interface.
<a href="#">show ip bfd-std sessions</a>	Displays the status and statistics of the BFD sessions.

### MIB Objects

```
alaBfdIntfTable
  alaBfdIntfAddrType
  alaBfdIntfAddr
  alaBfdIntfIndex
```

---

## ip bfd-std interface status

Enables or disables the administrative status of a BFD interface.

**ip bfd-std interface** *interface\_name* **status {enable | disable}**

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing BFD interface.
<b>enable</b>	Enables the BFD interface.
<b>disable</b>	Disables the BFD interface.

### Defaults

By default, a BFD interface is disabled when it is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The BFD interface must be enabled to participate in the BFD protocol.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 status enable
-> ip bfd-std interface bfd-vlan-101 status disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<b>ip bfd-std interface</b>	Creates a BFD interface.
<b>show ip bfd-std interfaces</b>	Displays the status and statistics of a BFD interface.
<b>show ip bfd-std sessions</b>	Displays the status and statistics of BFD sessions.

### MIB Objects

```
alaBfdIntfTable
  alaBfdIntfAdminStatus
```

---

## ip bfd-std interface transmit

Configures the transmit time interval for the BFD interface. This command specifies the minimum amount of time BFD waits between each transmission of control packets from the interface.

**ip bfd-std interface** *interface\_name* **transmit** *transmit-interval*

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing BFD interface.
<i>transmit-interval</i>	The transmit time interval, in milliseconds. The valid range is 100–999.

### Defaults

The global transmit time interval value is used by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global transmit time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.
- Note that configuring the interface transmit time interval using the **ip bfd-std interface transmit** command does not change the global value configured with the **ip bfd-std transmit** command.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 transmit 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<b>ip bfd-std interface</b>	Creates a BFD interface.
<b>ip bfd-std transmit</b>	Configures a global BFD transmit time interval.
<b>show ip bfd-std interfaces</b>	Displays the status and statistics of a BFD interface.
<b>show ip bfd-std sessions</b>	Displays the status and statistics of the BFD sessions.

### MIB Objects

alaBfdIntfTable  
  alaBfdIntfDesiredMinTxInterval

---

## ip bfd-std interface receive

Configures the receive time interval for the BFD interface. This command specifies the minimum amount of time BFD waits to receive control packets on the interface before determining there is a problem.

**ip bfd-std interface** *interface\_name* **receive** *receive-interval*

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing BFD interface.
<i>receive-interval</i>	The receive time interval, in milliseconds. The valid range is 100–999.

### Defaults

The global receive time interval value is used by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global receive time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.
- Note that configuring the interface transmit time interval using the **ip bfd-std interface receive** command does not change the global value configured with the **ip bfd-std receive** command.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 receive 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<b>ip bfd-std interface</b>	Creates a BFD interface.
<b>ip bfd-std receive</b>	Configures a global BFD receive time interval.
<b>show ip bfd-std interfaces</b>	Displays the BFD interface configuration table.
<b>show ip bfd-std sessions</b>	Displays the BFD interface configuration table.

### MIB Objects

alaBfdIntfTable  
alaBfdIntfMinRxInterval

---

## ip bfd-std interface multiplier

Configures the BFD interface dead interval multiplier. This command specifies a number that is used to calculate the BFD detection time used in the asynchronous mode. When an interface stops receiving packets from a neighbor, the interface uses the detection time value to determine how long to wait before declaring that the BFD session is down.

```
ip bfd-std interface interface_name multiplier multiplier_value
```

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing BFD interface.
<i>multiplier_value</i>	The dead interval multiplier number. The valid range is 1–10.

### Defaults

By default, the multiplier value is set to 3.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The detection time between neighbors is calculated by multiplying the negotiated transmit time interval by the dead interval multiplier.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 multiplier 5
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bfd-std interface</a>	Creates a BFD interface.
<a href="#">show ip bfd-std interfaces</a>	Displays the BFD interface configuration table.
<a href="#">show ip bfd-std sessions</a>	Displays the BFD interface configuration table.

### MIB Objects

```
alaBfdIntfTable  
  alaBfdIntfDetectMult
```

---

## ip bfd-std interface echo-interval

Configures the echo time interval for the BFD interface. The echo function is available with the asynchronous or demand mode. Echo packets are transmitted to BFD peers to see if they loop back to the peer from which they originated.

**ip bfd-std interface** *interface\_name* **echo-interval** *echo-interval*

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing IP interface.
<i>echo-interval</i>	The echo time interval, in milliseconds. The valid range is 100–999.

### Defaults

The global echo interval value is used by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global echo time interval serves as the default interval value for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.
- Note that configuring the interface echo time interval using the **ip bfd-std interface echo-interval** command does not change the global value configured with the **ip bfd-std echo-interval** command.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 echo-interval 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<b>ip bfd-std interface</b>	Creates a BFD interface.
<b>ip bfd-std echo interval</b>	Configures a global BFD echo time interval.
<b>show ip bfd-std interfaces</b>	Displays the BFD interface configuration table.
<b>show ip bfd-std sessions</b>	Displays the BFD interface configuration table.

### MIB Objects

alaBfdIntfTable  
alaBfdIntfReqMinEchoRxInterval

---

## ip bfd-std interface mode

Configures the operational mode and echo status for the BFD interface.

```
ip bfd-std interface interface_name mode {echo-only | demand [echo {enable | disable}] | asynchronous [echo {enable|disable}]}
```

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing IP interface.
<b>echo-only</b>	Specifies echo only mode.
<b>demand echo enable</b>	Specifies demand mode with the echo function enabled.
<b>demand echo disable</b>	Specifies demand mode with the echo function disabled.
<b>asynchronous echo enable</b>	Specifies asynchronous mode with the echo function enabled.
<b>asynchronous echo disable</b>	Specifies asynchronous mode with the echo function disabled.

### Defaults

By default, the BFD interface is set to operate in demand mode with the echo function enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global operational mode and echo status serves as the default mode and status for a BFD interface. The default mode and status is overridden when a specific value is configured for the interface.
- Note that configuring the interface mode and echo status using the **ip bfd-std interface mode** command does not change the global value configured with the **ip bfd-std mode** command.

### Examples

```
-> ip bfd-std mode echo-only  
-> ip bfd-std mode demand echo enable
```

### Release History

Release 6.3.4; command was introduced.



## Related Commands

**ip bfd-std interface**

Creates a BFD interface.

**ip bfd-std mode**

Configures the global BFD operational mode and echo status.

**show ip bfd-std interfaces**

Displays the BFD interface configuration table.

**show ip bfd-std sessions**

Displays the BFD interface configuration table.

## MIB Objects

alaBfdIntfTable

    alaBfdIntfOperMode

    alaBfdIntfEchoMode

---

## ip bfd-std interface l2-hold-timer

Configures the Layer 2 hold-down (convergence) timer value for the BFD interface. This command specifies the amount of time the interface remains in a hold-down state after a Layer 2 topology change occurs.

**ip bfd-std interface** *interface\_name* **l2-hold-timer** *l2-holdtimer-interval*

---

### Syntax Definitions

<i>interface_name</i>	The name of an existing BFD interface.
<i>l2-holdtimer-interval</i>	The Layer 2 hold-down time interval, in milliseconds. The valid range is 100–999.

### Defaults

The global Layer 2 hold-down time interval is used by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The global Layer 2 hold-down time interval serves as the default interval for a BFD interface. The default interval value is overridden when a specific value is configured for the interface.
- Note that configuring the Layer 2 hold-down time interval using the **ip bfd-std interface l2-hold-timer** command does not change the global value configured with the **ip bfd-std l2-hold-timer** command.

### Examples

```
-> ip bfd-std interface bfd-vlan-101 l2-hold-timer 500
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<b>ip bfd-std interface</b>	Creates a BFD interface.
<b>ip bfd-std l2-hold-timer</b>	Configures the global BFD Layer 2 hold-down time interval.
<b>show ip bfd-std interfaces</b>	Displays the BFD interface configuration table.
<b>show ip bfd-std sessions</b>	Displays the BFD interface configuration table.

### MIB Objects

alaBfdIntfTable  
alaBfdIntfL2HoldTimer

---

## ip ospf bfd-std status

Enables or disables the BFD status for the OSPF protocol.

```
ip ospf bfd-std status {enable | disable}
```

---

### Syntax Definitions

<b>enable</b>	Enables BFD Status.
<b>disable</b>	Disables BFD Status.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- All the status changes on the neighbors are received from the BFD level and the OSPF protocol acts based upon the BFD message.
- Whenever a neighbor goes down, OSPF will inform BFD to remove that neighbor from the BFD active list.

### Examples

```
-> ip ospf bfd-std status enable  
-> ip ospf bfd-std status disable
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>ip ospf bfd-std all-interfaces</b>	Enables or disables BFD for all OSPF interfaces configured.
<b>ip ospf interface bfd-std</b>	Enables or disables BFD for a specific OSPF interface.
<b>ip ospf interface bfd-std drs-only</b>	Establishes BFD sessions only on neighbors in full state.
<b>ip ospf interface bfd-std all-nbrs</b>	Establishes BFD sessions with all neighbors of the corresponding interface which are greater than or equal to “2-way” state.

## MIB Objects

```
alaProtocolospf  
  alaOspfBfdStatus
```

---

## ip ospf bfd-std all-interfaces

Enables or disables BFD for all OSPF interfaces in the switch configuration.

**ip ospf bfd-std all-interfaces**

**no ip ospf bfd-std all-interfaces**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the BFD status for all OSPF interfaces.
- The BFD status for OSPF must be enabled before OSPF can interact with BFD.

### Examples

```
-> ip ospf bfd-std all-interfaces  
-> no ip ospf bfd-std all-interfaces
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip ospf bfd-std status</a>	Enables or disables the BFD status for the OSPF protocol.
<a href="#">ip ospf interface bfd-std</a>	Enables or disables BFD for a specific OSPF interface.
<a href="#">ip ospf interface bfd-std drs-only</a>	Establishes BFD sessions only on neighbors in full state.
<a href="#">ip ospf interface bfd-std all-nbrs</a>	Establishes BFD sessions with all neighbors of the corresponding interface which are greater than or equal to “2-way” state.

### MIB Objects

```
alaProtocolospf  
  alaOspfBfdAllInterfaces
```

---

## ip ospf interface bfd-std

Enables or disables BFD for a specific OSPF interface.

**ip ospf interface** *interface-name* **bfd-std** {**enable** | **disable**}

---

### Syntax Definitions

<i>interface-name</i>	The name of an existing OSPF interface.
<b>enable</b>	Enables the OSPF interface.
<b>disable</b>	Disables the OSPF interface.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The BFD status for OSPF must be enabled before OSPF can interact with BFD.

### Examples

```
-> ip ospf interface int1 bfd-std enable
-> ip ospf interface int2 bfd-std disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip ospf bfd-std status</a>	Enables or disables the BFD status for the OSPF protocol.
<a href="#">ip ospf bfd-std all-interfaces</a>	Enables or disables BFD for all OSPF interfaces configured.
<a href="#">ip ospf interface bfd-std drs-only</a>	Establishes BFD sessions only on neighbors in full state.
<a href="#">ip ospf interface bfd-std all-nbrs</a>	Establishes BFD sessions with all neighbors of the corresponding interface which are greater than or equal to “2-way” state.

### MIB Objects

```
alaOspfIfAugEntry
  ospfIfIpAddress
  alaOspfIfBfdStatus
```

---

## ip ospf interface bfd-std drs-only

Establishes BFD sessions only with neighbors that are in the full state.

**ip ospf interface** *interface-name* **bfd-std drs-only**

---

### Syntax Definitions

*interface-name*                      The name of an existing OSPF interface.

### Defaults

By default, BFD is enabled for DR neighbors only.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The specified OSPF interface must be enabled to interact with BFD.
- The BFD status for OSPF must be enabled before OSPF can interact with BFD.

### Examples

```
-> ip ospf interface int1 bfd-std drs-only
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bfd-std interface status</a>	Enables or disables the BFD status for OSPF protocol.
<a href="#">ip ospf bfd-std all-interfaces</a>	Enables or disables BFD for all OSPF interfaces configured.
<a href="#">ip ospf interface bfd-std</a>	Enables or disables BFD for a specific OSPF interface.
<a href="#">ip ospf interface bfd-std all-nbrs</a>	Establishes BFD sessions with all neighbors of the corresponding interface which are greater than or equal to “2-way” state.

### MIB Objects

```
alaOspfIfAugEntry  
  ospfIfIpAddress  
  alaOspfIfBfdDrsOnly
```

---

## ip ospf interface bfd-std all-nbrs

Establishes BFD sessions with all neighbors of the corresponding interface which are greater than or equal to “2-way” state.

**ip ospf interface** *interface-name* **bfd-std all-nbrs**

---

### Syntax Definitions

*interface-name*                      The name of an existing OSPF interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The specified OSPF interface must be enabled to interact with BFD.
- The BFD status for OSPF must be enabled before OSPF can interact with BFD.

### Examples

```
-> ip ospf interface int1 bfd-std all-nbrs
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bfd-std interface status</a>	Enables or disables the BFD status for OSPF protocol.
<a href="#">ip ospf bfd-std all-interfaces</a>	Enables or disables BFD for all OSPF interfaces configured.
<a href="#">ip ospf interface bfd-std</a>	Enables or disables BFD for a specific OSPF interface.
<a href="#">ip ospf interface bfd-std drs-only</a>	Establishes BFD sessions only on neighbors in full state.

### MIB Objects

```
alaOspfIfAugEntry  
  ospfIfIpAddress  
  alaOspfIfBfdDrsOnly
```

---



## ip bgp bfd-std status

Enables or disables BFD for the BGP protocol.

**ip bgp bfd-std status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables BGP.
<b>disable</b>	Disables BGP.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- All the status changes on the neighbors are received from the BFD level and the BGP protocol acts based upon the BFD message.
- Whenever a neighbor goes down, BGP will inform BFD to remove that neighbor from the BFD active list.

### Examples

```
-> ip bgp bfd-std status enable  
-> ip bgp bfd-std status disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- |                                              |                                                  |
|----------------------------------------------|--------------------------------------------------|
| <a href="#">ip bgp bfd-std all-neighbors</a> | Enables or disables BFD for all BGP neighbors.   |
| <a href="#">ip bgp neighbors bfd-std</a>     | Enables or disables BFD for a specific neighbor. |

### MIB Objects

```
alaBgpGlobal  
alaBgpBfdStatus
```

---

---

## ip bgp bfd-std all-neighbors

Enables or disables BFD for all BGP neighbors.

**ip bgp bfd-std all-neighbors**

**no ip bgp bfd-std all-neighbors**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable BFD for all BGP neighbors.
- The BFD status for BGP must be enabled before BGP can interact with BFD.

### Examples

```
-> ip bgp bfd-std all-neighbors  
-> no ip bgp bfd-std all-neighbors
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

- |                                          |                                                          |
|------------------------------------------|----------------------------------------------------------|
| <a href="#">ip bgp bfd-std status</a>    | Enables or disables BGP with BFD protocol.               |
| <a href="#">ip bgp neighbors bfd-std</a> | Enables or disables the BFD for a specific BGP neighbor. |

### MIB Objects

```
alaBgpGlobal  
alaBgpBfdAllNeighbors
```

---

## ip bgp neighbors bfd-std

Enables or disables BFD for a specific BGP neighbor.

**ip bgp neighbor** *name* **bfd-std** {**enable** | **disable**}

---

### Syntax Definitions

<i>name</i>	The peer name of the BGP neighbor.
<b>enable</b>	Enables BGP neighbor.
<b>disable</b>	Disables BGP neighbor.

### Defaults

---

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

The BFD status for BGP must be enabled before BGP can interact with BFD.

### Examples

```
-> ip bgp neighbor neigh1 bfd-std enable
-> ip bgp neighbor neigh2 bfd-std disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bgp bfd-std status</a>	Enables or disables BGP with BFD protocol.
<a href="#">ip bgp bfd-std all-neighbors</a>	Enables or disables BFD for all BGP neighbors.

### MIB Objects

```
alaBgpPeerEntry
  alaBgpPeerName
  alaBgpPeerBfdStatus
alaBgpGlobal
  alaBgpBfdAllNeighbors
```

---

## vrrp bfd-std

Enables or disables VRRP with the BFD protocol.

```
vrrp bfd-std {enable | disable}
```

---

### Syntax Definitions

<b>enable</b>	Enables BFD for VRRP.
<b>disable</b>	Disables BFD for VRRP.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- BFD support for VRRP is done only for tracking policy configuration for a remote address.
- The BFD status for VRRP must be enabled before VRRP can interact with BFD.

### Examples

```
-> ip vrrp bfd-std enable  
-> ip vrrp bfd-std disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[vrrp track address bfd-std](#) Enables or disable BFD for a specific tracking policy.

### MIB Objects

```
alaVrrpConfig  
  alaVrrpBfdStatus
```

---

## vrrip track address bfd-std

Enables or disable BFD for a specific track policy.

```
vrrip track num address address bfd-std {enable| disable}
```

---

### Syntax Definitions

<i>num</i>	The VRRP track number.
<i>address</i>	The remote IP address.
<b>enable</b>	Enables BFD.
<b>disable</b>	Disables BFD.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>enable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- BFD support for VRRP is done only for tracking policy configuration for a remote address.
- The BFD status for VRRP must be enabled before VRRP can interact with BFD.

### Examples

```
-> vrrip track 2 address 10.1.1.1 bfd-std enable  
-> vrrip track 3 address 10.1.1.2 bfd-std disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[vrrip bfd-std](#) Enables or disables VRRP with BFD protocol.

### MIB Objects

```
alaVRRPConfig  
alaVrrpTrackBfdStatus
```

---

---

## ip static-route all bfd-std

Enables BFD for all static routes.

```
ip static-route all bfd-std {enable| disable}
```

---

### Syntax Definitions

<b>enable</b>	Enables BFD.
<b>disable</b>	Disables BFD.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When there are static route configured in the switch, BFD is enabled to track the gateway.
- If the route is not reachable, it will be moved to the inactive database.

### Examples

```
-> ip static-route all bfd-std enabled  
-> ip static-route all bfd-std disabled
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[ip static-routes bfd-std status](#) Enables or disables BFD for a specific static route.

### MIB Objects

```
alaIprmConfig  
alaIprmStaticallbfd
```

---

## ip static-routes bfd-std status

Enables or disables BFD for a specific static route.

```
ip static-routes ip-address/prefixLen gateway ip-address bfd-std status {enable| disable}
```

---

### Syntax Definitions

<i>ip_address</i>	The destination IP address.
<i>prefixLen</i>	The prefix length for the destination IP address.
gateway <i>ip_address</i>	The gateway IP address.
enable	Enables BFD.
disable	Disables BFD.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

BFD is enabled to track the gateway of static routes.

### Examples

```
-> ip static-route 10.1.1.1 255.0.0.0 gateway 10.1.1.25 bfd-std status enable
-> ip static-route 10.1.1.2 255.0.0.0 gateway 10.1.1.25 bfd-std status disabled
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bfd-std l2-hold-timer</a>	Configures BFD at Global Level.
<a href="#">ip static-route all bfd-std</a>	Enables BFD for all static routes.

### MIB Objects

```
alaIprmStaticRouteEntry
  alaIprmStaticRouteDest
  alaIprmStaticRouteMask
  alaIprmStaticRouteNextHop
  alaIprmStaticRouteBfdStatus
```

---

## show ip bfd-std

Displays the global BFD configuration table.

**show ip bfd-std**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> Show ip bfd-std
Version           : 1,
Status            : Enabled,
Transmit interval : 100,
Receive interval  : 100,
Multiplier        : 3,
Echo status       : Enabled,
Echo interval     : 200,
Mode              : Asynchronous,
Protocols registered : Asynchronous,
```

### *output definitions*

---

<b>Version</b>	Refers to BFD Version.
<b>Status</b>	Refers to BFD global admin status.
<b>Transmit interval</b>	Refers to BFD global Tx interval.
<b>Receive interval</b>	Refers to BFD global Rx interval.
<b>Echo status</b>	Refers to Echo functionality status.
<b>Echo interval</b>	Refers to BFD echo Rx interval.
<b>Mode</b>	Refers to BFD echo operational mode.
<b>Protocols registered</b>	Refers to Protocols registered to BFD.

---

### Release History

Release 6.3.4; command was introduced.



## Related Commands

- [ip bfd-std status](#) Configures BFD at global level.
- [ip bfd-std interface](#) Configures BFD at interface level.

## MIB Objects

alaBfdIntfTable

- alaBfdGlobalVersionNumber
- alaBfdGlobalAdminStatus
- alaBfdGlobalTxInterval
- alaBfdGlobalRxInterval
- alaBfdGlobalEcho
- alaBfdGlobalEchoRxInterval
- alaBfdGlobalOperMode
- alaBfdGlobalProtocols

---

## show ip bfd-std interfaces

Displays the BFD interface configuration table.

**show ip bfd-std interfaces** [*interface-name*]

---

### Syntax Definitions

*interface-name*                      The name of the BFD interface.

### Defaults

By default, the configuration for all BFD interfaces is displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Enter an interface name to display information for a specific BFD interface.

### Examples

```
->show ip bfd-std interfaces
Interface      Admin      Tx      Min Rx      Oper
Name          Mode      Status  Interval  Interval  Multiplier  Status
-----+-----+-----+-----+-----+-----+-----
vlan-10      ASYNCHRONOUS  enabled   100      100        3          UP
vlan-20      ASYNCHRONOUS  disabled    0         0         5          DOWN

-> show ip bfd-std interfaces vlan-10
Interface IP Address:      = 215.20.10.1,
Admin Status:              = Enabled,
Mode:                      = ASYNCHRONOUS,
Echo Status:               = Disabled,
Transmit Interval:        = 100,
Receive Interval:         = 100,
Multiplier:               = 3,
Echo Interval:            = 100,
L2 Hold Down Interval     = 100
```

### output definitions

---

<b>Interface address</b>	Refers to BFD Interface address.
<b>Admin status</b>	Refers to BFD interface admin status.
<b>Mode</b>	Refers to BFD interface operational mode.
<b>Echo status</b>	Refers to Interface Echo functionality status.
<b>Transmit Interval</b>	Refers to BFD interface Tx interval.
<b>Receive Interval</b>	Refers to BFD interface Rx interval.
<b>Multiplier</b>	Refers to BFD interface Multiplier.

*output definitions (continued)*

---

<b>Echo interval</b>	Refers to BFD interface echo Rx interval.
<b>Layer2 Hold down Interval</b>	Refers to BFD Layer 2 hold down interval.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<a href="#">ip bfd-std status</a>	Configures BFD at global level.
<a href="#">ip bfd-std interface</a>	Configures BFD at interface level.

**MIB Objects**

```
alaBfdIntfTable
  alaBfdIntfAddr
  alabfdIntfAdminStatus
  alaBfdIntfOperMode
  alaBfdIntfDesiredMinTxInterval
  alaBfdIntfReqMinRxInterval
  alaBfdIntfDetectMult
  alaBfdIntfEchoMode
  alaBfdIntfReqMinEchoRxInterval
  alaBfdIntfL2HoldTimer
```

---

## show ip bfd-std sessions

Displays all the BFD sessions for the switch.

**show ip bfd-std sessions**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip bfd-std sessions
```

Neighbor IP Address	Interface Address	State	Local Disc	Remote Disc	Negotiated Tx	Negotiated Rx	Echo Rx
25.25.25.1	25.25.25.25	UP	45	53	100	100	200
26.26.26.63	26.26.26.36	INIT	43	21	200	200	200

#### *output definitions*

---

<b>Interface address</b>	The IP address associated with the BFD interface.
<b>State</b>	The state of the BFD session.
<b>Neighbor address</b>	The IP address of the BFD neighbor.
<b>Local discriminator</b>	The local discriminator.
<b>Remote discriminator</b>	The remote discriminator.
<b>Protocol</b>	The protocols registered with the BFD session.
<b>Negotiated Tx interval</b>	The negotiated transmit interval.
<b>Negotiated Rx interval</b>	The negotiated receive interval.
<b>Echo Rx interval</b>	The Echo packet receive interval.
<b>Multiplier</b>	The BFD multiplier number.
<b>Tx packet counter</b>	The transmit packet counter.
<b>Rx packet counter</b>	The receive packet counter.
<b>Protocols enabled</b>	The protocols enabled for BFD.

---

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">ip bfd-std status</a>	Configures BFD at global level.
<a href="#">ip bfd-std interface</a>	Configures BFD at interface level.
<a href="#">show ip bfd-std session</a>	Displays information for a specific session.

## MIB Objects

```
alaBfdIntfTable  
  alaBfdSessNeighborAddr  
  alaBfdIntfAddr  
  alaBfdSessState  
  alaBfdSessDiscriminator  
  alaBfdSessRemoteDiscr  
  alaBfdIntfProtocols  
  alaBfdSessNegotiatedTxInterval  
  alaBfdSessNegotiatedRxInterval  
  alaBfdIntfReqMinEchoRxInterval  
  alaBfdIntfL2HoldTimer  
  alaBfdSessPerfPktOut  
  alaBfdSessPerfPktIn  
  alaBfdSessProtocols
```

---

## show ip bfd-std session

Displays information for an individual BFD session.

**show ip bfd-std session** *neighbor\_address*

---

### Syntax Definitions

*neighbor\_address*                      The local BFD discriminator address for the neighbor.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip bfd-std session 45
Interface address      = 10.172.18.16,
State                  = UP,
Neighbor Address      = 10.172.18.17,
Local discriminator   = 45,
Remote discriminator   = 53,
Protocol               = OSPF,
Negotiated Tx interval = 100,
Negotiated Rx interval = 100,
Echo Rx interval      = 200,
Multiplier            = 3,
Tx packet counter     = 4321,
Rx packet counter     = 4675,
Protocol enabled      = OSPF,
```

### *output definitions*

---

<b>Interface address</b>	The IP address associated with the BFD interface.
<b>State</b>	The state of the BFD session.
<b>Neighbor address</b>	The IP address of the BFD neighbor.
<b>Local discriminator</b>	The local discriminator.
<b>Remote discriminator</b>	The remote discriminator.
<b>Protocol</b>	The protocols registered with the BFD session.
<b>Negotiated Tx interval</b>	The negotiated transmit interval.
<b>Negotiated Rx interval</b>	The negotiated receive interval.
<b>Echo Rx interval</b>	The Echo packet receive interval.

*output definitions (continued)*

---

<b>Multiplier</b>	The BFD multiplier number.
<b>Tx packet counter</b>	The transmit packet counter.
<b>Rx packet counter</b>	The receive packet counter.
<b>Protocols enabled</b>	The protocols enabled for BFD.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<a href="#">ip bfd-std status</a>	Configures BFD at global level.
<a href="#">ip bfd-std interface</a>	Configures BFD at interface level.
<a href="#">show ip bfd-std sessions</a>	Displays all BFD sessions.

**MIB Objects**

```
alaBfdIntfTable  
  alaBfdSessNeighborAddr  
  alaBfdIntfAddr  
  alaBfdSessState  
  alaBfdSessDiscriminator  
  alaBfdSessRemoteDiscr  
  alaBfdIntfProtocols  
  alaBfdSessNegotiatedTxInterval  
  alaBfdSessNegotiatedRxInterval  
  alaBfdIntfReqMinEchoRxInterval  
  alaBfdIntfL2HoldTimer  
  alaBfdSessPerfPktOut  
  alaBfdSessPerfPktIn  
  alaBfdSessProtocols
```

---





# 20 DHCP Relay Commands

Bootstrap Protocol (BOOTP) and Dynamic Host Configuration Protocol (DHCP) packets contain configuration information for network hosts. DHCP Relay enables forwarding of BOOTP/DHCP packets between networks. This allows routing of DHCP traffic between clients and servers. It is not necessary to enable DHCP Relay if DHCP traffic is bridged through one network (i.e. clients and servers are on the same physical network).

This chapter includes a description of DHCP Relay commands that are used to define the IP address of DHCP servers, maximum number of hops, and forward delay time. Configure DHCP Relay on the switch where routing of BOOTP/DHCP packets occur.

MIB information for DHCP Relay commands is as follows:

*Filename:* AlcatelIND1UDPRelay.MIB  
*Module:* ALCATEL-IND1-UDP-RELAY-MIB

---

A summary of the available commands is listed here.

---

**ip helper address**  
**ip helper address vlan**  
**ip helper standard**  
**ip helper avlan only**  
**ip helper per-vlan only**  
**ip helper forward delay**  
**ip helper maximum hops**  
**ip helper agent-information**  
**ip helper agent-information policy**  
**ip helper pxe-support**  
**ip helper dhcp-snooping**  
**ip helper dhcp-snooping mac-address verification**  
**ip helper dhcp-snooping option-82 data-insertion**  
**ip helper dhcp-snooping option-82 format**  
**ip helper dhcp-snooping option-82 format ascii circuit-id**  
**ip helper dhcp-snooping option-82 format ascii remote-id**  
**ip helper dhcp-snooping bypass option-82-check**  
**ip helper dhcp-snooping vlan**  
**ip helper dhcp-snooping port**  
**ip helper dhcp-snooping linkagg**  
**ip helper dhcp-snooping port traffic-suppression**  
**ip helper dhcp-snooping port ip-source-filtering**  
**ip helper dhcp-snooping binding**  
**ip helper dhcp-snooping ip-source-filter**  
**ip helper dhcp-snooping binding timeout**  
**ip helper dhcp-snooping binding action**  
**ip helper dhcp-snooping binding persistency**  
**ip helper boot-up**  
**ip udp relay**  
**ip udp relay vlan**  
**show ip helper**  
**show ip helper stats**  
**show ip helper dhcp-snooping vlan**  
**show ip helper dhcp-snooping port**  
**show ip helper dhcp-snooping binding**  
**show ip udp relay service**  
**show ip udp relay statistics**  
**show ip udp relay destination**  
**dhcp-server**  
**clear dhcp-server statistics**  
**clear dhcp-server statistics**  
**show dhcp-server leases**  
**show dhcp-server statistics**  
**ip helper dhcp-snooping ip-source-filter**  
**show ip helper dhcp-snooping ip-source-filter**

---

## ip helper address

Adds or deletes a DHCP server IP address. DHCP Relay forwards BOOTP/DHCP broadcasts to and from the specified address. If multiple DHCP servers are used, configure one IP address for each server.

**ip helper address** *ip\_address*

**ip helper no address** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* DHCP server IP address (e.g. 21.0.0.10).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Using this command enables a Global DHCP Relay service on the switch. When the DHCP Relay is specified by the DHCP server IP address, the service is called Global DHCP.
- When the DHCP Relay is specified by the VLAN number of the DHCP request, the service is referred to as Per-VLAN DHCP.
- Global DHCP and Per-VLAN DHCP are mutually exclusive. You may only configure one or the other.
- Use the **no** form of this command to delete an IP address from the DHCP Relay service. If an address is not specified, then all addresses are deleted.
- UPD Relay is automatically enabled on a switch when a DHCP server IP address is defined. There is no separate command for enabling or disabling the relay service.
- Configure DHCP Relay on switches where packets are routed between IP networks.
- You can configure up to 256 server IP addresses for one relay service.

### Examples

```
-> ip helper address 75.0.0.10  
-> ip helper no address 31.0.0.20
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip helper address vlan</b>	Specifies or deletes DHCP Relay based on the VLAN of the DHCP request.
<b>ip helper forward delay</b>	Sets the forward delay time value. DHCP Relay will not process a client packet unless the packet contains an elapsed boot time value that is equal to or greater than the configured value of the forward delay time.
<b>ip helper maximum hops</b>	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
<b>show ip helper</b>	Displays current DHCP Relay configuration information.
<b>show ip helper stats</b>	Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

## MIB Objects

```
iphelperTable  
    iphelperService  
    iphelperForwAddr
```

---

## ip helper address vlan

Configures a DHCP Relay service for the specified VLAN. This command is used when a per-VLAN only relay service is active on the switch. It does not apply when using a standard relay service.

**ip helper address** *ip\_address* **vlan** *vlan\_id*

**ip helper no address** *ip\_address* **vlan** *vlan\_id*

---

### Syntax Definitions

*ip\_address* IP address (e.g. 21.0.0.10) of the DHCP server VLAN.

*vlan\_id* VLAN identification number (e.g. 3) of the DHCP server VLAN.

### Defaults

If no VLAN identification number is entered, VLAN ID 0 is used by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the DHCP server VLAN from the DHCP Relay.
- Specifying multiple VLAN IDs and/or a range of VLAN IDs on the same command line is allowed. Use a hyphen to indicate a contiguous range and a space to separate multiple VLAN ID entries (e.g., 10-15 500-510 850).
- The **ip helper address vlan** command does not work if the **per-vlan only** forwarding option is not active. Use the **ip helper per-vlan only** command to enable this option.
- Configure DHCP Relay on switches where packets are routed between IP networks.
- The per-VLAN only relay service supports a maximum of 256 VLANs.

### Examples

```
-> ip helper address 75.0.0.10 3
-> ip helper no address 31.0.0.20 4
-> ip helper address 198.206.15.2 250-255
-> ip helper address 10.11.4.1 550-555 1500 1601-1620
-> ip helper no address 198.206.15.2 1601-1620
```

### Release History

Release 6.1; command was introduced.

Release 6.1.2; support added for entering a range and/or multiple entries of VLAN IDs.

## Related Commands

### **ip helper per-vlan only**

Sets the DHCP Relay forwarding option to process only DHCP packets received from a specific, identified VLAN.

### **show ip helper**

Displays current DHCP Relay configuration information.

### **show ip helper stats**

Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

## MIB Objects

iphelperTable

    iphelperService

    iphelperVlan

---

## ip helper standard

Sets DHCP Relay forwarding option to standard. All DHCP packets are processed by a global relay service.

### ip helper standard

---

#### Syntax Definitions

N/A

#### Defaults

By default, the DHCP Relay forwarding option is set to **standard**.

#### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

#### Usage Guidelines

- To limit forwarding of DHCP packets to only packets that originate from authenticated ports, use the [ip helper avlan only](#) command.
- To process DHCP packets on a per VLAN basis, use the [ip helper per-vlan only](#) command.

#### Examples

```
-> ip helper standard
```

#### Release History

Release 6.1; command was introduced.

#### Related Commands

[show ip helper](#)

Displays current DHCP Relay configuration information.

[show ip helper stats](#)

Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

#### MIB Objects

```
iphelperStatTable  
iphelperForwOption
```

---

## ip helper avlan only

Sets DHCP Relay forwarding option to process only DHCP packets received on authenticated VLAN ports.

**ip helper avlan only**

---

### Syntax Definitions

N/A

### Defaults

By default, the UDP forwarding option is set to **standard**.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

When the forwarding option is set to **avlan only**, all other DHCP packets are not processed.

### Examples

```
-> ip helper avlan only
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip helper standard</a>	Sets DHCP Relay forwarding option to standard. All DHCP packets are processed.
<a href="#">ip helper per-vlan only</a>	Sets the DHCP Relay forwarding option to process only DHCP packets received on authenticated ports from a specific, identified VLAN.
<a href="#">ip helper forward delay</a>	Sets the forward delay time value. DHCP Relay will not process a client packet unless the packet contains an elapsed boot time value that is equal to or greater than the configured value of the forward delay time.
<a href="#">ip helper maximum hops</a>	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
<a href="#">show ip helper</a>	Displays current DHCP Relay configuration information.
<a href="#">show ip helper stats</a>	Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.



## **MIB Objects**

iphelperStatTable  
iphelperForwOption

---

## ip helper per-vlan only

Sets the DHCP Relay forwarding option to process only DHCP packets received from a specific, identified VLAN. This option allows each VLAN to have its own relay.

**ip helper per-vlan only**

---

### Syntax Definitions

N/A

### Defaults

By default, the UDP forwarding option is set to **standard**.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- When the forwarding option is set to **per-vlan only**, the **standard** (global) DHCP relay service is not available. These two types of services are mutually exclusive.
- Using the **per-vlan only** forwarding option requires you to specify a DHCP server IP address for each VLAN that will provide a relay service. The **ip helper address vlan** command performs this function and at the same time enables relay for the specified VLAN.

### Examples

```
-> ip helper per-vlan only
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip helper address vlan</a>	Configures a DHCP Relay service for the specified VLAN.
<a href="#">ip helper standard</a>	Sets DHCP Relay forwarding option to standard. All DHCP packets are processed.
<a href="#">ip helper avlan only</a>	Sets DHCP Relay forwarding option to process only DHCP packets received on authenticated VLAN ports from clients that are not yet authenticated.
<a href="#">show ip helper</a>	Displays current DHCP Relay configuration information.
<a href="#">show ip helper stats</a>	Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

## **MIB Objects**

iphelperStatTable

iphelperForwOption

---

## ip helper forward delay

Sets the forward delay time value for the DHCP Relay configuration. The BOOTP/DHCP packet the client sends contains the elapsed boot time. This is the amount of time, in seconds, since the client last booted. DHCP Relay will not process the packet unless the client's elapsed boot time value is equal to or greater than the configured value of the forward delay time.

**ip helper forward delay** *seconds*

---

### Syntax Definitions

*seconds* Forward delay time value in seconds (1–65535). Do not use commas in the value.

### Defaults

By default, the forward delay time is set to three seconds.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- The time specified applies to all defined IP helper addresses.
- If a packet contains an elapsed boot time value that is less than the specified forward delay time value, DHCP Relay discards the packet.

### Examples

```
-> ip helper forward delay 300
-> ip helper forward delay 120
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip helper address</a>	Adds or deletes one or more DHCP server IP addresses to the DHCP Relay configuration.
<a href="#">ip helper maximum hops</a>	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
<a href="#">show ip helper</a>	Displays current DHCP Relay configuration information.
<a href="#">show ip helper stats</a>	Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

## **MIB Objects**

iphelperStatTable  
iphelperForwDelay

---



## **MIB Objects**

iphelperStatTable  
iphelperMaxHops

---

## ip helper agent-information

Enables or disables the DHCP relay agent information option (Option-82) feature. When this feature is enabled, local relay agent information is inserted into client DHCP packets when the agent forwards these packets to a DHCP server.

**ip helper agent-information {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the relay agent Option-82 feature for the switch.
<b>disable</b>	Disables the relay agent Option-82 feature for the switch.

### Defaults

By default, this feature is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command enables the DHCP Option-82 feature for the entire switch; it is not configurable on a per-VLAN basis.
- When the DHCP Option-82 feature is enabled, DHCP Snooping is not available. These two features are mutually exclusive.
- When the relay agent receives a DHCP packet that already contains the Option-82 field, it will process the packet based on the agent information policy configured for the switch. This policy is configured using the **ip help agent-information policy** command.

### Examples

```
-> ip helper agent-information enable
-> ip helper agent-information disable
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

<a href="#">ip helper agent-information policy</a>	Configures a policy to determine how the relay agent handles DHCP packets that already contain the Option-82 field.
<a href="#">show ip helper</a>	Displays current DHCP Relay configuration information.
<a href="#">show ip helper stats</a>	Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.



## **MIB Objects**

`iphelperAgentInformation`

---

## ip helper agent-information policy

Configures a policy that determines how the DHCP relay agent will handle DHCP packets that already contain an Option-82 field.

**ip helper agent-information policy {drop | keep | replace}**

---

### Syntax Definitions

<b>drop</b>	Drop DHCP packets that already contain an Option-82 field.
<b>keep</b>	Keep the existing Option-82 field information and continue to relay the DHCP packet.
<b>replace</b>	Replace the existing Option-82 field information with local relay agent information and continue to relay the DHCP packet.

### Defaults

By default, DHCP packets that already contain an Option-82 field are dropped.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The policy configured with this command is only applied if the DHCP Option-82 feature is enabled for the switch.
- The agent information policy is not applied if the DHCP relay agent receives a DHCP packet from a client that contains a non-zero value for the gateway IP address (giaddr). In this case, the agent will not insert the relay agent information option into the DHCP packet and will forward the packet to the DHCP server.
- Note that if a DHCP packet contains a gateway IP address (giaddr) value that matches a local subnet and also contains the Option-82 field, the packet is dropped by the relay agent.

### Examples

```
-> ip helper agent-information policy drop
-> ip helper agent-information policy keep
-> ip helper agent-information policy replace
```

### Release History

Release 6.1.2; command was introduced.

## Related Commands

- |                                    |                                                                                                                                                                                               |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ip helper agent-information</b> | Enables the insertion of relay agent information Option-82 into DHCP packets.                                                                                                                 |
| <b>show ip helper</b>              | Displays current DHCP Relay configuration information.                                                                                                                                        |
| <b>show ip helper stats</b>        | Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations. |

## MIB Objects

`iphelperAgentInformationPolicy`

---

## ip helper pxe-support

Enables or disables relay agent support for Preboot Execution Environment (PXE) devices.

**ip helper pxe-support {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables PXE support.
<b>disable</b>	Disables PXE support.

### Defaults

By default, PXE support is disabled for the switch.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

PXE support was enabled by default in previous releases. Note that PXE is currently disabled by default and is now a user-configurable option using the **ip helper pxe-support** command.

### Examples

```
-> ip helper pxe-support enable  
-> ip helper pxe-support disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ip helper](#) Displays current DHCP Relay configuration information.

### MIB Objects

iphelperPXESupport

---

## ip helper traffic-suppression

Globally enables or disables the suppression of DHCP broadcast traffic on the switch. When this feature is enabled, all DHCP broadcast packets are forwarded to the relay agent for processing even if the client and server reside in the same VLAN.

*This command is currently not supported. Traffic suppression is automatically enabled when DHCP Snooping is enabled for the switch or for specific VLANs.*

**ip helper traffic-suppression {enable | disable}**

---

### Syntax Definitions

**enable** Enables traffic suppression for the switch.

**disable** Disables traffic suppression for the switch.

### Defaults

By default, traffic suppression is disabled for the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When traffic suppression is enabled, any active relay agent features (e.g., Option-82 data insertion, DHCP Snooping) are also effected on all DHCP broadcast traffic, regardless of the VLAN in which the traffic originated.
- Enabling traffic suppression requires the configuration of IP helper addresses for all DHCP servers, even if the server resides in the same VLAN as the DHCP clients.
- Note that enabling DHCP traffic suppression for the switch overrides any traffic suppression status configured for an individual DHCP Snooping port.
- If the per-VLAN UDP Relay mode is active for the switch, DHCP broadcast traffic originating in a VLAN that does not have an IP helper address configured is still broadcast whether or not traffic suppression is enabled for the switch.
- When traffic suppression is disabled, DHCP packets are flooded on the default VLAN for the port. Any DHCP server in the same VLAN domain as the client will receive and respond to such packets without the involvement of the relay agent.

### Examples

```
-> ip helper traffic-suppression enable  
-> ip helper traffic-suppression disable
```

### Release History

Release 6.1.3; command was introduced.

Release 6.1.5; command was deprecated.

**Related Commands**

- ip helper dhcp-snooping** Enables or disables DHCP Snooping for the switch.
- ip helper dhcp-snooping vlan** Enables or disables DHCP Snooping on a per VLAN basis.
- show ip helper** Displays the current DHCP configuration for the switch.

**MIB Objects**

iphelperTrafficSuppressionStatus

---

## ip helper dhcp-snooping

Globally enables or disables DHCP Snooping for the switch. When this feature is enabled, all DHCP packets received on all switch ports are filtered.

**ip helper dhcp-snooping {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables DHCP Snooping for the switch.
<b>disable</b>	Disables DHCP Snooping for the switch.

### Defaults

By default, this feature is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the DHCP relay agent Option-82 feature is enabled, DHCP Snooping is not available. These two features are mutually exclusive.
- If the DHCP Snooping feature is globally enabled for the switch, then configuring snooping on a per-VLAN basis is not allowed. The opposite is also true; invoking VLAN based snooping prevents the use of switch level snooping.
- When DHCP Snooping is enabled at the switch level, MAC address verification and Option-82 data insertion are enabled by default. In addition, the trust mode for all ports is set to the DHCP client only mode.

### Examples

```
-> ip helper dhcp-snooping enable
-> ip helper dhcp-snooping disable
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

[ip helper dhcp-snooping vlan](#) .Enables or disables DHCP Snooping on a per VLAN basis.  
[show ip helper](#) Displays the current DHCP configuration for the switch.

### MIB Objects

iphelperDhcpSnooping

---

## ip helper dhcp-snooping mac-address verification

Globally enables or disables MAC address verification for incoming DHCP traffic. When this feature is enabled, the source MAC address is compared to the client hardware MAC address in the DHCP packet. If these two addresses do not match, the DHCP packet is dropped.

**ip helper dhcp-snooping mac-address verification {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables DHCP MAC address verification for the switch.
<b>disable</b>	Disables DHCP MAC address verification for the switch.

### Defaults

By default, this feature is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When DHCP Snooping is enabled at the switch level, MAC address verification and Option-82 data insertion are enabled by default. In addition, the trust mode for all ports is set to the DHCP client only mode.
- Changing the enabled or disabled status for MAC address verification is only allowed when DHCP Snooping is globally enabled for the switch.

### Examples

```
-> ip helper dhcp-snooping mac-address verification enable
-> ip helper dhcp-snooping mac-address verification disable
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

<a href="#">ip helper dhcp-snooping</a>	.Globally enables or disables DHCP Snooping for the switch.
<a href="#">ip helper dhcp-snooping option-82 data-insertion</a>	Globally enables or disables DHCP Option-82 data insertion for DHCP packets.

### MIB Objects

iphelperDhcpSnoopingMacAddressVerificationStatus

---



## ip helper dhcp-snooping option-82 data-insertion

Globally enables or disables DHCP Option-82 data insertion for DHCP packets. When this feature is enabled, the relay agent inserts the Option-82 field into DHCP packets before forwarding them to the DHCP server.

**ip helper dhcp-snooping option-82 data-insertion {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables inserting the DHCP Option-82 field into DHCP packets.
<b>disable</b>	Disables inserting the DHCP Option-82 field into DHCP packets.

### Defaults

By default, this feature is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

When DHCP Snooping is enabled at the switch level, Option-82 data insertion and MAC address verification are enabled by default. In addition, the trust mode for all ports is set to the DHCP client only mode.

### Examples

```
-> ip helper dhcp-snooping option-82 data-insertion enable
-> ip helper dhcp-snooping option-82 data-insertion disable
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

<a href="#">ip helper dhcp-snooping option-82 format</a>	Configures the type of information that is inserted in both the Circuit ID and Remote ID suboption of the Option-82 field.
<a href="#">ip helper dhcp-snooping</a>	.Globally enables or disables DHCP Snooping for the switch.
<a href="#">ip helper dhcp-snooping ip-source-filter</a>	Enables or disables the DHCP Snooping binding table functionality
<a href="#">show ip helper</a>	Displays the current DHCP configuration for the switch.

## **MIB Objects**

`iphelperDhcpSnoopingOpt82DataInsertionStatus`

---

## ip helper dhcp-snooping option-82 format

Configures the type of information that is inserted into both the Circuit ID and Remote ID suboption fields of the Option-82 field.

**ip helper dhcp-snooping option-82 format** {**base-mac** | **system-name** | **user-string** *string* / **interface-alias** | **auto-interface-alias**}

---

### Syntax Definitions

<b>base-mac</b>	The base MAC address of the switch.
<b>system-name</b>	The system name of the switch.
<i>string</i>	A user-defined text string up to 64 characters.
<b>interface-alias</b>	The alias configured for the interface.
<b>auto-interface-alias</b>	The switch automatically generates the interface-alias in the following format: <i>SystemName_slot_port</i> .

### Defaults

parameter	value
<b>base-mac</b>   <b>system-name</b>   <b>user-string</b> <i>string</i>	<b>base-mac</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The *string* parameter specifies user-defined information to insert into the Circuit ID and Remote ID fields.
- When entering a *string* for user-defined Option-82 information, quotes are required around ambiguous characters, such as hex characters, spaces, etc, so they are interpreted as text. For example, the *string* “Building B Server” requires quotes because of the spaces between the words.
- The interface-alias parameter will use the alias configured with the **interfaces alias** command. If no alias is configured a NULL string will be inserted.
- A maximum of 63 characters can be inserted when using the **interface-alias** and **auto-interface-alias** commands, remaining characters will be truncated.
- The Option-82 format option is a global setting, the format specified will be applied to all ports on the switch.
- The data specified with this command is added to the Circuit ID and Remote ID fields only when DHCP Option-82 data insertion is enabled for the switch.
- When DHCP Snooping is enabled at the switch level, Option-82 data insertion is enabled by default.

## Examples

```
-> ip helper dhcp-snooping option-82 format user-string "Building B Server"  
-> ip helper dhcp-snooping option-82 format system-name  
-> ip helper dhcp-snooping option-82 format base-mac  
-> ip helper dhcp-snooping option-82 format interface-alias  
-> ip helper dhcp-snooping option-82 format auto-interface-alias
```

## Release History

Release 6.3.1; command was introduced.

Release 6.4.2; **interface-alias** and **auto-interface-alias** parameters introduced.

## Related Commands

[ip helper dhcp-snooping option-82 data-insertion](#)

Globally enables or disables DHCP Option-82 data insertion for DHCP packets.

[ip helper dhcp-snooping](#)

Globally enables or disables DHCP Snooping for the switch.

[show ip helper](#)

Displays the current DHCP configuration for the switch.

[interfaces alias](#)

Configures an alias for a port.

## MIB Objects

```
iphelperDhcpSnoopingOption82FormatType  
iphelperDhcpOption82FormatInterfaceAliasAutoGen  
iphelperDhcpSnoopingOption82StringValue
```

---

## ip helper dhcp-snooping option-82 format ascii circuit-id

Configures the type of information that is inserted into the Option-82 Circuit ID suboption. The information is inserted into the Circuit ID field in ASCII text string format.

```
ip helper dhcp-snooping option-82 format ascii circuit-id {base-mac | system-name | vlan |  
user-string string / interface-alias | auto-interface-alias | cvlan} {delimiter character}
```

```
no ip helper dhcp-snooping option-82 format ascii circuit-id
```

---

### Syntax Definitions

<b>base-mac</b>	The base MAC address of the switch.
<b>system-name</b>	The system name of the switch.
<b>vlan</b>	The VLAN ID of which the client is a member.
<i>string</i>	A user-defined text string up to 64 characters.
<b>interface-alias</b>	The alias configured for the interface.
<b>auto-interface-alias</b>	The switch automatically generates the interface-alias in the following format: <i>SystemName_slot_port</i> .
<b>cvlan</b>	The Customer VLAN ID.
<i>character</i>	The delimiter character that separates fields within the Circuit ID ASCII string value. Valid characters are   (pipe), \ (backward slash), / (forward slash), - (dash), _ (underscore), and " " (space).

### Defaults

By default, the base MAC address of the switch is used in ASCII format.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guideline

- This command is used to specify the type of information that is configured in ASCII text string format and then inserted into the Option-82 Circuit ID suboption. Each parameter provided with this command represents a different type of information.
- Configuring the Circuit ID suboption in ASCII format allows up to five fields (types) of information within the ASCII string. However, if the contents of all the fields combined exceeds 127 characters, then the ASCII string is truncated.
- Specifying at least one parameter with this command is required. If multiple parameters are selected, then specifying one of the valid delimiter characters is also required.
- The *string* parameter specifies user-defined information to insert into the Circuit ID ASCII field.

- When entering a *string* for user-defined Option-82 information, quotes are required around ambiguous characters, such as hex characters, spaces, etc, so they are interpreted as text. For example, the *string* “Building B Server” requires quotes because of the spaces between the words.
- The **interface-alias** parameter will use the alias configured with the **interfaces alias** command. If no alias is configured, a NULL string will be inserted.
- A maximum of 63 characters can be inserted when using the **interface-alias** and **auto-interface-alias** commands, remaining characters will be truncated.
- The Option-82 format option is a global setting, the format specified will be applied to all ports on the switch.
- The data specified with this command is inserted into the Circuit ID suboption only when DHCP Option-82 data insertion is enabled for the switch.
- When DHCP Snooping is enabled at the switch level, Option-82 data insertion is enabled by default.

## Examples

```
-> ip helper dhcp-snooping option-82 format ascii circuit-id user-string "Bldg A
Server"
-> ip helper dhcp-snooping option-82 format ascii circuit-id vlan system-name
delimiter /
-> ip helper dhcp-snooping option-82 format ascii circuit-id user-string "Bldg. B
Server" base-mac system name vlan interface-alias auto-interface-alias delimiter |
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

<a href="#">ip helper dhcp-snooping option-82 data-insertion</a>	Globally enables or disables DHCP Option-82 data insertion for DHCP packets.
<a href="#">ip helper dhcp-snooping</a>	Globally enables or disables DHCP Snooping for the switch.
<a href="#">show ip helper</a>	Displays the current DHCP configuration for the switch.
<a href="#">interfaces alias</a>	Configures an alias for a port.

## MIB Objects

```
iphelperDhcpSnoopingOption82FormatASCIIconfigurableEntry
iphelperDhcpSnoopingOption82FormatASCIIconfigurableIndex
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField1
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField1StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableConfigurableField2
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField2StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField3
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField3StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField4
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField4StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField5
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField5StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableDelimiter
```

## ip helper dhcp-snooping option-82 format ascii remote-id

Configures the type of information that is inserted into the Option-82 Remote ID suboption. The information is inserted into the Remote ID field in ASCII text string format.

```
ip helper dhcp-snooping option-82 format ascii remote-id {base-mac | system-name | vlan |  
user-string string / interface-alias | auto-interface-alias | cvlan} {delimiter character}
```

```
no ip helper dhcp-snooping option-82 format ascii remote-id
```

---

### Syntax Definitions

<b>base-mac</b>	The base MAC address of the switch.
<b>system-name</b>	The system name of the switch.
<b>vlan</b>	The VLAN ID of which the client is a member.
<i>string</i>	A user-defined text string up to 64 characters.
<b>interface-alias</b>	The alias configured for the interface.
<b>auto-interface-alias</b>	The switch automatically generates the interface-alias in the following format: <i>SystemName_slot_port</i> .
<b>cvlan</b>	The Customer VLAN ID.
<i>character</i>	The delimiter character that separates fields within the Circuit ID ASCII string value. Valid characters are   (pipe), \ (backward slash), / (forward slash), - (dash), _ (underscore), and " " (space).

### Defaults

By default, the base MAC address of the switch is used in ASCII format.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guideline

- This command is used to specify the type of information that is configured in ASCII text string format and then inserted into the Option-82 Remote ID suboption. Each parameter provided with this command represents a different type of information.
- Configuring the Remote ID suboption in ASCII format allows up to five fields (types) of information within the ASCII string. However, if the contents of all the fields combined exceeds 127 characters, then the ASCII string is truncated.
- Specifying at least one parameter with this command is required. If multiple parameters are selected, then specifying one of the valid delimiter characters is also required.
- The *string* parameter specifies user-defined information to insert into the Remote ID ASCII field.

- When entering a *string* for user-defined Option-82 information, quotes are required around ambiguous characters, such as hex characters, spaces, etc, so they are interpreted as text. For example, the *string* “Building B Server” requires quotes because of the spaces between the words.
- The **interface-alias** parameter will use the alias configured with the **interfaces alias** command. If no alias is configured, a NULL string will be inserted.
- A maximum of 63 characters can be inserted when using the **interface-alias** and **auto-interface-alias** commands, remaining characters will be truncated.
- The Option-82 format option is a global setting, the format specified will be applied to all ports on the switch.
- The data specified with this command is inserted into the Remote ID suboption only when DHCP Option-82 data insertion is enabled for the switch.
- When DHCP Snooping is enabled at the switch level, Option-82 data insertion is enabled by default.

## Examples

```
-> ip helper dhcp-snooping option-82 format ascii remote-id user-string "Bldg A
Server"
-> ip helper dhcp-snooping option-82 format ascii remote-id vlan system-name delimit
er /
-> ip helper dhcp-snooping option-82 format ascii remote-id user-string "Bldg. B
Server" base-mac system name vlan interface-alias auto-interface-alias delimiter |
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

<a href="#">ip helper dhcp-snooping option-82 data-insertion</a>	Globally enables or disables DHCP Option-82 data insertion for DHCP packets.
<a href="#">ip helper dhcp-snooping</a>	Globally enables or disables DHCP Snooping for the switch.
<a href="#">show ip helper</a>	Displays the current DHCP configuration for the switch.
<a href="#">interfaces alias</a>	Configures an alias for a port.

## MIB Objects

```
iphelperDhcpSnoopingOption82FormatASCIIconfigurableEntry
iphelperDhcpSnoopingOption82FormatASCIIconfigurableIndex
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField1
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField1StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableConfigurableField2
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField2StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField3
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField3StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField4
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField4StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField5
iphelperDhcpSnoopingOption82FormatASCIIconfigurableField5StringValue
iphelperDhcpSnoopingOption82FormatASCIIconfigurableDelimiter
```



## ip helper dhcp-snooping bypass option-82-check

Enables or disables checking for an Option-82 field in DHCP packets ingressing on untrusted ports.

**ip helper dhcp-snooping bypass option-82-check {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Bypasses the Option-82 field check.
<b>disable</b>	Checks DHCP packets for the Option-82 field.

### Defaults

By default, this feature is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When this feature is disabled (the default), DHCP packets ingressing on untrusted ports are checked to see if they contain the Option-82 field. If this field is present, the DHCP packet is discarded.
- When this feature is enabled, DHCP packets ingressing on untrusted ports are *not* checked to see if they contain the Option-82 field. In this case, the Option-82 field is ignored and all DHCP packets are processed.
- Using this command is only allowed when DHCP Snooping is enabled globally for the switch or at the VLAN level.

### Examples

```
-> ip helper dhcp-snooping bypass option-82-check enable
-> ip helper dhcp-snooping bypass option-82-check disable
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<a href="#">ip helper dhcp-snooping</a>	Globally enables or disables DHCP Snooping for the switch.
<a href="#">show ip helper</a>	Displays the current DHCP configuration for the switch.

### MIB Objects

iphelperDHCPsnoopingBypassOpt82CheckStatus

---

## ip helper dhcp-snooping vlan

Enables or disables DHCP Snooping on a per VLAN basis. When this feature is enabled, all DHCP packets received on ports associated with the DHCP Snooping VLAN are filtered.

**ip helper dhcp-snooping vlan** *vlan\_id* [**mac-address verification** {enable | disable}] [**option-82 data-insertion** {enable | disable}]

**no ip helper dhcp-snooping vlan** *vlan\_id*

---

### Syntax Definitions

<i>vlan_id</i>	The VLAN identification number (1–4094).
<b>mac-address verification</b>	Enables or disables verifying the source MAC address of DHCP packets with the client MAC address contained in the same packet.
<b>option-82 data-insertion</b>	Enables or disables inserting Option-82 information into DHCP packets.

### Defaults

By default, DHCP Snooping is disabled. When this feature is enabled for the specified VLAN, the following default parameter values apply:

parameter	default
<b>mac-address verification</b>	Enabled
<b>option-82 data-insertion</b>	Enabled

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable DHCP Snooping for the specified VLAN.
- The MAC address verification and Option-82 data insertion are applied to packets received on ports associated with the DHCP Snooping VLAN.
- If the DHCP relay agent Option-82 feature is enabled, DHCP Snooping is not available. These two features are mutually exclusive.
- If the DHCP Snooping feature is globally enabled for the switch, then configuring snooping on a per-VLAN basis is not allowed. The opposite is also true; invoking VLAN based snooping prevents the use of switch level snooping.
- Note that disabling the Option-82 data insertion operation for a VLAN is not allowed when the binding table functionality is enabled.

### Examples

```
-> ip helper dhcp-snooping vlan 100 enable
-> ip helper dhcp-snooping vlan 100 disable
```

## Release History

Release 6.1.2; command was introduced.

## Related Commands

- |                                                          |                                                                   |
|----------------------------------------------------------|-------------------------------------------------------------------|
| <a href="#">ip helper dhcp-snooping</a>                  | Globally enables or disables DHCP Snooping for the switch.        |
| <a href="#">ip helper dhcp-snooping ip-source-filter</a> | Enables or disables the DHCP Snooping binding table functionality |

## MIB Objects

```
iphelperDhcpSnoopingVlanTable  
  iphelperDhcpSnoopingVlanNumber  
  iphelperDhcpSnoopingVlanMacVerificationStatus  
  iphelperDhcpSnoopingVlanOpt82DataInsertionStatus
```

---

## ip helper dhcp-snooping port

Configures the DHCP Snooping trust mode for the port. The trust mode determines if the port will accept all DHCP traffic, block all DHCP traffic, or accept only client DHCP traffic.

**ip helper dhcp-snooping port** *slot1/port1[-port1a]* {**block** | **client-only** | **trust**}

---

### Syntax Definitions

<i>slot1/port1[-port1a]</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3). Use a hyphen to specify a range of ports (e.g. 3/1-16).
<b>block</b>	Blocks all DHCP traffic on the port.
<b>client-only</b>	Allows only DHCP client traffic on the port.
<b>trust</b>	Allows all DHCP traffic on the port. The port behaves as if DHCP Snooping was not enabled.

### Defaults

By default, the trust mode for a port is set to **client-only** when the DHCP Snooping feature is enabled for the switch or for a VLAN.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The DHCP trust mode only applies when the DHCP Snooping feature is enabled for the switch or for a VLAN.
- If DHCP Snooping is enabled at the switch level, the trust mode applies to all switch ports.
- If DHCP Snooping is enabled for a specific VLAN, then the trust mode applies to only those ports that are associated with that VLAN.
- Use the [show ip helper dhcp-snooping port](#) command to display the current trust mode for a port and statistics regarding the number of packets dropped due to DHCP Snooping violations.

### Examples

```
-> ip helper dhcp-snooping port 1/24 trust
-> ip helper dhcp-snooping port 2/1-10 block
-> ip helper dhcp-snooping port 4/8 client-only
```

### Release History

Release 6.1.2; command was introduced.

## Related Commands

- ip helper dhcp-snooping** Globally enables or disables DHCP Snooping for the switch.
- ip helper dhcp-snooping vlan** Enables or disables DHCP Snooping on a per-VLAN basis.

## MIB Objects

iphelperDhcpSnoopingPortTable  
iphelperDhcpSnoopingPortIfIndex  
iphelperDhcpSnoopingPortTrustMode

---

## ip helper dhcp-snooping linkagg

Configures the DHCP Snooping trust mode for the link aggregate. The trust mode determines if the link aggregate will accept all DHCP traffic, block all DHCP traffic, or accept only client DHCP traffic.

**ip helper dhcp-snooping linkagg *num* {block | client-only | trust| ip-source-filtering}**

---

### Syntax Definitions

<i>num</i>	Specifies the link aggregate ID number.
<b>block</b>	Blocks all DHCP traffic on the port.
<b>client-only</b>	Allows only DHCP client traffic on the port.
<b>trust</b>	Allows all DHCP traffic on the link aggregate. The port behaves as if DHCP Snooping was not enabled.
<b>ip-source-filter</b>	Traffic on the port is restricted to packets received on the port that contain the client MAC address and IP address. All other packets are dropped.

### Defaults

By default, the trust mode for a link aggregate is set to **client-only** when the DHCP Snooping feature is enabled for the switch or for a VLAN.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The DHCP trust mode only applies when the DHCP Snooping feature is enabled for the switch or for a VLAN.
- If DHCP Snooping is enabled at the switch level, the trust mode applies to all link aggregates.
- If DHCP Snooping is enabled for a specific VLAN, then the trust mode applies to only those link aggregates that are associated with that VLAN.
- Use the **show ip helper dhcp-snooping port** command to display the current trust mode for a link aggregate and statistics regarding the number of packets dropped due to DHCP Snooping violations.

### Examples

```
-> ip helper dhcp-snooping linkagg 1 trust
-> ip helper dhcp-snooping linkagg 2 block
-> ip helper dhcp-snooping linkagg 3 client-only
```

### Release History

Release 6.1.2; command was introduced.

Release 6.4.4; ip-source-filtering parameter deprecated, use **ip helper dhcp-snooping ip-source-filter**.

## Related Commands

- ip helper dhcp-snooping** Globally enables or disables DHCP Snooping for the switch.
- ip helper dhcp-snooping vlan** Enables or disables DHCP Snooping on a per-VLAN basis.

## MIB Objects

iphelperDhcpSnoopingPortTable  
iphelperDhcpSnoopingPortIfIndex  
iphelperDhcpSnoopingPortTrustMode

---

## ip helper dhcp-snooping port traffic-suppression

Configures the traffic suppression status for the port. When this function is enabled, DHCP packets are not flooded on the default VLAN for the specified port. This will prevent DHCP communications between a DHCP server and a client when both devices belong to the same VLAN domain.

*This command is currently not supported. Traffic suppression is automatically enabled when DHCP Snooping is enabled for the switch or for specific VLANs.*

**ip helper dhcp-snooping port *slot1/port1[-port1a]* traffic-suppression {enable | disable}**

---

### Syntax Definitions

<i>slot1/port1[-port1a]</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3). Use a hyphen to specify a range of ports (e.g. 3/1-16).
<b>enable</b>	Enables traffic suppression for the specified port.
<b>disable</b>	Disables traffic suppression for the specified port.

### Defaults

By default, traffic suppression is disabled for the port.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Traffic suppression applies only to ports that are associated with a VLAN that has DHCP Snooping enabled or to all ports when DHCP Snooping is globally enabled for the switch.
- When traffic suppression is disabled, then DHCP packets are flooded on the default VLAN for the port. Any DHCP server in the same VLAN domain as the client will receive and respond to such packets; DHCP Snooping is not invoked in this scenario.

### Examples

```
-> ip helper dhcp-snooping port 1/24 traffic-suppression enable
-> ip helper dhcp-snooping port 2/1-10 traffic-suppression enable
-> ip helper dhcp-snooping port 4/8 traffic-suppression disable
-> ip helper dhcp-snooping port 3/1-5 traffic-suppression disable
```

### Release History

Release 6.1.2; command was introduced.

Release 6.1.5; command was deprecated.



## Related Commands

<a href="#">ip helper dhcp-snooping</a>	Globally enables or disables DHCP Snooping for the switch.
<a href="#">ip helper dhcp-snooping vlan</a>	Enables or disables DHCP Snooping on a per-VLAN basis.
<a href="#">ip helper dhcp-snooping port</a>	Configures the DHCP Snooping trust mode for a port.
<a href="#">ip helper dhcp-snooping port ip-source-filtering</a>	Configures the IP source filtering status for a DHCP Snooping port.

## MIB Objects

iphelperDhcpSnoopingPortTable  
    iphelperDhcpSnoopingPortIfIndex  
    iphelperDhcpSnoopingPortIpTrafficSuppression

---

## ip helper dhcp-snooping port ip-source-filtering

Configures the IP source filtering status for the port. When this function is enabled, traffic on the port is restricted to packets received on the port that contain the client MAC address and IP address. All other packets are dropped.

**ip helper dhcp-snooping port *slot1/port1[-port1a]* ip-source-filtering {enable | disable}**

---

### Syntax Definitions

<i>slot1/port1[-port1a]</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3). Use a hyphen to specify a range of ports (e.g. 3/1-16).
<b>enable</b>	Enables IP source filtering for the specified port.
<b>disable</b>	Disables IP source filtering for the specified port.

### Defaults

By default, IP source filtering is disabled for the port.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- IP source filtering applies only to ports that are associated with a VLAN that has DHCP Snooping enabled or to all ports when DHCP Snooping is globally enabled for the switch.
- The DHCP Snooping binding table is used to verify client information.
- If a device connected to a DHCP Snooping port with IP source filtering enabled does not have a valid IP address lease from the trusted DHCP server, then all IP traffic for that device is blocked on the port.
- Disable IP source filtering for the DHCP Snooping port to allow a device to obtain a valid IP address lease.
- Once a device obtains a valid lease or if a device already has a valid lease, then only source bound traffic is allowed.

### Examples

```
-> ip helper dhcp-snooping port 1/24 ip-source-filtering enable
-> ip helper dhcp-snooping port 2/1-10 ip-source-filtering enable
-> ip helper dhcp-snooping port 4/8 ip-source-filtering disable
-> ip helper dhcp-snooping port 3/1-5 ip-source-filtering disable
```

### Release History

Release 6.1.2; command was introduced.

Release 6.4.4; ip-source-filtering parameter deprecated, use [ip helper dhcp-snooping ip-source-filter](#).

## Related Commands

<b>ip helper dhcp-snooping</b>	Globally enables or disables DHCP Snooping for the switch.
<b>ip helper dhcp-snooping vlan</b>	Enables or disables DHCP Snooping on a per-VLAN basis.
<b>ip helper dhcp-snooping port</b>	Configures the DHCP Snooping trust mode for a port.
<b>ip helper dhcp-snooping port traffic-suppression</b>	Configures the traffic suppression status for a DHCP Snooping port.

## MIB Objects

iphelperDhcpSnoopingPortTable  
    iphelperDhcpSnoopingPortIfIndex  
    iphelperDhcpSnoopingPortIpSourceFiltering

---

## ip helper dhcp-snooping binding

Enables or disables the DHCP Snooping binding table functionality. The binding table contains the MAC address, IP address, lease time, binding type (dynamic or static), VLAN number, and the interface information that corresponds to a local untrusted port on the switch. In addition, this command is also used to configure a static entry in the binding table.

```
ip helper dhcp-snooping port binding {[enable | disable] | [mac_address port slot/port address
ip_address vlan vlan_id]}
```

```
no ip helper dhcp-snooping port binding mac_address port slot/port address ip_address vlan vlan_id
```

---

### Syntax Definitions

<b>enable</b>	Enables the creation of binding table entries.
<b>disable</b>	Disables the creation of binding table entries.
<i>mac_address</i>	The client MAC address.
<i>slot/port</i>	The slot and port number that received the DHCP request.
<i>ip_address</i>	The IP address that the DHCP server offered to the client.
<i>vlan_id</i>	The VLAN identification number (1–4094) of the VLAN to which the client belongs.

### Defaults

By default, the binding table functionality is enabled when the DHCP Snooping feature is enabled for the switch or for a VLAN.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static entry from the DHCP Snooping binding table.
- The **enable** and **disable** parameters are independent of the other parameters, in that they are only used to turn the binding table functionality on and off. Enabling or disabling binding table functionality and creating a static binding table entry is not allowed on the same command line.
- Note that enabling the binding table functionality is not allowed if Option-82 data insertion is *not* enabled at either the switch or VLAN level.
- Static binding table entries are created using this command. If DHCP Snooping binding table functionality is not enabled, creating a static entry is not allowed.
- Dynamic binding table entries are created when the relay agent receives a DHCPACK packet.

### Examples

```
-> ip helper dhcp-snooping binding disable
-> ip helper dhcp-snooping binding enable
```

```
-> ip helper dhcp-snooping binding 00:2a:95:51:6c:10 port 1/15 address 17.15.3.10
lease-time 3 vlan 200
-> no ip helper dhcp-snooping binding 00:2a:95:51:6c:10 port 1/15 address
17.15.3.10 lease-time 3 vlan 200
```

## Release History

Release 6.1.2; command was introduced.  
Release 6.3.4; **lease-time** parameter was removed.

## Related Commands

### [ip helper dhcp-snooping binding timeout](#)

Configures the amount of time between each automatic save of the binding table contents to a file on the switch.

### [ip helper dhcp-snooping binding action](#)

Synchronizes the contents of the DHCP Snooping binding table with the contents of the **dhcpBinding.db** file saved on the switch.

## MIB Objects

```
iphelperDhcpSnoopingBindingStatus
iphelperDhcpSnoopingBindingTable
  iphelperDhcpSnoopingBindingMacAddress
  iphelperDhcpSnoopingBindingIfIndex
  iphelperDhcpSnoopingBindingIpAddress
  iphelperDhcpSnoopingBindingVlan
  iphelperDhcpSnoopingBindingType
```

---

## ip helper dhcp-snooping ip-source-filter

Enables or disables the IP source filtering capability at a port, link aggregation, or VLAN level. When this function is enabled, the switch allows the traffic that matches the client IP address, MAC address, port, and VLAN combination obtained from the DHCP snooping binding table entry.

**ip helper dhcp-snooping ip-source-filter** {vlan *num* | port *slot/port[-port2]* | linkagg *num*} {enable | disable}

---

### Syntax Definitions

<b>vlan</b>	The VLAN identification number (1–4094).
<b>linkagg <i>num</i></b>	Specifies the link aggregate identification number.
<b><i>slot1/port1[-port2]</i></b>	Specifies the slot number for the module and the physical port number on that module (for example, 3/1 specifies port 1 on slot 3). Use a hyphen to specify a range of ports (for example, 3/1-16).
<b>enable</b>	Enables IP source filtering for the specified port, link aggregation, or VLAN.
<b>disable</b>	Disables IP source filtering for the specified port, link aggregation, or VLAN level.

### Defaults

By default, IP source filtering is disabled for a port or link aggregate, or VLAN.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Source filtering can be enabled only on the VLANs on which the DHCP Snooping is enabled.
- Source filtering can be enabled
  - on the ports that are associated with a VLAN on which DHCP Snooping is enabled.
  - on all the ports when DHCP Snooping is globally enabled for the switch.

### Examples

```
-> ip helper dhcp-snooping ip-source-filter port 1/1 enable
-> ip helper dhcp-snooping ip-source-filter linkagg 2 enable
-> ip helper dhcp-snooping ip-source-filter vlan 10 enable
-> ip helper dhcp-snooping ip-source-filter vlan 20 disable
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

**show ip helper dhcp-snooping ip-source-filter** Displays the ports or VLANs on which IP source filtering is enabled.

## MIB Objects

```
iphelperDhcpSnoopingPortIpSourceFiltering  
  iphelperDhcpSnoopingPortIfIndex  
  iphelperDhcpSourceFilterVlanNumber  
  iphelperDhcpSourceFilterVlanFilteringStatus
```

---





## ip helper dhcp-snooping binding action

Triggers a purge or renew action against the DHCP Snooping binding table. A purge action clears the contents of the table. A renew action populates the table with entries saved in the **dhcpBinding.db** file.

**ip helper dhcp-snooping port binding action {purge | renew}**

---

### Syntax Definitions

<b>purge</b>	Clears all binding table entries that are maintained in switch memory.
<b>renew</b>	Populates the binding table with entries saved in the <b>dhcpBinding.db</b> file located in the <b>/flash/switch</b> directory on the switch.

### Defaults

By default, the timeout value is set to 300 seconds.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

The DHCP Snooping binding table is maintained in the switch memory. Binding table entries are saved on a periodic basis to the **dhcpBinding.db** file on the switch. Use the **purge** and **renew** options available with this command to sync the binding table contents with the contents of the **dhcpBinding.db** file.

### Examples

```
-> ip helper dhcp-snooping binding action purge
-> ip helper dhcp-snooping binding action renew
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

<a href="#">ip helper dhcp-snooping ip-source-filter</a>	.Enables or disables the DHCP Snooping binding table functionality.
<a href="#">ip helper dhcp-snooping binding timeout</a>	Configures the amount of time between each automatic save of the binding table contents to a file on the switch.

### MIB Objects

iphelperDhcpSnoopingBindingDatabaseAction

---

## ip helper dhcp-snooping binding persistency

Retains the entries in the DHCP Snooping binding table for the duration of the lease regardless of the existence of the MAC address in the MAC address table.

**ip helper dhcp-snooping binding persistency {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables DHCP Snooping binding persistency.
<b>disable</b>	Disables DHCP Snooping binding persistency.

### Defaults

By default, DHCP Snooping binding persistency is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- With this option disabled, the entry will be removed if the MAC address is missing from the MAC address table when the database is synchronized.
- Use the [show ip helper](#) command to display the current status.

### Examples

```
-> ip helper dhcp-snooping binding persistency enable
-> ip helper dhcp-snooping binding persistency disable
```

### Release History

Release 6.3.3; command was introduced.

### Related Commands

<a href="#">ip helper dhcp-snooping ip-source-filter</a>	Enables or disables the DHCP Snooping binding table functionality.
<a href="#">ip helper dhcp-snooping binding timeout</a>	Configures the amount of time between each automatic save of the binding table contents to a file on the switch.

## ip helper boot-up

Enables or disables automatic IP address configuration for default VLAN 1 when an unconfigured switch boots up. If enabled, the switch broadcasts a BootP or a DHCP request packet at boot time. When the switch receives an IP address from a BootP/DHCP server, the address is assigned to default VLAN 1.

---

**Note.** Automatic IP address configuration only supports the assignment of a *permanent* IP address to the switch. Make sure that the DHCP server is configured with such an address before using this feature.

---

**ip helper boot-up {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables automatic IP address configuration for default VLAN 1.
<b>disable</b>	Disables automatic IP address configuration for default VLAN 1.

### Defaults

By default, this feature is disabled on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **ip helper boot-up enable** command to specify BootP or DHCP for the request packet type.
- If an IP router port already exists for VLAN 1, a request packet is not broadcast even if automatic IP address configuration is enabled for the switch.

### Examples

```
-> ip helper boot-up enable
-> ip helper boot-up disable
```

### Release History

Release 6.1; command was introduced.

Release 6.4.3; command deprecated; use **ip interface dhcp-client**.

**Related Commands****ip helper boot-up enable**

Specifies BootP or DHCP as the type of request packet the switch will broadcast at boot time.

**MIB Objects**

iphelperStatTable

iphelperBootupOption

---

## ip helper boot-up enable

Specifies the type of packet to broadcast (BootP or DHCP) when automatic IP address configuration is enabled for the switch.

---

**Note.** Automatic IP address configuration only supports the assignment of a *permanent* IP address to the switch. Make sure that the DHCP server is configured with such an address before using this feature.

---

**ip helper boot-up enable {BOOTP | DHCP}**

---

### Syntax Definitions

**BOOTP** Broadcasts a BOOTP formatted request packet.  
**DHCP** Broadcasts a DHCP formatted request packet.

### Defaults

---

parameter	default
BOOTP   DHCP	BOOTP

---

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

This command is only valid if automatic IP address configuration is already enabled for the switch.

### Examples

```
-> ip helper boot-up enable DHCP  
-> ip helper boot-up enable BOOTP
```

### Release History

Release 6.1; command was introduced.  
Release 6.4.3; command deprecated; use [ip interface dhcp-client](#).

### Related Commands

[ip helper boot-up](#) Enables or disables automatic IP configuration for the switch.

### MIB Objects

iphelperStatTable  
iphelperBootupPacketOption

---

## ip udp relay

Enables or disables UDP port relay for BOOTP/DHCP and generic UDP service ports (i.e., NBNS/NBDD, other well-known UDP ports, and user-defined service ports that are not well-known).

**ip udp relay** {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | *port* [*name*]}

**no ip udp relay** {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | *port*}

---

### Syntax Definitions

<b>BOOTP</b>	BOOTP/DHCP well-known ports 67/68.
<b>NBDD</b>	NBDD well-known port 138.
<b>NBNSNBDD</b>	NBNS/NBDD well-known ports 137/138.
<b>DNS</b>	DNS well-known port 53.
<b>TACACS</b>	TACACS well-known port 65.
<b>TFTP</b>	TFTP well-known port 69.
<b>NTP</b>	NTP well-known port 123.
<i>port</i>	Any number that is not a well-known port number.
<i>name</i>	Text string description up to 30 characters.

### Defaults

By default, relay is enabled on the BOOTP/DHCP well-known ports.

parameter	default
<i>name</i>	User Service Other#

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable UDP Relay for the specified service port.
- Only use the *port* parameter to specify service port numbers that are not well known. For example, do not specify port 53 as it is the well-known port number for DNS. Instead, use the **DNS** parameter to enable relay for port 53.
- The *name* parameter is only used with the *port* parameter and provides a user-defined description to identify the not well-known port service.
- When entering a *name* for a user-defined service, quotes are required around ambiguous characters, such as hex characters, spaces, etc, so they are interpreted as text. For example, the *name* "A UDP Protocol" requires quotes because of the spaces between the words.

- When UDP Relay is disabled for BOOTP/DHCP, the **ip helper** configuration is *not* retained and all dependant functionality (i.e., automatic IP configuration for VLAN 1, Telnet and HTTP client authentication, etc.) is disrupted.
- Up to three types of UDP Relay services are supported at any one time and in any combination.

---

**Note.** If the relay service for BOOTP/DHCP is disabled when the switch reboots, the service is automatically enabled when the switch comes back up. If there were three non-BOOTP/DHCP relay services already enabled before the reboot, the most recent service enabled is disabled and replaced with the BOOTP/DHCP relay service.

---

- If port relay is enabled for the NBDD well-known port, NBNS is not automatically enabled by default. Specify **NBNS/NBDD** to enable relay for both well-known ports.
- Note that when UDP port relay is enabled for NTP, relay cannot forward NTP packets that contain a destination IP address that matches a VLAN router IP address on the switch.

## Examples

```
-> ip udp relay DNS
-> ip udp 3047 "Generic Service"
-> no ip udp relay BOOTP
-> no ip udp relay 3047
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**ip udp relay vlan** Specifies the VLAN to which traffic from the specified UDP service port is forwarded.

## MIB Objects

```
iphelperxServicePortAssociationTable
  iphelperxServicePortAssociationService
  iphelperxServicePortAssociationPort
  iphelperxServicePortAssociationName
iphelperxPortServiceAssociationTable
  iphelperxPortServiceAssociationService
  iphelperxPortServiceAssociationPort
  iphelperxPortServiceAssociationName
```

---

## ip udp relay vlan

Specifies a VLAN on which traffic destined for a UDP port is forwarded.

**ip udp relay** {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | *port*} **vlan** *vlan\_id*

**no ip udp relay** {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | *port*} **vlan** *vlan\_id*

---

### Syntax Definitions

<b>BOOTP</b>	BOOTP/DHCP well-known ports 67/68.
<b>NBDD</b>	NBDD well-known port 138.
<b>NBNSNBDD</b>	NBNS/NBDD well-known ports 137/138.
<b>DNS</b>	DNS well-known port 53.
<b>TACACS</b>	TACACS well-known port 65.
<b>TFTP</b>	TFTP well-known port 69.
<b>NTP</b>	NTP well-known port 123.
<i>port</i>	A user-specified port that is not a well-known port.
<i>vlan_id</i>	A numeric value (1–4094) that uniquely identifies an individual VLAN. Use a hyphen to specify a range of VLANs (e.g., 1-5).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the VLAN association with the UDP service port.
- The maximum number of VLANs that can receive forwarded UDP service port traffic is 256.
- Only specify service port numbers that are *not* well known when using the *port* parameter with this command. For example, do not specify port 53 as it is the well-known port number for the DNS UDP service. Instead, use the **DNS** parameter to enable relay for port 53.
- Specifying a VLAN for the BOOTP/DHCP service is not supported.

### Examples

```
-> ip udp relay DNS vlan 10
-> ip udp 3047 vlan 500
-> no ip udp relay DNS vlan 10
```



## Release History

Release 6.1; command was introduced.

## Related Commands

[ip udp relay](#) Enables or disables relay for UDP service ports.

## MIB Objects

```
iphelperxPortServiceAssociationTable  
  iphelperxPortServiceAssociationService
```

---

## show ip helper

Displays the current DHCP Relay, Relay Agent Information, and DHCP Snooping configuration.

**show ip helper**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Displays information for all IP addresses configured.

### Examples

The following example shows what the display output looks like when the DHCP Snooping feature is enabled and the DHCP relay agent information (Option 82) feature is disabled:

```
-> show ip helper
Ip helper :
  Forward Delay(seconds) = 3,
  Max number of hops     = 4,
  Relay Agent Information           = Disabled,
  DHCP Snooping Status           = Switch-Level Enabled,
    Option 82 Data Insertion Per Switch = Enabled,
    MAC Address Verification Per Switch = Enabled,
  DHCP Snooping Bypass Opt82-Check = Disabled,
  DHCP Snooping Opt82 Format       = Base MAC,
  DHCP Snooping Opt82 String      = 00:d0:95:ae:3b:f6,
  DHCP Snooping Binding DB Status = Enabled,
    Database Sync Timeout         = 300,
    Database Last Sync Time       = Mar 19 2007 14:32,
    Binding Persistency Status    = Enabled
  PXE Support                    = Disabled,
  Forward option                  = standard
  Vlan Number NA
  Bootup Option Disable
    Forwarding Address :
      1.1.1.1
      21.2.2.10
      172.19.4.1
  UDP Relay on Default VRF = Enabled
```

The following example shows what the display output looks like when the DHCP Snooping feature is enabled and the Option-82 format is set to ASCII:

```
-> show ip helper
Ip helper :
  Forward Delay(seconds) = 3,
  Max number of hops      = 4,
  Relay Agent Information      = Disabled,
  DHCP Snooping Status       = Switch-Level Enabled,
    Option 82 Data Insertion Per Switch = Enabled,
    MAC Address Verification Per Switch = Enabled,
  DHCP Snooping Opt82 ASCII Circuit ID Field1 = Base MAC,
  DHCP Snooping Opt82 ASCII Circuit ID Field1 String = 00:e0:b1:91:45:d0,
  DHCP Snooping Opt82 ASCII Circuit ID Field2 = Cvlan,
  DHCP Snooping Opt82 ASCII Circuit ID Field2 String = - ,
  DHCP Snooping Opt82 ASCII Circuit ID Delimiter = "/",
  DHCP Snooping Opt82 ASCII Remote ID Field1 = Vlan,
  DHCP Snooping Opt82 ASCII Remote ID Field1 String = - ,
  DHCP Snooping Opt82 ASCII Remote ID Field2 = Cvlan,
  DHCP Snooping Opt82 ASCII Remote ID Field2 String = - ,
  DHCP Snooping Opt82 ASCII Remote ID Delimiter = " ",

  DHCP Snooping Binding DB Status = Enabled,
    Database Sync Timeout = 300,
    Database Last Sync Time = Mar 19 2007 14:32,
    Binding Persistency Status = Enabled
  PXE Support = Disabled,
  Forward option = standard
    Vlan Number NA
  Bootup Option Disable
    Forwarding Address :
      1.1.1.1
      21.2.2.10
      172.19.4.1
  UDP Relay on Default VRF = Enabled
```

### *output definitions*

<b>Forward Delay</b>	The current forward delay time (default is three seconds). Use the <a href="#">ip helper forward delay</a> command to change this value.
<b>Max number of hops</b>	The current maximum number of hops allowed (default is four hops). Use the <a href="#">ip helper maximum hops</a> command to change this value.
<b>Forward option</b>	The current forwarding option setting: <b>standard</b> or <b>avlan only</b> . Use the <a href="#">ip helper standard</a> and <a href="#">ip helper avlan only</a> commands to change this value.
<b>Relay Agent Information</b>	Indicates the status ( <b>Enabled</b> or <b>Disabled</b> ) of the DHCP relay agent information option (Option 82) feature. Configured through the <a href="#">ip helper agent-information</a> command. This feature is disabled if the DHCP snooping feature is enabled.

*output definitions*

<b>Relay Agent Information Policy</b>	The current policy action ( <b>Drop, Keep, Replace</b> ) applied to DHCP packets that contain an Option-82 field. Configured through the <b>ip helper agent-information policy</b> command. Note that this field only appears when the DHCP relay agent information Option-82 feature is enabled.
<b>DHCP Snooping Status</b>	Indicates the status ( <b>Disabled, Switch-Level Enabled, or VLAN-Level Enabled</b> ) of the DHCP snooping feature. Configured through the <b>ip helper dhcp-snooping</b> or <b>ip helper dhcp-snooping vlan</b> command. This feature is disabled if the DHCP relay agent information option is enabled.
<b>Option 82 Data Insertion Per Switch</b>	Indicates whether or not the DHCP Option 82 field is added to DHCP packets ( <b>Enabled or Disabled</b> ). Configured through the <b>ip helper dhcp-snooping option-82 data-insertion</b> command. Note that this field only appears when DHCP snooping is enabled at the switch level.
<b>MAC Address Verification Per Switch</b>	Indicates whether or not MAC address verification is performed on the DHCP packets ( <b>Enabled or Disabled</b> ). Configured through the <b>ip helper dhcp-snooping mac-address verification</b> command. Note that this field only appears when DHCP snooping is enabled at the switch level.
<b>DHCP Snooping Bypass Opt82-Check</b>	Indicates whether or not an Option-82 check is performed for DHCP packets ingressing on untrusted ports ( <b>Enabled or Disabled</b> ). Configured through the <b>ip helper dhcp-snooping option-82 format ascii circuit-id</b> command.
<b>DHCP Snooping Opt82 Format</b>	The type of information (base MAC address for the switch, system name for the switch, user-defined text, or interface alias) that the switch will insert into the Option-82 suboption when Option-82 data insertion is enabled for the switch. Configured through the <b>ip helper dhcp-snooping option-82 format</b> command.
<b>DHCP Snooping Opt 82 String</b>	The user-defined text inserted into the Option-82 field when data insertion is enabled and a string format for the data is specified. Configure through the <b>ip helper dhcp-snooping option-82 format</b> command.
<b>DHCP Snooping Opt82 Format = ASCII</b>	Indicates that the switch will insert Option-82 information into the Circuit ID suboption as an ASCII text string. Configured through the <b>ip helper dhcp-snooping option-82 format ascii circuit-id</b> command.
<b>DHCP Snooping Opt82 ASCII Field1</b>	If the Option-82 format is set to ASCII, this field contains the type of information that the switch will insert into the Option-82 Circuit ID suboption. This field only displays when the Option-82 format is set to ASCII. The Circuit ID suboption may contain up to five ASCII text strings; a separate field is displayed for each type of string that is configured. Configured through the <b>ip helper dhcp-snooping option-82 format ascii circuit-id</b> command.

*output definitions*

<b>DHCP Snooping Opt82 ASCII Field1 String</b>	The value of the ASCII text string that is inserted into the Option-82 Circuit ID suboption field. This field only displays when the Option-82 format is set to ASCII. The Circuit ID suboption may contain up to five ASCII text strings; a separate field is displayed for each string that is configured. Configured through the <b>ip helper dhcp-snooping option-82 format ascii circuit-id</b> command.
<b>DHCP Snooping Opt82 ASCII Delimiter</b>	The character that is used to separate multiple ASCII text strings inserted into the Option-82 Circuit ID suboption. This field only displays when more than one ASCII text string is configured for the Circuit ID suboption. Configured through the <b>ip helper dhcp-snooping option-82 format ascii circuit-id</b> command.
<b>DHCP Binding DB Status</b>	Indicates if the DHCP snooping binding table (database) functionality is <b>Enabled</b> or <b>Disabled</b> .
<b>Database Sync Timeout</b>	The amount of time, in seconds, that the switch waits between each synchronization of the DHCP snooping binding table with the <b>dhcpBinding.db</b> file (default is 300 seconds). Configured through the <b>ip helper dhcp-snooping binding timeout</b> command. Note that this field does not appear if the binding table functionality is disabled.
<b>Database Last Sync Time</b>	The last time and day the DHCP snooping binding table was synchronized with the <b>dhcpBinding.db</b> file. Note that this field does not appear if the binding table functionality is disabled.
<b>Binding Persistency Status</b>	Indicates whether or not the DHCP snooping binding table retains entries with MAC addresses that were cleared from the MAC address table ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>ip helper dhcp-snooping binding persistency</b> command.
<b>Bootup Option</b>	Indicates whether or not automatic IP address configuration for default VLAN 1 is done when the switch boots up ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>ip helper boot-up</b> command.
<b>Bootup Packet Option</b>	Indicates if the Bootup Option broadcasts a <b>DHCP</b> or <b>BOOTP</b> packet to obtain an IP address for default VLAN 1. Configured through the <b>ip helper boot-up enable</b> command. Note that this field does not appear if the Bootup Option is disabled.
<b>Forwarding Addresses</b>	IP addresses for DHCP servers that will receive BOOTP/DHCP packets forwarded by this DHCP Relay service. Use the <b>ip helper address</b> command to add or remove DHCP server IP addresses from the DHCP Relay configuration.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.2; new fields added for DHCP Option 82 and DHCP Snooping features.

Release 6.1.3; new field added for global DHCP traffic suppression feature.

Release 6.1.5; **Traffic Suppression** field deprecated; new **DHCP Snooping Bypass Opt82-Check** field added.

Release 6.3.1; **DHCP Snooping Opt82 Format** and **DHCP Snooping Opt82 String** fields added.

Release 6.3.3; **Binding Persistency Status** field added.

Release 6.4.3; **DHCP Snooping Opt82 Format ASCII** fields added.

---

## Related Commands

### **show ip helper stats**

Displays DHCP Relay statistics, including the number of client packets received and transmitted to the DHCP server and packets dropped due to forward delay time and maximum hops violations.

## MIB Objects

```
iphelperTable
  iphelperService
  iphelperForwAddr
  iphelperForwDelay
  iphelperMaxHops
iphelperAgentInformation
iphelperAgentInformationPolicy
iphelperDhcpSnooping
iphelperDhcpSnoopingOpt82DataInsertionStatus
iphelperDhcpSnoopingMacAddressVerificationStatus
iphelperDHCPsnoopingBypassOpt82CheckStatus
iphelperDhcpSnoopingOption82FormatType
iphelperDhcpSnoopingOption82StringValue
iphelperDhcpSnoopingOption82FormatASCIIField1
iphelperDhcpSnoopingOption82FormatASCIIField1StringValue
iphelperDhcpSnoopingOption82FormatASCIIField2
iphelperDhcpSnoopingOption82FormatASCIIField2StringValue
iphelperDhcpSnoopingOption82FormatASCIIField3
iphelperDhcpSnoopingOption82FormatASCIIField3StringValue
iphelperDhcpSnoopingOption82FormatASCIIField4
iphelperDhcpSnoopingOption82FormatASCIIField4StringValue
iphelperDhcpSnoopingOption82FormatASCIIField5
iphelperDhcpSnoopingOption82FormatASCIIField5StringValue
iphelperDhcpSnoopingOption82FormatASCIIDelimiter
iphelperDhcpSnoopingBindingStatus
iphelperDhcpSnoopingBindingDatabaseSyncTimeout
iphelperDhcpSnoopingBindingDatabaseLastSyncTime
iphelperDhcpSnoopingVlanTable
  iphelperDhcpSnoopingVlanNumber
  iphelperDhcpSnoopingVlanMacVerificationStatus
  iphelperDhcpSnoopingVlanOpt82DataInsertionStatus
iphelperStatTable
  iphelperBootupOption
  iphelperBootupPacketOption
```

---

## show ip helper stats

Displays the number of packets DHCP Relay has received, the number of packets dropped due to forward delay and maximum hops violations, and the number of packets processed since the last time these statistics were displayed. Also includes statistics that apply to a specific DHCP server, such as the number of packets transmitted to the server and the difference between the number of packets received from a client and the number transmitted to the server.

**show ip helper stats**

**ip helper no stats**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to clear all DHCP Relay statistics.

### Examples

```
-> show ip helper stats
```

```
Global Statistics :
  Reception From Client :
    Total Count =      12, Delta =      12,
  Forw Delay Violation :
    Total Count =       3, Delta =       3,
  Max Hops Violation :
    Total Count =       0, Delta =       0,
  Agent Info Violation :
    Total Count =       0, Delta =       0,
  Invalid Gateway IP :
    Total Count =       0, Delta =       0,
  Invalid Agent Info From Server :
    Total Count =       0, Delta =       0,
Server Specific Statistics :
  Server 5.5.5.5
    Tx Server :
      Total Count =       9, Delta =       9
```

*output definitions*


---

<b>Reception From Client</b>	Number of packets DHCP Relay has received from the DHCP client.
<b>Forw Delay Violation</b>	Number of packets dropped as a result of forward delay violations. A violation occurs if a client packet contains an elapsed boot time value that is less than the configured DHCP Relay forward delay time value.
<b>Max Hops Violation</b>	Number of packets dropped as a result of maximum hop violations. A violation occurs if a packet contains a hop count equal to or greater than the configured DHCP Relay maximum hops value.
<b>Agent Info Violation</b>	Number of packets dropped as a result of a relay agent information (Option-82) violation. A violation occurs if an Option-82 DHCP packet contains a zero gateway IP address (giaddr) and the relay agent information policy is set to <b>Drop</b> or a DHCP packet has no Option-82 field and contains a non-zero giaddr.
<b>Invalid Gateway IP</b>	Number of packets dropped as a result of a gateway IP violation. A violation occurs if an Option-82 DHCP packet contains a gateway IP address (giaddr) that matches a local subnet address.
<b>Invalid Agent Info From Server</b>	Number of invalid Option-82 DHCP server packets dropped by the relay agent.
<b>Delta</b>	Total number of packets processed since the last time the <b>ip helper</b> statistics were checked during any user session.
<b>Server</b>	DHCP server IP address that receives BOOTP/DHCP packets forwarded by this DHCP Relay service. Use the <b>ip helper address</b> command to add or remove DHCP server IP addresses from DHCP Relay configuration.
<b>Tx Server</b>	Number of packets DHCP Relay has transmitted to the DHCP server.
<b>Delta</b>	The difference between the number of packets received from the client and the number of packets transmitted to the DHCP server since the last time DHCP Relay statistics were checked during any user session.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.2; new fields added.

**Related Commands**

**show ip helper** Displays current DHCP Relay configuration information.

**MIB Objects**

```
iphelperStatTable
  iphelperServerAddress
  iphelperRxFromClient
  iphelperTxToServer
  iphelperMaxHopsViolation
  iphelperForwDelayViolation
  iphelperResetAll
```

---



## show ip helper dhcp-snooping vlan

Displays a list of VLANs that have DHCP Snooping enabled and whether or not MAC address verification and Option-82 data insertion is enabled for each VLAN.

**show ip helper dhcp-snooping vlan**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command only applies if DHCP Snooping is enabled at the VLAN level.
- Use the **show ip helper** command to determine the status of DHCP Snooping at the switch level.

### Examples

```
-> show ip helper dhcp-snooping vlan
VLAN   Opt82      MAC Addr
ID     Insertion  Verification
-----+-----
50      Enabled    Enabled
60      Enabled    Enabled
100     Disabled   Enabled
200     Enabled    Disabled
1500    Disabled   Disabled
```

#### *output definitions*

---

<b>VLAN ID</b>	The VLAN identification number for the DHCP Snooping VLAN.
<b>MAC Address Verification</b>	Indicates whether or not MAC address verification is enabled for the VLAN ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>ip helper dhcp-snooping vlan</b> command.
<b>Opt-82 Data Insertion</b>	Indicates whether or not Option-82 data insertion is enabled for the VLAN ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>ip helper dhcp-snooping vlan</b> command.

---

### Release History

Release 6.1.2; command was introduced.

## Related Commands

- show ip helper** Displays current DHCP Relay configuration information.
- show ip helper dhcp-snooping port** Displays the trust mode and DHCP violation statistics for all switch ports that are filtered by DHCP Snooping.

## MIB Objects

```
iphelperDhcpSnoopingVlanTable  
  iphelperDhcpSnoopingVlanNumber  
  iphelperDhcpSnoopingVlanMacVerificationStatus  
  iphelperDhcpSnoopingVlanOpt82DataInsertionStatus
```

---

## show ip helper dhcp-snooping port

Displays the trust mode and DHCP Snooping violation statistics for all switch ports that are filtered by DHCP Snooping.

**show ip helper dhcp-snooping port**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- If DHCP Snooping is operating at the switch level, then information for all switch ports is displayed.
- If DHCP Snooping is operating at the VLAN level, then information for only those ports that are associated with a DHCP Snooping VLAN is displayed.
- The violation statistics displayed only apply to ports that are in the client only trust mode. When the trust mode for a port is changed from **client-only** to **trusted** or **blocked**, the violation counters are set to zero (0).

### Examples

```
-> show ip helper dhcp-snooping port
Slot      Trust      IP Src   Opt82      MAC      Server      Relay      Binding
Port      Mode       Filtering Violation  Violation Violation  Violation  Violation
-----+-----+-----+-----+-----+-----+-----+-----
1/1       Blocked   Disabled    0          0         0         0         0
1/2       Client-Only Enabled    0          0         0         0         0
1/3       Client-Only Enabled    0          0         0         0         0
1/4       Client-Only Enabled    0          0         0         0         0
1/5       Client-Only Enabled    0          0         0         0         0
1/6       Blocked   Disabled    0          0         0         0         0
1/7       Client-Only Enabled    0          0         0         0         0
1/8       Client-Only Enabled    0          0         0         0         0
1/9       Client-Only Enabled    0          0         0         0         0
1/10      Trusted   Disabled    0          0         0         0         0
1/11      Trusted   Disabled    0          0         0         0         0
1/12      Trusted   Disabled    0          0         0         0         0
```

*output definitions*


---

<b>Slot/Port</b>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<b>Trust Mode</b>	The DHCP Snooping trust mode for the port ( <b>Blocked</b> , <b>Client-Only</b> , or <b>Trusted</b> ). Configured through the <b>ip helper dhcp-snooping port</b> command.
<b>IP Src Filtering</b>	Indicates whether or not IP source filtering is enabled for the port ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>ip helper dhcp-snooping port ip-source-filtering</b> command.
<b>Opt82 Violation</b>	The number of DHCP packets dropped due to a DHCP Snooping Option-82 violation.
<b>MAC Violation</b>	The number of DHCP packets dropped due to a mismatch between the packet source MAC address and the client hardware address contained within the packet.
<b>Server Violation</b>	The number of DHCP server packets dropped because they originated from outside the network or firewall.
<b>Relay Violation</b>	The number of DHCP packets dropped because the packet included a relay agent IP address that was not 0.0.0.0.
<b>Binding Violation</b>	The number of DHCP packets dropped due to a mismatch between packets received and binding table information.

---

**Release History**

Release 6.1.2; command was introduced.

**Related Commands**

<b>show ip helper</b>	Displays current DHCP Relay configuration information.
<b>show ip helper dhcp-snooping vlan</b>	Displays a list of DHCP Snooping VLANs.

**MIB Objects**

```

iphelperDhcpSnoopingPortTable
  iphelperDhcpSnoopingPortIfIndex
  iphelperDhcpSnoopingPortTrustMode
  iphelperDhcpSnoopingPortIpSourceFiltering
  iphelperDhcpSnoopingPortOption82Violation
  iphelperDhcpSnoopingPortMacAddrViolation
  iphelperDhcpSnoopingPortDhcpServerViolation
  iphelperDhcpSnoopingPortRelayAgentViolation
  iphelperDhcpSnoopingPortBindingViolation

```

---

## show ip helper dhcp-snooping binding

Displays the contents of the DHCP Snooping binding table (database).

**show ip helper dhcp-snooping binding**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the [ip helper dhcp-snooping ip-source-filter](#) command to create a static entry in the binding table.
- Dynamic binding table entries are created when the relay agent receives a DHCPACK packet.

### Examples

```
-> show ip helper dhcp-snooping binding
      MAC          Slot      IP          Lease   VLAN   Binding
      Address      Port      Address     Time    ID     Type
-----+-----+-----+-----+-----+-----
00:ae:22:e4:00:08  1/4     10.255.11.23  2000    5     Dynamic
10:fe:a2:e4:32:08  2/15    10.255.91.53  2000    2     Dynamic
```

### output definitions

---

<b>MAC Address</b>	The MAC address of the client.
<b>Slot/Port</b>	The slot/port designation for the switch port that received the DHCP request
<b>IP Address</b>	The IP address offered by the DHCP server.
<b>Lease Time</b>	The IP address lease time assigned by the DHCP server. A value of 0 indicates a static entry.
<b>VLAN ID</b>	The VLAN ID of the VLAN to which the client belongs.
<b>Binding Type</b>	Indicates whether the binding table entry is <b>dynamic</b> or <b>static</b> . Static entries are created using the <a href="#">ip helper dhcp-snooping ip-source-filter</a> command.

---

### Release History

Release 6.1.2; command was introduced.

## Related Commands

- show ip helper** Displays current DHCP Relay configuration information.
- show ip helper dhcp-snooping vlan** Displays a list of DHCP Snooping VLANs.
- show ip helper dhcp-snooping port** Displays the trust mode and DHCP violation statistics for all switch ports that are filtered by DHCP Snooping.

## MIB Objects

```
iphelperDhcpSnoopingBindingStatus  
iphelperDhcpSnoopingBindingTable  
    iphelperDhcpSnoopingBindingMacAddress  
    iphelperDhcpSnoopingBindingIfIndex  
    iphelperDhcpSnoopingBindingIpAddress  
    iphelperDhcpSnoopingBindingLeaseTime  
    iphelperDhcpSnoopingBindingVlan  
    iphelperDhcpSnoopingBindingType
```

---

## show ip udp relay service

Displays current configuration for UDP services by service name or by service port number.

**show ip udp relay service** [**BOOTP** | **NBDD** | **NBNSNBDD** | **DNS** | **TACACS** | **TFTP** | **NTP** | *port*]

---

### Syntax Definitions

<b>BOOTP</b>	BOOTP/DHCP well-known ports 67/68.
<b>NBDD</b>	NBDD well-known port 138.
<b>NBNSNBDD</b>	NBNS/NBDD well-known ports 137/138.
<b>DNS</b>	DNS well-known port 53.
<b>TACACS</b>	TACACS well-known port 65.
<b>TFTP</b>	TFTP well-known port 69.
<b>NTP</b>	NTP well-known port 123.
<i>port</i>	A user-specified port that is not a well-known port.

### Defaults

By default, the configuration for all UDP services is shown.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Enter a service name or port number with this command to display information about an individual service.
- When specifying a port number, do not specify a well-known port number. Instead, use the service name for the well-known port (i.e., NBNS/NBDD, DNS, etc.).

### Examples

```
-> show ip udp relay service
```

```
Service      Port(s)  Description
-----+-----+-----
  1           67 68    BOOTP/DHCP
  4           53      DNS
  5           65      TACACS
```

```
-> show ip udp relay service dns
```

```
Service      Port(s)  Description
-----+-----+-----
  4           53      DNS
```

```
-> show ip udp relay service 1776
```

```
Service      Port(s)  Description
-----+-----+-----
     9         1776      A UDP protocol
```

### *output definitions*

---

<b>Service</b>	The UDP service number. ( <b>1</b> through <b>7</b> for well-known service ports and <b>8</b> and above for user-defined service ports).
<b>Port(s)</b>	The UDP service port number.
<b>Description</b>	A description of the UDP service.

---

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

- show ip udp relay statistics** Displays the current statistics for each UDP port relay service.
- show ip udp relay destination** Displays the VLAN assignments to which the traffic received on the specified UDP service port is forwarded.

### **MIB Objects**

```
iphelperxPropertiesTable
  iphelperxPropertiesService
  iphelperxPropertiesPort
  iphelperxPropertiesName
```

---



## show ip udp relay statistics

Displays the current statistics for each UDP port relay service. These statistics include the name of the service, the forwarding VLAN(s) configured for that service, and the number of packets the service has sent and received.

**show ip udp relay** [**BOOTP** | **NBDD** | **NBNSNBDD** | **DNS** | **TACACS** | **TFTP** | **NTP** | *port*]

---

### Syntax Definitions

<b>BOOTP</b>	BOOTP/DHCP well-known ports 67/68.
<b>NBDD</b>	NBDD well-known port 138.
<b>NBNSNBDD</b>	NBNS/NBDD well-known ports 137/138.
<b>DNS</b>	DNS well-known port 53.
<b>TACACS</b>	TACACS well-known port 65.
<b>TFTP</b>	TFTP well-known port 69.
<b>NTP</b>	NTP well-known port 123.
<i>port</i>	A user-specified port that is not a well-known port.

### Defaults

By default, the statistics for all UDP services is shown.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9800, 9000E

### Usage Guidelines

- Enter a service name or port number with this command to display information about an individual service.
- When specifying a port number, do not specify a well-known port number. Instead, use the service name for the well-known port (i.e., NBNS/NBDD, DNS, etc.).

### Examples

```
-> show ip udp relay statistics
```

Service	Vlan	Pkts Sent	Pkts Recvd
BOOTP		0	0
DNS	2	10	10
	4	15	15
TACACS	3	0	0

```
-> show ip udp relay statistics tacacs
```

```
Service          Vlan    Pkts Sent  Pkts Recvd
-----+-----+-----+-----
TACACS           3        0          0
```

```
-> show ip udp relay statistics 1776
```

```
Service          Vlan    Pkts Sent  Pkts Recvd
-----+-----+-----+-----
A UDP Protocol   18        2          2
```

### output definitions

<b>Service</b>	The active UDP service name.
<b>VLAN</b>	The VLAN assigned to the UDP service port that will forward traffic destined for that port. Use the <b>ip udp relay vlan</b> command to configure this value.
<b>Pkts Sent</b>	The number of packets sent from this service port to the server.
<b>Pkts Recvd</b>	The number of packets received by this service port from a client.

### Release History

Release 6.1; command was introduced.

### Related Commands

- show ip udp relay service** Displays current configuration for UDP services by service name or by service port number.
- show ip udp relay destination** Displays the VLAN assignments to which the traffic received on the specified UDP service port is forwarded.

### MIB Objects

```
iphelperxStatTable
  iphelperxStatService
  iphelperxStatVlan
  iphelperxStatTxToServer
  iphelperxStatRxFromClient
```

## show ip udp relay destination

Displays the VLAN assignments to which the traffic received on the specified UDP service port is forwarded.

**show ip udp relay destination** [**BOOTP** | **NBDD** | **NBNSNBDD** | **DNS** | **TACACS** | **TFTP** | **NTP** | *port*]

---

### Syntax Definitions

<b>BOOTP</b>	BOOTP/DHCP well-known ports 67/68.
<b>NBDD</b>	NBDD well-known port 138.
<b>NBNSNBDD</b>	NBNS/NBDD well-known ports 137/138.
<b>DNS</b>	DNS well-known port 53.
<b>TACACS</b>	TACACS well-known port 65.
<b>TFTP</b>	TFTP well-known port 69.
<b>NTP</b>	NTP well-known port 123.
<i>port</i>	A user-specified port that is not a well-known port.

### Defaults

By default, the forwarding VLAN assignments for all UDP services is shown.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9800, 9000E

### Usage Guidelines

- Enter a service name or port number with this command to display information about an individual service.
- When specifying a port number, do not specify a well-known port number. Instead, use the service name for the well-known port (i.e., NBNS/NBDD, DNS, etc.).

### Examples

```
-> show ip udp relay destination
```

Service	Port	VLANs
-----+-----+-----		
BOOTP	67	
DNS	53	2 4
TACACS	65	3

```
-> show ip udp relay destination dns
```

Service	Port	VLANs
-----+-----+-----		
DNS	53	2 4

```
-> show ip udp relay destination 1776
```

```
Service          Port      VLANs
-----+-----+-----
A UDP Protocol  1776     18
```

### *output definitions*

---

<b>Service</b>	The active UDP service name.
<b>Port</b>	The UDP service port number.
<b>VLANs</b>	The VLAN assigned to the UDP service port that will forward traffic destined for that port. Use the <b>ip udp relay vlan</b> command to configure this value.

---

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

- show ip udp relay service** Displays current configuration for UDP services by service name or by service port number.
- show ip udp relay statistics** Displays the current statistics for each UDP port relay service.

### **MIB Objects**

```
iphelperTable
  iphelperService
  iphelperVlan
iphelperxPropertiesTable
  iphelperxPropertiesName
  iphelperxPropertiesPort
```

---

## dhcp-server

Enables, disables, or restarts the DHCP server operation.

**dhcp-server {enable | disable | restart}**

---

### Syntax Definitions

<b>enable</b>	Enables operation status of the DHCP server.
<b>disable</b>	Disables operation status of the DHCP server.
<b>restart</b>	Restarts the DHCP Server.

### Defaults

The DHCP server is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Restart the DHCP server after making changes to the *dhcpd.conf* file.

### Examples

```
-> dhcp-server enable
-> dhcp-server disable
-> dhcp-server restart
```

### Release History

Release 6.4.3; command introduced.

### Related Commands

[show dhcp-server statistics](#) Displays the DHCP Server lease statistics.

### MIB Objects

```
alaDhcpSrvGlobalConfigStatus
alaDhcpSrvGlobalRestart
```

---

## clear dhcp-server statistics

Clears the packet counters of dhcp-server statistics.

```
clear dhcp-server statistics
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to clear the packet counters of dhcp-server statistics.

### Examples

```
-> clear dhcp-server statistics
```

### Release History

Release 6.4.3; command introduced.

### Related Commands

[show dhcp-server statistics](#) Displays the DHCP Server lease statistics.

### MIB Objects

NA

---

## show dhcp-server leases

Displays the leases offered by the DHCP server.

**show dhcp-server leases** [*ip\_address* | *mac\_address*] [**type** {**static** | **dynamic**}]

---

### Syntax Definitions

<i>ip_address</i>	Specifies IP address of the interface configured with DHCP server.
<i>mac_address</i>	Specifies MAC address of the interface configured with DHCP server.
<b>static</b>	Displays only static leases.
<b>dynamic</b>	Displays only dynamic leases.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- DHCP server should be enabled first before using this command.

### Examples

```
-> show dhcp-server leases
```

IP address	MAC address	Lease Granted	Lease Expiry	Type
10.255.91.53	10:fe:a2:e4:32:08	2010-01-16 11:38:47	2010-01-17 11:38:47	Dynamic
10.255.91.55	20:fe:a2:e4:32:08	2010-01-16 10:30:00	2010-01-18 10:30:00	Static
10.255.91.58	20:fe:a2:e4:34:08	2010-01-16 10:30:00	2010-01-18 10:30:00	Dynamic

```
-> show dhcp-server leases ipaddr 10.255.91.53
```

IP address	MAC address	Lease Granted	Lease Expiry	Type
10.255.91.53	10:fe:a2:e4:32:08	2010-01-16 11:38:47	2010-01-17 11:38:47	Dynamic

```
-> show dhcp-server leases type static
```

IP address	MAC address	Lease Granted	Lease Expiry	Type
10.255.91.55	20:fe:a2:e4:32:08	2010-01-16 10:30:00	2010-01-18 10:30:00	Static

### output definitions

---

<b>IP address</b>	The IP address allocated to the client.
<b>MAC address</b>	The MAC address of the client for which the lease is allocated.

*output definitions (continued)*

---

<b>Lease Granted</b>	The date and time at which lease is granted.
<b>Lease Expiry</b>	The date and time at which lease expires.
<b>Type</b>	The type of lease offered.

---

**Release History**

Release 6.4.3; command introduced.

**Related Commands**

[clear dhcp-server statistics](#) Clears the DHCP Server lease statistics.

**MIB Objects**

```
alaDhcpSrvLeaseTable
  alaDhcpSrvLeaseMACAddress
  alaDhcpSrvLeaseIpAddress
  alaDhcpSrvLeaseLeaseGrant
  alaDhcpSrvLeaseLeaseExpiry
  alaDhcpSrvLeaseType
```

---



## show dhcp-server statistics

Displays the statistics of the DHCP server.

**show dhcp-server statistics** [**packets** | **hosts** | **subnets** | **all**]

---

### Syntax Definitions

<b>packets</b>	Displays general statistical information along with specific information about data packets received, dropped and transmitted.
<b>hosts</b>	Displays general statistical information along with specific information about hosts related to all the subnets.
<b>subnets</b>	Displays general statistical information along with specific information about all the subnets.
<b>all</b>	Displays all statistical information related to the DHCP server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- DHCP server should be enabled first before using this command.

### Examples

```
-> Show dhcp-server stats all
```

```
General stats:
```

```
DHCP Server Name: mample.example.com
DHCP Server Status: Enabled
Total Subnets Managed: 7
Total Subnets Used: 0
Total Subnets Unused: 7
Total Subnets Full: 0
DHCP Server System Up Time: TUE DEC 29 07:52:37.35120
Sync time: 0
Last sync time: 0
Next sync time: 0
```

```
Packet stats:
```

```
Total DHCP Discovers: 0
Total DHCP Offers: 0
Total DHCP Requests: 0
Total DHCP Request Grants: 0
Total DHCP Request Renews: 0
Total DHCP Declines: 0
Total DHCP Acks: 0
```

---

```
Total DHCP Nacks: 0
Total DHCP Releases: 0
Total DHCP Inform: 0
Total Bootp requests: 0
Total Bootp response: 0
Total Unknown packets: 0
```

Leases stats:

```
Total:
  Hosts Managed: 633
  Hosts used: 0
  Hosts unused: 633
  Hosts Pending: 0
  Hosts unavailable: 0
```

Static DHCP:

```
  Hosts Managed: 0
  Hosts used: 0
  Hosts unused: 0
  Hosts Pending: 0
  Hosts unavailable: 0
```

Dynamic DHCP:

```
  Hosts Managed: 633
  Hosts used: 0
  Hosts unused: 633
  Hosts Pending: 0
  Hosts unavailable: 0
```

Automatic DHCP:

```
  Hosts Managed: 0
  Hosts used: 0
  Hosts unused: 0
  Hosts Pending: 0
  Hosts unavailable: 0
```

Static Bootp:

```
  Hosts Managed: 0
  Hosts used: 0
  Hosts unused: 0
  Hosts Pending: 0
  Hosts unavailable: 0
```

Automatic Bootp:

```
  Hosts Managed: 0
  Hosts used: 0
  Hosts unused: 0
  Hosts Pending: 0
  Hosts unavailable: 0
```

```

Subnets stats:
  Subnet: 200.0.0.0
    Total: 4
    Static DHCP: 0
    Dynamic DHCP: 4
    Automatic DHCP: 0
    Static Bootp: 0
    Automatic Bootp: 0
    Ranges:
    Range: 200.0.0.10 to 200.0.0.11 Mask: 255.255.255.0 Type: 5
      Unused: 2; Used: 0; Pending: 0; Unavailable: 0

  Subnet: 220.0.0.0
    Total: 62
    Static DHCP: 0
    Dynamic DHCP: 62
    Automatic DHCP: 0
    Static Bootp: 0
    Automatic Bootp: 0
    Ranges:
    Range: 220.0.0.100 to 220.0.0.130 Mask: 255.255.255.0 Type: 5
      Unused: 2; Used: 0; Pending: 0; Unavailable: 0

```

*output definitions*


---

<b>General stats</b>	Denotes General DHCP Server statistics.
<b>Name</b>	Specifies the name assigned to the DHCP Server.
<b>Status</b>	Specifies up or down status of the DHCP Server.
<b>Total subnets used</b>	Specifies the total number of subnets being used.
<b>Total subnets managed</b>	Specifies the total number of subnets being managed by the DHCP server.
<b>Total subnets unused</b>	Specifies the total number of subnets being unused
<b>Total subnets full</b>	Specifies the total number of subnets wherein all of the IP addresses are used.
<b>DHCP Server System Up Time</b>	Shows the DHCP Server System Up Time Performance Monitor counter.
<b>Sync time</b>	Specifies the time for DHCP server to contact and synchronize with the designated time server
<b>Last sync time</b>	Specifies the last time the synchronization occurred.
<b>Next sync time</b>	Specifies the next time the synchronization should be scheduled.
<b>Packet stats</b>	Denotes statistical information about the data packet transmission
<b>Total DHCP Discovers</b>	Specifies the total number of DHCPDISCOVER packets sent by the clients to the DHCP server.
<b>Total DHCP Offers</b>	Specifies the total number of DHCPOFFER packets sent by the server to the clients.
<b>Total DHCP Requests</b>	Specifies the total number of DHCPREQUEST packets sent by the clients in response to the DHCPOFFER packets.
<b>Total DHCP Request Grants</b>	Specifies the total number of DHCP request grants provided by the server to the clients.

*output definitions (continued)*


---

<b>Total DHCP Request Renews</b>	Specifies the total number of DHCP lease renew requests sent by the clients to the DHCP server.
<b>Total DHCP Declines</b>	Specifies the total number of DHCP requests declined by the DHCP server.
<b>Total DHCP Acks</b>	Specifies the total number of DHCPACK acknowledgement packets sent by the DHCP server to the clients.
<b>Total DHCP Nacks</b>	Specifies the total number of DHCP Negative acknowledgements sent from the DHCP server to the clients. The DHCPNACK message is sent when all the IP addresses available to the server are exhausted and the client sends a DHCPREQUEST.
<b>Total DHCP Releases</b>	Specifies the total number of DHCPRELEASE packets sent by the DHCP server to release IP addresses from its clients.
<b>Total DHCP Informs</b>	Specifies the total number of DHCPINFORM packets sent by the clients to obtain DHCP options from the DHCP server.
<b>Total Bootp requests</b>	Specifies the total number of BOOTP requests sent by the clients to the DHCP server.
<b>Total Bootp response</b>	Specifies the total number of BOOTP response packets sent by the DHCP server to the clients.
<b>Total Unknown packets</b>	Specifies the total number of unknown or badly formatted DHCP packets received by the DHCP server.
<b>Leases stats</b>	Denotes statistical information about leases provided by the DHCP server.
<b>Hosts Managed</b>	Specifies the total number of clients managed by the DHCP server.
<b>Hosts used</b>	Specifies the total number of clients using the IP addresses provided by the DHCP server.
<b>Hosts unused</b>	Specifies the total number of clients managed by the DHCP server which are not being used.
<b>Hosts Pending</b>	Specifies the total number of DHCP IP address requests which are pending by the DHCP server.
<b>Hosts unavailable</b>	Specifies the total number of DHCP hosts which are unavailable i.e; whose lease period have expired.
<b>Static DHCP</b>	Denotes statistical information about the hosts configured with Static DHCP.
<b>Automatic DHCP</b>	Denotes statistical information about the hosts configured with Automatic DHCP.
<b>Static BootP</b>	Denotes statistical information about the hosts configured under Static BootP. <b>Note:</b> BootP Relay is disabled when DHCP server is enabled on the switch.
<b>Automatic BootP</b>	Denotes statistical information about the hosts configured with Automatic BootP.
<b>Subnet statistics</b>	Denotes all DHCP related statistical information for individual subnets.
<b>Range</b>	Specifies the range of IP addresses in the individual subnet

*output definitions (continued)*

---

<b>Mask</b>	Specifies the subnet mask
<b>Type</b>	Specifies whether the type of IP address allocation is dynamic or Static.

---

**Release History**

Release 6.4.3; command introduced.

**Related Commands**

[clear dhcp-server statistics](#) Clears the DHCP Server lease statistics.

**MIB Objects**

NA

---

## show ip helper dhcp-snooping ip-source-filter

Displays the ports or VLANs on which IP source filtering is enabled.

**show ip helper dhcp-snooping ip-source-filter {vlan | port}**

---

### Syntax Definitions

**vlan** Displays the VLANs on which IP source filtering is enabled.

**port** Displays the ports on which IP source filtering is enabled.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The show output displays only those ports or VLANs on which IP source filtering is enabled.
- This command also displays the status of the link aggregate ports when source filtering is enabled at VLAN or port level.

### Examples

```
-> show ip helper dhcp-snooping ip-source-filter port
Slot  IP Src
Port  Filtering
-----+-----
1/7   Enabled
1/12  Enabled
```

#### *output definitions*

---

<b>Slot/Port</b>	Specifies the slot and port number.
<b>IP Src Filtering</b>	Specifies if IP source filtering status. <b>Enabled</b> or <b>Disabled</b> .

---

```
-> show ip helper dhcp-snooping ip-source-filter vlan
Vlan  IP Src Filtering
-----+-----
10    Enabled
11    Enabled
12    Enabled
13    Enabled
```

#### *output definitions*

---

<b>Vlan</b>	VLAN number.
<b>IP Src Filtering</b>	Specifies if IP source filtering status. <b>Enabled</b> or <b>Disabled</b> .

---

## Release History

Release 6.4.4; command was introduced.

## Related Commands

**ip helper dhcp-snooping ip-source-filter** Enables or disables the IP source filtering at a port, link aggregation, or VLAN level.

## MIB Objects

```
iphelperDhcpSnoopingPortIpSourceFiltering  
  iphelperDhcpSnoopingPortIfIndex  
  iphelperDhcpSourceFilterVlanNumber  
  iphelperDhcpSourceFilterVlanFilteringStatus
```

---





# 21 VRRP Commands

The Virtual Router Redundancy Protocol (VRRP) eliminates the single point of failure in a default route environment. VRRP specifies an election protocol that dynamically assigns responsibility for a virtual router to one of the VRRP/VRRP3 routers on the LAN. The VRRP/VRRP3 router, which controls the IP/IPv6 address associated with a virtual router is called the master router, and forwards packets to that IP/IPv6 address. If the master router becomes unavailable, the highest priority backup router will transition to the master state. The Alcatel-Lucent implementation of VRRP also supports the collective management of virtual routers on a switch.

---

**Note.** VRRP3 does not support the collective management functionality.

---

The VRRP and VRRP3 commands comply with RFC 2787 and RFC 3768, respectively.

MIB information is as follows:

*Filename:* IETF-VRRP.MIB  
*Module:* VRRP-MIB

*Filename:* AlcatelIND1VRRP.MIB  
*Module:* ALCATEL-IND1-VRRP-MIB

*Filename:* AlcatelIND1VRRP3.MIB  
*Module:* ALCATEL-IND1-VRRP3-MIB

The VRRP CLI commands are listed here:

---

- vrrp**
- vrrp address**
- vrrp track**
- vrrp track-association**
- vrrp trap**
- vrrp delay**
- vrrp interval**
- vrrp priority**
- vrrp preempt**
- vrrp all**
- vrrp set**
- vrrp group**
- vrrp group all**
- vrrp group set**
- vrrp group-association**
- vrrp3**
- vrrp3 address**
- vrrp3 trap**
- vrrp3 track-association**
- show vrrp**
- show vrrp statistics**
- show vrrp track**
- show vrrp track-association**
- show vrrp group**
- show vrrp group-association**
- show vrrp3**
- show vrrp3 statistics**
- show vrrp3 track-association**

---

## vrrp

Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.

**vrrp** *vrid* *vlan\_id* [**enable** | **disable** | **on** | **off**] [**priority** *priority*] [**preempt** | **no preempt**] [[**advertising**]  
**interval** *seconds*]

**no vrrp** *vrid* *vlan\_id*

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN on which the virtual router is configured. The VLAN must already be created and available on the switch.
<b>enable</b>	Enables the virtual router. A virtual router may only be enabled if an IP address is configured for the virtual router.
<b>disable</b>	Disables the virtual router. Cannot be combined on the same line with other parameters.
<b>on</b>	Alternate syntax for enabling the virtual router.
<b>off</b>	Alternate syntax for disabling the virtual router.
<i>priority</i>	The priority for this virtual router to become the master router. The range is 1 (lowest priority) to 255 (highest priority). The priority should be set to 255 only if this router is the actual owner of the virtual router's IP address.
<b>preempt</b>	Specifies that a higher priority router may preempt a lower priority master router.
<b>no preempt</b>	Specifies that a higher priority router may not preempt a lower priority master router.
<i>seconds</i>	The interval in seconds after which the master router will send VRRP advertisements. The advertising interval must be same for all VRRP routers configured with the same VRID. The valid range is 1–255 seconds.

## Defaults

parameter	default
<b>enable   disable   on   off</b>	<b>disable (off)</b>
<i>priority</i>	100
<b>preempt   no preempt</b>	<b>preempt</b>
<i>seconds</i>	1

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove a virtual router from the configuration.
- Use the **vrrp address** command to configure an IP address for the virtual router. This must be done before the virtual router can be enabled.
- To disable the virtual router, rather than to remove it, use the **disable** or **off** option. Note that **disable** or **off** cannot be used with any other optional parameter.
- A virtual router must be disabled before it can be modified.

Important information about configuring priority:

- A value of 255 indicates that the VRRP router owns the IP address; that is, the router contains the real physical interface to which the IP address is assigned. The system automatically sets this value to 255 if it detects that this router is the IP address owner. If the priority is set to 255 and the virtual router is not the IP address owner, then the priority will be set to the default value of 100. The IP address owner will always be the master router if it is available.
- VRRP routers backing up a virtual router must use priority values from 1 to 254. The default priority value for VRRP routers backing up a virtual router is 100. If you configure more than one backup, their priority values should be different. The **preempt** or **no preempt** setting specifies whether or not a higher priority router may preempt a lower priority master router.

## Examples

```
-> vrrp 23 1 priority 75
-> vrrp 23 1 enable
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[vrrp address](#)

Configures an IP address for a virtual router.

[show vrrp](#)

Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

alaVrrp3OperTable

alaVrrp3OperAdminState

alaVrrp3OperPriority

alaVrrp3OperPreemptMode

alaVrrp3OperAdvertisementInterval

alaVrrp3OperRowStatus

---

## vrrp address

Configures an IP address for a virtual router.

```
vrrp vrid vlan_id address ip_address
```

```
vrrp vrid vlan_id no address ip_address
```

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN on which the virtual router is configured.
<i>ip_address</i>	The virtual IP address associated with the specified virtual router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

A virtual router IP address must be configured before the virtual router can be enabled.

### Examples

```
-> vrrp 1 3 address 10.10.3.2
-> vrrp 1 3 no address 10.10.3.2
```

### Release History

Release 6.1; command was introduced.

Release 6.1.3; command modified; *ip* parameter is replaced by *address* parameter.

### Related Commands

<a href="#">vrrp</a>	Configures a new VRRP virtual router or modifies an existing one. Used to enable to disable a virtual router.
<a href="#">show vrrp statistics</a>	Displays statistics about VRRP packets for all virtual routers configured on the switch or for a specific virtual router.

### MIB Objects

```
alaVrrp3AssoIpAddrTable
  alaVrrp3AssoIpAddrRowStatus
```

---

## vrrp track

Creates a new tracking policy or modifies an existing tracking policy.

```
vrrp track track_id [enable | disable] [priority value] [ipv4-interface name / ipv6-interface name |  
port slot/port | address address]
```

```
no vrrp track track_id
```

---

### Syntax Definitions

<i>track_id</i>	The ID of the tracking policy; the range is 1 to 255.
<b>enable</b>	Enables the tracking policy.
<b>disable</b>	Disables the tracking policy.
<i>value</i>	The value to be decremented from the priority value of the virtual router monitoring this tracking policy when the operational state of the tracking policy is down. The valid range is 0–255.
<i>name</i>	The name of the IPv4 or IPv6 interface that this policy will track.
<i>slot/port</i>	The slot/port number that this policy will track.
<i>address</i>	The remote IP or IPv6 address that this policy will track.

### Defaults

<b>parameter</b>	<b>default</b>
<b>enable</b>   <b>disable</b>	<b>enable</b>
<i>value</i>	25

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a tracking policy.
- Use the **disable** option to disable the tracking policy, rather than removing it from the switch.

## Examples

```
-> vrrp track 2 enable priority 50 ipv4-interface Marketing
-> vrrp track 3 enable priority 60 ipv6-interface Sales
-> vrrp track 3 disable
```

## Release History

Release 6.1; command was introduced.

Release 6.1.3; *ip* parameter is replaced by *address* parameter.

## Related Commands

[vrrp track-association](#)

Associates a VRRP tracking policy with a virtual router.

[show vrrp track](#)

Displays information about tracking policies on the switch.

## MIB Objects

```
alaVRRPTrackTable
  alaVrrpTrackState
  alaVrrpTrackAdminState
  alaVrrpTrackPriority
  alaVrrpTrackEntityType
  alaVrrpTrackEntityVlan
  alaVrrpTrackEntityPort
  alaVrrpTrackEntityIpAddress
  alaVrrpTrackEntityIpv6Interface
  alaVrrpTrackEntityInterface
  alaVrrpTrackRowStatus
```

---



## vrrp track-association

Associates a VRRP tracking policy with a virtual router.

```
vrrp vrid vlan_id track-association track_id
```

```
vrrp vrid vlan_id no track-association track_id
```

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN ID of the virtual router.
<i>track_id</i>	The ID of the tracking policy associated with the virtual router; the range is 1 to 255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to remove a tracking policy from a virtual router.

### Examples

```
-> vrrp 2 4 track-association 1  
-> vrrp 2 4 no track-association 1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">vrrp</a>	Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.
<a href="#">show vrrp track-association</a>	Displays the tracking policies associated with virtual routers.

### MIB Objects

```
alaVrrpAssoTrackTable  
  alaVrrpAssoTrackId  
  alaVrrpTrackRowStatus
```

---

## vrrp trap

Enables or disables SNMP traps for VRRP.

**vrrp trap**

**no vrrp trap**

---

### Syntax Definitions

N/A

### Defaults

By default, SNMP traps for VRRP are enabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

SNMP traps must be enabled globally on the switch for VRRP traps to actually be sent.

### Examples

```
-> vrrp trap  
-> no vrrp trap
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[snmp trap filter](#) Enables or disables SNMP trap filtering.

### MIB Objects

```
vrrpOperGroup  
vrrpNotificationCntl
```

---

## vrrp delay

Configures the amount of time allowed for routing tables to stabilize before virtual routers are started.

**vrrp delay** *seconds*

---

### Syntax Definitions

*seconds*

The amount of time after a reboot that virtual routers will wait before they go active; the range is 0 to 180 seconds.

### Defaults

parameter	default
<i>seconds</i>	45 seconds

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use this command to prevent loss of workstation connectivity before a virtual router becomes master.

### Examples

```
-> vrrp delay 50
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[vrrp](#)

Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.

[show vrrp](#)

Displays the virtual router configuration for all virtual routers or for a specific virtual router.

### MIB Objects

alaVRRPStartDelay

---

## vrrp interval

Modifies the default advertising interval value assigned to the virtual routers on the switch.

**vrrp interval** *seconds*

---

### Syntax Definitions

*seconds*                                      The default advertising interval for the virtual routers. The valid range is 1–255 seconds.

### Defaults

parameter	default
<i>seconds</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Modifying the default advertising interval value will affect the value assigned by default to any new virtual routers that are created.
- To apply the new default value to the existing virtual routers, you must first disable the virtual routers, then apply the new default value using **vrrp set** command and enable the virtual routers again.
- If any of the virtual routers are running with their own configured value or group value, then that value will take priority over the new default value. To override the configured value with the new default value, you must first disable the virtual routers, then override the configured value using the **vrrp set** command with the **override** option and enable the virtual routers again.

### Examples

```
-> vrrp interval 50
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>vrrp all</b>	Changes the administrative status of all the virtual routers on the switch.
<b>vrrp set</b>	Sets the new default parameter values to existing virtual routers on the switch.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

alaVrrpv2Config  
alaVrrpDefaultInterval

---

## vrrp priority

Modifies the default priority value assigned to the virtual routers on the switch.

**vrrp priority** *priority*

---

### Syntax Definitions

*priority*                                      The default priority value for the virtual routers. The valid range is 1–254.

### Defaults

parameter	default
<i>priority</i>	100

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Modifying the default priority value will affect the value assigned by default to any new virtual routers that are created.
- To apply the new default value to the existing virtual routers, you must first disable the virtual routers, then apply the new default value using the **vrrp set** command and enable the virtual routers again.
- If any of the virtual routers are running with their own configured value or group value, then that value will take priority over the new default value. To override the configured value with the new default value, you must first disable the virtual routers, then override the configured value using the **vrrp set** command with the **override** option and enable the virtual routers again.

### Examples

```
-> vrrp priority 50
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>vrrp all</b>	Changes the administrative status of all the virtual routers on the switch.
<b>vrrp set</b>	Sets the new default parameter values to existing virtual routers on the switch.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

alaVrrpv2Config  
alaVrrpDefaultPriority

---

## vrrp preempt

Modifies the default preempt mode assigned to the virtual routers on the switch.

vrrp [preempt | no preempt]

---

### Syntax Definitions

<b>preempt</b>	Specifies that a higher priority router may preempt a lower priority master router by default.
<b>no preempt</b>	Specifies that a higher priority router may not preempt a lower priority master router by default.

### Defaults

parameter	default
preempt   no preempt	preempt

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Modifying the default preempt mode will affect the mode assigned by default to any new virtual routers that are created.
- To apply the new default value to the existing virtual routers, you must first disable the virtual routers, then apply the new default value using the **vrrp set** command and enable the virtual routers again.
- If any of the virtual routers are running with their own configured value or group value, then that value will take priority over the new default value. To override the configured value with the new default value, you must first disable the virtual routers, then override the configured value using the **vrrp set** command with the **override** option and enable the virtual routers again.

### Examples

```
-> vrrp preempt
-> vrrp no preempt
```

### Release History

Release 6.3.1; command was introduced.



## Related Commands

<b>vrrp all</b>	Changes the administrative status of all the virtual routers on the switch.
<b>vrrp set</b>	Sets the new default parameter values to existing virtual routers on the switch.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

alaVrrpv2Config  
alaVrrpDefaultPreemptMode

---

## vrrp all

Changes the administrative status of all the virtual routers on the switch.

**vrrp** [**disable** | **enable** | **enable all**]

---

### Syntax Definitions

<b>disable</b>	Disables all the virtual routers on the switch.
<b>enable</b>	Enables the virtual routers that have not previously been disabled individually or collectively via the <b>vrrp group all</b> command.
<b>enable all</b>	Enables all the virtual routers on the switch including those virtual routers that have been disabled individually or collectively via the <b>vrrp group all</b> command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command changes the administrative status of all the virtual routers on the switch by executing a single command.
- This command will not affect the ability to change the administrative status of an individual virtual router.

### Examples

```
-> vrrp disable  
-> vrrp enable  
-> vrrp enable all
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>vrrp interval</b>	Modifies the default advertising interval value assigned to the virtual routers on the switch.
<b>vrrp priority</b>	Modifies the default priority value assigned to the virtual routers on the switch.
<b>vrrp preempt</b>	Modifies the default preempt mode assigned to the virtual routers on the switch.
<b>vrrp set</b>	Sets the new default parameter values to existing virtual routers on the switch.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

alaVrrpv2Config  
alaVrrpAdminState

---

## vrrp set

Sets the new default parameter values to existing virtual routers on the switch.

```
vrrp set [interval | priority | preempt | all ] [ override]
```

---

### Syntax Definitions

<b>interval</b>	Sets the VRRP advertisement interval value to the new default value.
<b>priority</b>	Sets the priority value to the new default value.
<b>preempt</b>	Sets the preempt mode to the new default mode.
<b>all</b>	Sets all the parameters value to the new default value.
<b>override</b>	Overrides the specified parameters configured value with the new default value.

### Defaults

parameter	default
interval   priority   preempt   all	all

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- All the virtual routers must be disabled before using this command.
- To apply the new default value to the existing virtual routers, you must first disable the virtual routers, then apply the new default value using the **vrrp set** command and enable the virtual routers again.
- If any of the virtual routers are running with their own configured value or group value, then that value will take priority over the new default value. To override the configured value with the new default value, you must first disable the virtual routers, then override the configured value using the **vrrp set** command with the **override** option and enable the virtual routers again.

### Examples

```
-> vrrp set priority
-> vrrp set priority override
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>vrrp interval</b>	Modifies the default advertising interval value assigned to the virtual routers on the switch.
<b>vrrp priority</b>	Modifies the default priority value assigned to the virtual routers on the switch.
<b>vrrp preempt</b>	Modifies the default preempt mode assigned to the virtual routers on the switch.
<b>vrrp all</b>	Changes the administrative status of all the virtual routers on the switch.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

## MIB Objects

```
alaVrrpv2Config  
  alaVrrpSetParam  
  alaVrrpOverride
```

---

## vrrp group

Creates a new virtual router group or modifies the configuration parameters of an existing virtual router group.

**vrrp group** *vrgid* [*interval seconds*] [*priority priority*] [**preempt** | **no preempt**]

**no vrrp group** *vrgid*

---

### Syntax Definitions

<i>vrgid</i>	The virtual router group ID, in the range from 1–255.
<i>seconds</i>	The default advertising interval for the virtual router group. The valid range is 1–255 seconds.
<i>priority</i>	The default priority value for the virtual router group. The valid range is 1–254.
<b>preempt</b>	Specifies that a higher priority router may preempt a lower priority master router by default.
<b>no preempt</b>	Specifies that a higher priority router may not preempt a lower priority master router by default.

### Defaults

parameter	default
<i>seconds</i>	1
<i>priority</i>	100
<b>preempt</b>   <b>no preempt</b>	<b>preempt</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the virtual router group.
- The configuration parameters can be modified at any time, but will not have any effect on the virtual routers in the group until the virtual routers are enabled again. To apply the group default value to the virtual routers in a group, you must first disable the virtual router group, then apply the group default value using the **vrrp group set** command and enable the virtual router group again.
- If any of the virtual routers in the group are running with their configured value, then that value will take priority over the new default value. To override the configured value with the new default value, you must first disable the virtual router group, then override the configured value by using the **vrrp group set** command with the **override** option and enable the virtual router group again.
- When a virtual router group is deleted, the virtual routers assigned to the group become unassigned. However, this does not have any impact on the virtual routers.

## Examples

```
-> vrrp group 25 interval 50 priority 50 no preempt  
-> no vrrp group 25
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">vrrp group all</a>	Changes the administrative status of all the virtual routers in a virtual router group using a single command.
<a href="#">vrrp group set</a>	Sets the new modified default value to all the virtual routers in a virtual router group.
<a href="#">vrrp group-association</a>	Adds a virtual router to a virtual router group.
<a href="#">show vrrp group</a>	Displays the default parameter values for all the virtual router groups or a specific virtual router group.

## MIB Objects

```
alaVrrpGroupTable  
  alaVrrpGroupInterval  
  alaVrrpGroupPriority  
  alaVrrpGroupPreemptMode  
  alaVrrpGroupRowStatus
```

---

## vrrp group all

Changes the administrative status of all the virtual routers in a virtual router group using a single command.

**vrrp group *vrgid* [disable | enable | enable all]**

---

### Syntax Definitions

<i>vrgid</i>	The virtual router group ID, in the range from 1–255.
<b>disable</b>	Disables all the virtual routers in the group.
<b>enable</b>	Enables those virtual routers that have not previously been disabled individually in the group.
<b>enable all</b>	Enables all the virtual routers in the group including those virtual routers that have been disabled individually.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If a virtual router in a group is disabled on an individual basis, it can only be reenabled by using the **enable all** option in this command.
- This command will not affect the ability to change the administrative status of an individual virtual router.

### Examples

```
-> vrrp group 25 disable
-> vrrp group 25 enable
-> vrrp group 25 enable all
```

### Release History

Release 6.3.1; command was introduced.



**Related Commands**

<b>vrrp group</b>	Creates a new virtual router group or modifies the configuration parameters of an existing virtual router group.
<b>vrrp group set</b>	Sets the new modified default value to all the virtual routers in a virtual router group.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.
<b>show vrrp group</b>	Displays the default parameter values for all the virtual router groups or a specific virtual router group.

**MIB Objects**

alaVrrpGroupTable  
  alaVrrpGroupAdminState

---

## vrrp group set

Sets the new modified default value to all the virtual routers in a virtual router group.

**vrrp group *vrgid* set [interval | priority | preempt | all] [override]**

---

### Syntax Definitions

<i>vrgid</i>	The virtual router group ID, in the range from 1–255.
<b>interval</b>	Sets the VRRP advertisement interval value to the new default value.
<b>priority</b>	Sets the priority value to the new default value.
<b>preempt</b>	Sets the preempt mode to the new default mode.
<b>all</b>	Sets all the parameters' value to the new default value.
<b>override</b>	Overrides the parameter's configured value with the group default value.

### Defaults

parameter	default
<b>interval   priority   preempt   all</b>	<b>all</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- All the virtual routers must be disabled before using this command.
- To apply the group default value to the virtual routers in a group, you must disable the virtual router group, then apply the group default value using the **vrrp group set** command and enable the virtual router group again.
- If any of the virtual routers in the group are running with their own configured parameter value, then that value will take priority over the group default value. To override the configured value with the group default value, you must first disable the virtual router group, then override the configured value by using the **vrrp group set** command with the **override** option and enable the virtual router group again.

### Examples

```
->vrrp group 10 set priority
->vrrp group 10 set priority override
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>vrrp group</b>	Creates a new virtual router group or modifies the configuration parameters of an existing virtual router group.
<b>vrrp group all</b>	Changes the administrative status of all the virtual routers in a virtual router group using a single command.
<b>show vrrp</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.
<b>show vrrp group</b>	Displays the default parameter values for all the virtual router groups or a specific virtual router group.

## MIB Objects

```
alaVrrpGroupTable  
  alaVrrpGroupSetParam  
  alaVrrpGroupOverride
```

---

## vrrp group-association

Adds a virtual router to a virtual router group.

```
vrrp vrid vlan_id group-association vrgid
```

```
vrrp vrid vlan_id no group-association vrgid
```

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN on which the virtual router is configured. The VLAN must already be created and available on the switch.
<i>vrgid</i>	The virtual router group ID, in the range from 1–255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the virtual router from the virtual router group.
- A virtual router need not be disabled in order to be added to a virtual router group. However, the virtual router will not adopt the group's default parameter values until it is reenabled.
- A virtual router need not be disabled to be removed from a group.

### Examples

```
-> vrrp 25 1 group-association 10  
-> vrrp 25 1 no group-association 10
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**show vrrp group-association** Displays the virtual routers that are associated with a group.

## **MIB Objects**

alaVrrpAssoGroupTable

    alaVrrpAssoGroupRowStatus

---

## vrrp3

Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.

**vrrp3** *vrid* *vlan\_id* [**enable** | **disable** | **on** | **off**] [**priority** *priority*] [**preempt** | **no preempt**][**accept** | **no accept**] [[**advertising**] **interval** *centiseconds*]

**no vrrp3** *vrid* *vlan\_id*

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN on which the virtual router is configured. The VLAN must already be created and available on the switch.
<b>enable</b>	Enables the virtual router.
<b>disable</b>	Disables the virtual router. Cannot be combined on the same line with other parameters.
<b>on</b>	Alternate syntax for enabling the virtual router.
<b>off</b>	Alternate syntax for disabling the virtual router.
<i>priority</i>	The priority for this virtual router to become the master router. The range is 1 (lowest priority) to 255 (highest priority). The priority should be set to 255 only if this router is the actual owner of the virtual router's IP address.
<b>preempt</b>	Specifies that a higher priority router may preempt a lower priority master router.
<b>no preempt</b>	Specifies that a higher priority router may not preempt a lower priority master router.
<b>accept</b>	Specifies that the master router, which is not the IPv6 address owner will accept the packets addressed to the IPv6 address owner as its own.
<b>no accept</b>	Specifies that the master router, which is not the IPv6 address owner will not accept the packets addressed to the IPv6 address owner as its own.
<i>centiseconds</i>	The interval in centiseconds after which the master router will send VRRP3 advertisements. The advertising interval must be the same for all VRRP3 routers configured with the same VRID. The valid range is 1–4096 centiseconds.

## Defaults

parameter	default
<b>enable   disable   on   off</b>	<b>disable (off)</b>
<i>priority</i>	100
<b>preempt   no preempt</b>	<b>preempt</b>
<b>accept / no accept</b>	<b>accept</b>
<i>centiseconds</i>	100

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove a virtual router from the configuration.
- Use the **vrrp3 address** command to configure an IPv6 address for the virtual router.
- To disable the virtual router, rather than to remove it, use the **disable** or **off** option. Note that the **disable** or **off** options cannot be used with any other optional parameter.
- A virtual router must be disabled before it can be modified.
- The maximum number of virtual routers supported is based on the 100 centisecond interval. A smaller interval will result in a relatively lesser number of virtual routers.
- The advertising interval cannot be less than 10 centiseconds.

## Examples

```
-> vrrp3 23 1 priority 75  
-> vrrp3 23 1 enable
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

[vrrp3 address](#)

Configures an IPv6 address for a virtual router.

[show vrrp3](#)

Displays the virtual router configuration for all virtual routers or for a specific virtual router.

**MIB Objects**

alaVrrp3OperTable

- alaVrrp3OperAdminState
- alaVrrp3OperPriority
- alaVrrp3OperPreemptMode
- alaVrrp3OperAcceptMode
- alaVrrp3OperAdvinterval
- alaVrrp3OperRowStatus

---



## vrrp3 address

Configures an IPv6 address for a virtual router.

```
vrrp3 vrid vlan_id address ipv6_address
```

```
vrrp3 vrid vlan_id no address ipv6_address
```

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN on which the virtual router is configured.
<i>address</i>	The virtual IPv6 address associated with the specified virtual router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> vrrp3 1 3 address 213:100:1::56  
-> vrrp3 1 3 no address 213:100:1::56
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">vrrp3</a>	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
<a href="#">show vrrp3 statistics</a>	Displays statistics for all virtual routers configured on the switch or for a specific virtual router.

### MIB Objects

```
alaVrrp3AssoIpAddrTable  
  alaVrrp3AssoIpAddrRowStatus
```

---

## **vrrp3 trap**

Enables or disables SNMP traps for VRRP3.

**vrrp3 trap**

**no vrrp3 trap**

---

### **Syntax Definitions**

N/A

### **Defaults**

By default, SNMP traps for VRRP3 are enabled.

### **Platforms Supported**

OmniSwitch 6850, 6855, 6850E, 9000E

### **Usage Guidelines**

SNMP traps must be enabled globally on the switch for VRRP3 traps to actually be sent.

### **Examples**

```
-> vrrp3 trap  
-> no vrrp3 trap
```

### **Release History**

Release 6.1.3; command was introduced.

### **Related Commands**

[snmp trap filter](#)                      SNMP traps must be enabled with this command.

### **MIB Objects**

```
alaVrrp3OperGroup  
  alaVrrp3NotificationCntl
```

---

## vrrp3 track-association

Associates a VRRP3 tracking policy with a virtual router.

```
vrrp3 vrid vlan_id track-association track_id
```

```
vrrp3 vrid vlan_id no track-association track_id
```

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>vlan_id</i>	The VLAN ID of the virtual router.
<i>track_id</i>	The ID of the tracking policy associated with the virtual router; the range is 1 to 255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a tracking policy from a virtual router.
- Use the **vrrp track** command to create a tracking policy for an IPv6 interface.

### Examples

```
-> vrrp3 2 4 track-association 1  
-> vrrp3 2 4 no track-association 1
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<b>vrrp3</b>	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
<b>show vrrp3 track-association</b>	Displays the tracking policies associated with VRRP3 virtual routers.

### MIB Objects

```
alaVrrp3AssoTrackTable  
  alaVrrp3AssoTrackId  
  alaVrrp3TrackRowStatus
```

---



*output definitions*

---

<b>VRRP default advertisement interval</b>	The default advertising interval for all virtual routers on the switch.
<b>VRRP default priority</b>	The default priority value for all virtual routers on the switch.
<b>VRRP default preempt</b>	The default preempt mode for all virtual routers on the switch.
<b>VRRP trap generation</b>	Indicates whether or not the VRRP trap generation is enabled or disabled; configured through the <b>vrrp track</b> command.
<b>VRRP startup delay</b>	The amount of time after a reboot that virtual routers will wait before they go active; allows time for routing tables to stabilize. Configured through the <b>vrrp delay</b> command.
<b>VRID</b>	Virtual router identifier. Configured through the <b>vrrp</b> command.
<b>VLAN</b>	The VLAN associated with the VRRP instance. Configured through the <b>vrrp</b> command.
<b>IP Address(es)</b>	The assigned IP addresses. Configured through the <b>vrrp address</b> command.
<b>Admin Status</b>	The administrative status of this virtual router instance; <b>enabled</b> allows the virtual router instance to operate; <b>disabled</b> disables the virtual router instance without deleting it.
<b>Priority</b>	Indicates the VRRP router's priority for the virtual router. For more information about priority, see the <b>vrrp</b> command description on <a href="#">page 21-3</a> .
<b>Preempt</b>	Controls whether a higher priority virtual router will preempt a lower priority master router: <b>preempt</b> indicates that a higher priority virtual router will preempt a lower priority master; <b>no preempt</b> indicates that the first backup router to take over for the master will not be preempted by a virtual router with a higher priority. In either case, the IP address owner will always take over it if is available.
<b>Virtual MAC</b>	Displays the virtual MAC address for the virtual router. The first 5 bytes are always 00-00-5E-00-02. The last byte indicates the VRID. This field displays N/A when the virtual router is in the <b>backup</b> or <b>initialize</b> state.
<b>Adv. Interval</b>	Indicates the time interval, in seconds, between sending advertisement messages. Only the master router sends advertisements.

---

**Release History**

Release 6.1; command was introduced.

Release 6.3.1; **VRRP default advertisement interval**, **VRRP default priority**, and **VRRP default preempt** fields added.

## Related Commands

<b>vrrp</b>	Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.
<b>vrrp address</b>	Configures an IP address for a virtual router.
<b>vrrp interval</b>	Modifies the default advertising interval value assigned to the virtual routers on the switch.
<b>vrrp priority</b>	Modifies the default priority value assigned to the virtual routers on the switch.
<b>vrrp preempt</b>	Modifies the default preempt mode assigned to the virtual routers on the switch.
<b>show vrrp statistics</b>	Displays statistics for all virtual routers configured on the switch or for a specific virtual router.

## MIB Objects

```
alaDispVrpp3Config  
  alaVRRPDefaultInterval  
  alaVRRPDefaultPriority  
  alaVRRPDefaultPreemptMode  
  alaVrrp3AssoIpAddr  
  alaVrrp3OperAdminState  
  alaVrrp3OperPriority  
  alaVrrp3OperPreemptMode  
  alaVrrp3OperAcceptMode
```

---



*output definitions (continued)*


---

<b>State</b>	The operational state of the VRRP router instance; <b>initialize</b> specifies that the interface or VLAN is either disabled or down, or if the startup delay timer has not expired; <b>backup</b> specifies that this instance is monitoring the availability of the master router; <b>master</b> specifies that this instance is functioning as the master router.
<b>UpTime</b>	Time interval (in hundredths of a second) since this virtual router was last initialized.
<b>Become Master</b>	The total number of times this virtual router's state has transitioned from backup to master.
<b>Adv. Rcvd</b>	The total number of VRRP advertisements received by this instance.

---

```
-> show vrrp 1 statistics
Virtual Router VRID = 1 on VLAN = 1
  State = master
  UpTime (1/100th second) = 378890
  Become master = 1
  Advertisements received = 0
  Type errors = 0
  Advertisement interval errors = 0
  Authentication errors = 0
  IP TTL errors = 0
  IP address list errors = 0
  Packet length errors = 0
  Zero priority advertisements sent = 0
  Zero priority advertisements received = 0
```

*output definitions*


---

<b>VRID</b>	The virtual router identifier.
<b>VLAN</b>	The VLAN associated with the VRRP instance.
<b>State</b>	The operational state of this VRRP router instance; <b>initialize</b> specifies that the interface or VLAN is either disabled or down, or the startup delay timer has not expired; <b>backup</b> specifies that this instance is monitoring the availability of the master router; <b>master</b> specifies that this instance is functioning as the master router.
<b>UpTime</b>	Time interval (in hundredths of a second) since this virtual router was last initialized.
<b>Become master</b>	The total number of times this virtual router's state has transitioned from backup to master.
<b>Advertisements received</b>	The total number of VRRP advertisements received by this instance.
<b>Type errors</b>	The total number of VRRP packets received with an invalid value in the VRRP type field.
<b>Advertisement interval errors</b>	The total number of VRRP packets received in which the advertisement interval differs from the one configured for the virtual router.
<b>Authentication errors</b>	The total number of VRRP packets received with an unknown or invalid authentication type.
<b>IP TTL errors</b>	The total number of VRRP packets received with a TTL value other than 255.



*output definitions (continued)*

---

<b>IP address list errors</b>	The total number of VRRP packets in which the IP address list does not match the configured list for the virtual router.
<b>Packet length errors</b>	The total number of VRRP packets received with a length less than the length of the VRRP header.
<b>Zero priority advertisements sent</b>	The total number of VRRP advertisements with a priority of 0 sent by the virtual router.
<b>Zero priority advertisements received</b>	The total number of VRRP advertisements with a priority of 0 received by the virtual router.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">vrrp</a>	Configures a new VRRP virtual router or modifies an existing one. Used to enable to disable a virtual router.
<a href="#">show vrrp</a>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

**MIB Objects**

```
alaVrrp3RouterChecksumErrors
alaVrrp3RouterVersionErrors
alaVrrp3RouterVrIdErrors
alaVrrp3RouterStatsTable
  alaVrrp3StatsBecomeMaster
  alaVrrp3StatsAdvertiseRcvd
  alaVrrp3StatsAdvIntervalErrors
  alaVrrp3StatsIpTtlErrors
  alaVrrp3StatsPriZeroPktsRcvd
  alaVrrp3StatsPriZeroPktsSent
  alaVrrp3StatsInvalidTypePktsRcvd
  alaVrrp3StatsAddressListErrors
  alaVrrp3StatsInvlAuthType
  alaVrrp3StatsPacketLengthErrors
alaVrrp3OperTable
  alaVrrp3OperUpTime
  alaVrrp3OperGroup
  alaVrrp3OperState
```

---

## show vrrp track

Displays information about tracking policies on the switch.

```
show vrrp track [track_id]
```

---

### Syntax Definitions

*track\_id*                                      The ID of the tracking policy for which you want to display information.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Enter the tracking ID to display information about a particular policy; if no tracking policy ID is entered, information for all tracking policies is displayed.

### Examples

```
-> show vrrp track
Track
ID          Policy          Admin   Oper
           State          State   Pri
-----+-----+-----+-----+-----
   1    PORT 1/1      Enabled   Up     25
   2    192.10.150.42 Enabled   Down   25
```

### *output definitions*

---

<b>Track ID</b>	The ID of the tracking policy.
<b>Policy</b>	The slot/port, IP address, or VLAN tracked by the policy.
<b>Admin State</b>	Whether the tracking policy is administratively enabled or disabled.
<b>Oper State</b>	Indicates whether the operating state of the tracking policy is Up or Down.
<b>Pri</b>	The value to be decremented from the priority value of the virtual router monitoring this tracking policy when the operational state of the tracking policy is down.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### **vrrp track**

Creates a new tracking policy or modifies an existing tracking policy.

## MIB Objects

```
alaVRRPTrackTable  
  alaVrrpTrackState  
  alaVrrpTrackAdminState  
  alaVrrpTrackPriority  
  alaVrrpTrackEntityType  
  alaVrrpTrackEntityVlan  
  alaVrrpTrackEntityPort  
  alaVrrpTrackEntityIpAddress  
  alaVrrpTrackEntityIpv6Interface  
  alaVrrpTrackEntityInterface
```

---

## show vrrp track-association

Displays the tracking policies associated with virtual routers.

**show vrrp** [*vrid*] **track-association** [*track\_id*]

---

### Syntax Definitions

*vrid* The virtual router ID, in the range from 1–255.

*track\_id* The ID of the tracking policy for which you want to display information.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If a track ID is specified, only information about that track ID is displayed. If the virtual router ID and track ID are not specified, information about all virtual routers and their associated tracking policies is displayed.

### Examples

```
-> show vrrp 2 track-association
      Conf  Cur  Track
VRID VLAN Pri  Pri  ID      Policy      Admin  Oper  Track
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
      2    1  100  100  1  VLAN    1      Enabled Up    25
      2    1  100  100  2  10.255.11.101  Enabled Up    25
```

### output definitions

---

<b>VRID</b>	The virtual router identifier.
<b>VLAN</b>	The VLAN ID associated with the virtual router.
<b>Conf Pri</b>	The priority configured for the virtual router through the <b>vrrp</b> command.
<b>Cur Pri</b>	The priority currently being used for the virtual router. If the tracking policy is in effect because the tracked entity is down, the current priority will be equal to the configured priority (Conf Pri) minus the tracking priority (Track Pri). Otherwise the current priority will be equal to the configured priority.
<b>Track ID</b>	The ID of the tracking policy.
<b>Policy</b>	The VLAN, IP address, or slot/port being tracked by this policy.
<b>Admin State</b>	The administrative state of the tracking policy configured through the <b>vrrp track</b> command.

*output definitions (continued)*

---

<b>Oper State</b>	Whether the tracking policy is operational (Up) or not (Down).
<b>Track Pri</b>	The amount to be decremented from the configured virtual router priority when the tracking policy is applied.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">vrrp track-association</a>	Associates a VRRP tracking policy with a virtual router.
<a href="#">vrrp track</a>	Creates a new tracking policy or modifies an existing tracking policy.

**MIB Objects**

```
alaVrrpAssoTrackTable
  alaVrrpAssoTrackId
alaVRRPTrackTable
  alaVrrpTrackState
  alaVrrpTrackAdminState
  alaVrrpTrackPriority
  alaVrrpTrackEntityType
  alaVrrpTrackEntityVlan
  alaVrrpTrackEntityPort
  alaVrrpTrackEntityIpAddress
  alaVrrpTrackEntityInterface
```

---



## Related Commands

### **vrrp group**

Creates a new virtual router group or modifies the configuration parameters of an existing virtual router group.

### **vrrp group all**

Changes the administrative status of all the virtual routers in a virtual router group using a single command.

## MIB Objects

alaVrrpGroupTable

alaVrrpGroupInterval

alaVrrpGroupPriority

alaVrrpGroupPreemptMode

---





## Related Commands

[vrrp group-association](#)

Adds a virtual router to a virtual router group.

## MIB Objects

alaVrrpAssoGroupTable

alaVrrp3OperVrId

---



*output definitions*

---

<b>VRRP trap generation</b>	Whether or not VRRP trap generation is enabled or disabled.
<b>VRRP startup delay</b>	The amount of time after a reboot that virtual routers will wait before they go active; allows time for routing tables to stabilize.
<b>VRID</b>	Virtual router identifier. Configured through the <b>vrrp3</b> command.
<b>VLAN</b>	The VLAN associated with the VRRP3 instance. Configured through the <b>vrrp3</b> command.
<b>IPv6 Address(es)</b>	The assigned IPv6 addresses. Configured through the <b>vrrp3 address</b> command.
<b>Admin Status</b>	The administrative status of this virtual router instance; <b>enabled</b> allows the virtual router instance to operate; <b>disabled</b> disables the virtual router instance without deleting it.
<b>Priority</b>	Indicates the VRRP3 router's priority for the virtual router. For more information about priority, see the <b>vrrp3</b> command description on <a href="#">page 21-30</a> .
<b>Preempt</b>	Controls whether a higher priority virtual router will preempt a lower priority master: <b>preempt</b> indicates that a higher priority virtual router will preempt a lower priority master; <b>no preempt</b> indicates that the first backup router to take over for the master will not be preempted by a virtual router with a higher priority. In either case the IP address owner will always take over it if is available.
<b>Accept</b>	Displays whether the master router, which is not the IPv6 address owner will accept the packets addressed to the IPv6 address owner as its own.
<b>Virtual MAC</b>	Displays the virtual MAC address for the virtual router when the router is in the <b>master</b> state. The first 5 bytes are always 00-00-5E-00-02. The last byte indicates the VRID. This field displays N/A when the virtual router is in the <b>backup</b> or <b>initialize</b> state.
<b>Adv. Interval</b>	Indicates the time interval, in seconds, between sending advertisement messages. Only the master router sends advertisements.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

<b>vrrp3</b>	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
<b>vrrp3 address</b>	Configures an IPv6 address for a virtual router.
<b>show vrrp3 statistics</b>	Displays statistics for all virtual routers configured on the switch or for a specific virtual router.

**MIB Objects**

```
alaVrrp3OperTable  
  alaVrrp3OperAdminState  
  alaVrrp3OperPriority  
  alaVrrp3OperPreemptMode  
  alaVrrp3OperAcceptMode  
  alaVrrp3OperAdvinterval
```

---



*output definitions (continued)*


---

<b>VLAN</b>	The VLAN associated with the VRRP3 instance.
<b>State</b>	The administrative state of the VRRP3 instance; <b>initialize</b> specifies that the interface or vlan is either disabled or down and the startup delay timer has not expired; <b>backup</b> specifies that this instance is monitoring the availability of the master router; <b>master</b> specifies that this instance is functioning as the master router.
<b>UpTime</b>	Time interval (in hundredths of a second) since this virtual router was last initialized.
<b>Become Master</b>	The total number of times this virtual router's state has transitioned from backup to master.
<b>Adv. Rcvd</b>	The total number of VRRP3 advertisements received by this instance.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

<b>vrrp3</b>	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
<b>show vrrp3</b>	Displays the virtual router configuration for all virtual routers or for a specific virtual router.

**MIB Objects**

```

alaVrrp3RouterChecksumErrors
alaVrrp3RouterVersionErrors
alaVrrp3RouterVrIdErrors
alaVrrp3RouterStatsTable
  alaVrrp3StatsBecomeMaster
  alaVrrp3StatsAdvertiseRcvd
  alaVrrp3StatsAdvIntervalErrors
  alaVrrp3StatsIpTtlErrors
  alaVrrp3StatsPriZeroPktsRcvd
  alaVrrp3StatsPriZeroPktsSent
  alaVrrp3StatsInvalidTypePktsRcvd
  alaVrrp3StatsAddressListErrors
  alaVrrp3StatsInvldAuthType
  alaVrrp3StatsPacketLengthErrors
alaVrrp3OperTable
  alaVrrp3OperUpTime
alaVrrp3OperGroup
  alaVrrp3OperState

```

---

## show vrrp3 track-association

Displays the tracking policies associated with VRRP3 virtual routers.

**show vrrp3** [*vrid*] **track-association** [*track\_id*]

---

### Syntax Definitions

<i>vrid</i>	The virtual router ID, in the range from 1–255.
<i>track_id</i>	The ID of the tracking policy for which you want to display information.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If a track ID is specified, only information about that track ID is displayed. If the virtual router ID and track ID are not specified, information about all virtual routers and their associated tracking policies is displayed.

### Examples

```
-> show vrrp3 track-association
      Conf  Cur  Track
VRID VLAN  Pri  Pri  ID          Policy      Admin  Oper  Track
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
   1  101  200  200  1  PORT 1/37      Enabled  Up    25
```

### output definitions

---

<b>VRID</b>	The virtual router identifier.
<b>VLAN</b>	The VLAN ID associated with the virtual router.
<b>Conf Pri</b>	The priority configured for the virtual router through the <b>vrrp3</b> command.
<b>Cur Pri</b>	The priority currently being used for the virtual router. If the tracking policy is in effect because the tracked entity is down, the current priority will be equal to the configured priority (Conf Pri) minus the tracking priority (Track Pri). Otherwise the current priority will be equal to the configured priority.
<b>Track ID</b>	The ID of the tracking policy.
<b>Policy</b>	The VLAN, IPv6 address, or slot/port being tracked by this policy.
<b>Admin State</b>	The administrative state of the tracking policy.

*output definitions (continued)*


---

<b>Oper State</b>	Indicates whether the tracking policy is operational (Up) or not (Down).
<b>Track Pri</b>	The amount to be decremented from the configured virtual router priority when the tracking policy is applied.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

[vrrp3 track-association](#) Associates a VRRP3 tracking policy with a virtual router.

**MIB Objects**

alaVrrpTrackTable

```

alaVrrpTrackState
alaVrrpTrackAdminState
alaVrrpTrackPriority
alaVrrpTrackEntityType
alaVrrpTrackEntityVlan
alaVrrpTrackEntityPort
alaVrrpTrackEntityIpAddress
alaVrrpTrackEntityIpv6Interface
alaVrrpTrackEntityInterface
alaVrrpTrackRowStatus

```

alaVrrp3AssoTrackTable

```

alaVrrp3AssoTrackId
alaVrrp3TrackRowStatus

```

---



# 22 OSPF Commands

Open Shortest Path First routing (OSPF) is a shortest path first (SPF) or link-state protocol. OSPF is an interior gateway protocol (IGP) that distributes routing information between routers in a single autonomous system (AS). OSPF chooses the least-cost path as the best path.

Each participating router distributes its local state (i.e., the router's usable interfaces and reachable neighbors) throughout the AS by flooding. In a link-state protocol, each router maintains a database describing the entire AS topology. This database is built from the collected link state advertisements of all routers. Each multi-access network that has at least two attached routers has a designated router and a backup designated router. The designated router floods a link state advertisement for the multi-access network and has other special responsibilities.

OSPF allows collections of contiguous networks and hosts to be grouped together. A group, together with the routers having interfaces to any one of the included networks, is called an *area*. Each area runs a separate copy of the basic link-state routing algorithm. This means that each area has its own topological database, as explained in the previous section.

Alcatel-Lucent's version of OSPF complies with RFCs 1370, 1850, 2328, 2370, 3101, and 3623.

MIB information for OSPF is as follows:

*Filename:* AlcatelIND1DrcTm.mib  
*Module:* ALCATEL-IND1-DRCTM-MIB

*Filename:* AlcatelIND1Ospf.mib  
*Module:* ALCATEL-IND1-OSPF-MIB

*Filename:* IETF\_OSPF.MIB  
*Module:* OSPF-MIB

---

The following is a list of the commands for configuring OSPF:

---

<b>Global OSPF Commands</b>	<code>ip ospf status</code> <code>ip load ospf</code> <code>ip ospf exit-overflow-interval</code> <code>ip ospf extlsdb-limit</code> <code>ip ospf host</code> <code>ip ospf mtu-checking</code> <code>ip ospf default-originate</code> <code>ip ospf route-tag</code> <code>ip ospf spf-timer</code> <code>ip ospf virtual-link</code> <code>ip ospf neighbor</code> <code>show ip ospf</code> <code>show ip ospf border-routers</code> <code>show ip ospf ext-lsdb</code> <code>show ip ospf host</code> <code>show ip ospf lsdb</code> <code>show ip ospf neighbor</code> <code>show ip ospf routes</code> <code>show ip ospf virtual-link</code> <code>show ip ospf virtual-neighbor</code>
<b>OSPF Area Commands</b>	<code>ip ospf area</code> <code>ip ospf area default-metric</code> <code>ip ospf area range</code> <code>show ip ospf area</code> <code>show ip ospf area range</code> <code>show ip ospf area stub</code>
<b>OSPF Interface Commands</b>	<code>ip ospf interface</code> <code>ip ospf interface area</code> <code>ip ospf interface auth-key</code> <code>ip ospf interface auth-type</code> <code>ip ospf interface dead-interval</code> <code>ip ospf interface hello-interval</code> <code>ip ospf interface md5</code> <code>ip ospf interface md5 key</code> <code>ip ospf interface type</code> <code>ip ospf interface cost</code> <code>ip ospf interface poll-interval</code> <code>ip ospf interface priority</code> <code>ip ospf interface retrans-interval</code> <code>ip ospf interface transit-delay</code> <code>show ip ospf interface</code>
<b>OSPF Graceful Restart Commands</b>	<code>ip ospf restart-support</code> <code>ip ospf restart-interval</code> <code>ip ospf restart-helper status</code> <code>ip ospf restart-helper strict-lsa-checking status</code> <code>ip ospf restart initiate</code> <code>show ip ospf restart</code>

---

## ip ospf status

Enables or disables the administration status of OSPF on the router.

**ip ospf status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables OSPF.
<b>disable</b>	Disables OSPF.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The OSPF protocol must be enabled for it to route traffic.

### Examples

```
-> ip ospf status enable
-> ip ospf status disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip ospf](#) Displays OSPF status and general configuration parameters.

### MIB Objects

```
ospfGeneralGroup
  ospfAdminStat
```

---

## ip load ospf

Loads the OSPF software on the router.

`ip load ospf`

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Example

```
-> ip load ospf
```

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

### MIB Objects

ALADRCTMCONFIG

alaDrcTmIPOspfStatus

---

## ip ospf exit-overflow-interval

This command sets the overflow interval value.

**ip ospf exit-overflow-interval** *seconds*

---

### Syntax Definitions

*seconds*                                      The number of seconds the router waits before attempting to leave the overflow state.

### Defaults

parameter	default
<i>seconds</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The overflow interval is the time the router will wait before attempting to leave the database overflow state; the interval begins upon the router's arrival into this state.
- When the router leaves the overflow state, it can once again create non-default and external link state advertisements (LSAs) for autonomous systems (AS).
- Note that the router will not leave the overflow state (until it is restarted) when the overflow interval value is set to 0.

### Example

```
-> ip ospf exit-overflow-interval 10
```

### Release History

Release 6.1; command was introduced.

Release 6.4.2; The number of seconds cannot be changed and will always be zero.

### Related Commands

[show ip ospf](#)                                      Displays the OSPF status and general configuration parameters.

### MIB Objects

ospfGeneralGroup  
  ospfExitOverflowInterval

---

## ip ospf extlsdb-limit

Assigns a limit to the number of External Link-State Database (LSDB) entries that can be learned.

**ip ospf extlsdb-limit** *limit*

---

### Syntax Definitions

*limit* The maximum number of LSDB entries allowed on the router. The accepted value is any number greater than or equal to 1. If 0 is entered, there is no limit.

### Defaults

parameter	default
<i>limit</i>	-1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows you to set a limit to the number of external LSDBs learned by the router. An external LSDB is created when the router learns a link address that exists outside of its Autonomous System (AS).
- When the limit is set, and it is exceeded, older addresses that were previously learned are removed from the routing table to make room for the new external LSDB.

### Example

```
-> ip ospf extlsdb-limit 25
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip ospf](#) Displays OSPF status and general configuration parameters.

### MIB Objects

ospfGeneralGroup  
ospfExtLsdbLimit

---

## ip ospf host

Creates and deletes an OSPF entry for directly attached hosts. Allows for the modification of the host parameters of Type of Service (ToS) and metric.

**ip ospf host** *ip\_address* **tos** *tos* [**metric** *metric*]

**no ip ospf host** *ip\_address* **tos** *tos*

---

### Syntax Definitions

<i>ip_address</i>	The 32-bit IP address in dotted decimal format of the OSPF host. See the example below for more information.
<i>tos</i>	The type of service (ToS) of the specified OSPF host. The valid range is 0- 15. Only ToS value 0 is supported at this time.
<i>metric</i>	The cost metric value assigned to the specified host. The valid range is 0 and up.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>metric</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The **no** variant of this command removes the record of the OSPF host.
- Use this command when multiple paths exist to a host. The specified host must be directly attached to the router. ToS routing is the ability to make a forwarding decision based on a destination address and a desired Quality of Service (QoS). ToS routing allows link selection based on QoS when more than one path exists between a source and a destination. A metric value is the cost of all the hops necessary for a packet to reach its destination. Routers use the metric to determine the best possible path

### Examples

```
-> ip ospf host 172.22.2.115 tos 1 metric 10  
-> no ip ospf host 172.22.2.115 tos 1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**show ip ospf host**

Displays information on configured OSPF hosts.

## MIB Objects

ospfHostTable

ospfHostStatus

ospfHostIpAddress

ospfHostTOS

ospfHostMetric

---



## ip ospf mtu-checking

Enables or disables the use of Maximum Transfer Unit (MTU) checking. The MTU limits the size of a transmitted or received packet.

**ip ospf mtu-checking**

**no ip ospf mtu-checking**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, OS6855-U24X, 6850E, 9000E

### Usage Guidelines

- The **no** form of this command disables MTU checking.
- This command is used to disable the checking for mismatch of the interface MTU while establishing a neighbor adjacency with a router. MTU mismatch occurs when a router receives packets that contain a larger MTU value than that of the interface on which adjacency is being established. The interface MTU is the largest IP datagram size (in bytes) that the interface can accept.

### Examples

```
-> ip ospf mtu-checking  
-> no ip ospf mtu-checking
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show ip ospf** Displays the OSPF status and general configuration parameters.

### MIB Objects

```
alaProtocolOspf  
  alaOspfMTUCheck
```

---

## ip ospf default-originate

Configures a default external route into the OSPF routing domain.

**ip ospf default-originate** {only | always} [metric-type {type1 | type2}] [metric *value*]

**no ip ospf default-originate**

---

### Syntax Definitions

<b>only</b>	Advertises only when there is a default route in the routing table.
<b>always</b>	Advertises the default route regardless of whether the routing table has a default route.
<b>type1</b>	Sets the external route as type1.
<b>type2</b>	Sets the external route as type2.
<i>value</i>	The metric value. The valid range is 1-65535.

### Defaults

parameter	default
type1   type2	type2
<i>value</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of the command to delete redistributed default routes.

### Examples

```
-> ip ospf default-originate always
-> ip ospf default-originate only metric 10
-> ip ospf default-originate always metric-type type1 metric 5
-> no ip ospf default-originate
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

**show ip ospf**

Displays OSPF status and general configuration parameters.

## MIB Objects

```
alaProtocolOspf  
  alaOspfDefaultOriginate  
  alaOspfDefaultOriginateMetricType  
  alaOspfDefaultOriginateMetric
```

---

## ip ospf route-tag

Configures a tag value for the Autonomous System External (ASE) routes created.

**ip ospf route-tag** *tag*

---

### Syntax Definitions

*tag* The set tag value. The valid range is 0–2,147,483,647.

### Defaults

parameter	default
<i>tag</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows you to set a tag value for ASE routes that are learned by this OSPF router. The tag value allows for quick identification.
- OSPF ASE route advertisements contain a tag value field. This field allows the exchange of information between autonomous system border routers (ASBRs).

### Example

```
-> ip ospf route-tag 2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip ospf](#) Displays OSPF status and general configuration parameters.

### MIB Objects

alaProtocolOspf  
alaOspfRedistRouteTag

---

## ip ospf spf-timer

Configures timers for Shortest Path First (SPF) calculation.

**ip ospf spf-timer** [**delay** *delay\_seconds*] [**hold** *hold\_seconds*]

---

### Syntax Definitions

*delay\_seconds* Specifies time (from 0 to 65535 seconds) between the reception of an OSPF topology change and the start of an SPF calculation.

*hold\_seconds* Specifies the minimum time (from 0 to 65535 seconds) between consecutive SPF calculations.

### Defaults

parameter	default
<i>delay_seconds</i>	5
<i>hold_seconds</i>	10

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows you to configure the time between SPF calculations. Using the delay timer, you can determine how much time to postpone an SPF calculation after the router receives a topology change. Using the hold timer, you can configure the amount of time that must elapse between consecutive SPF calculations.
- Note that if either of these values is set to 0, there will be no delay in the SPF calculation. This means that SPF calculations will occur immediately upon the reception of a topology change and/or that back-to back SPF calculations can take place with no break in-between the two.

### Example

```
-> ip ospf spf-timer delay 20 hold 35
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**show ip ospf**

Displays the OSPF status and general configuration parameters.

## MIB Objects

alaProtocolOspf

    alaOspfTimerSpfDelay

    alaOspfTimerSpfHold

---

## ip ospf virtual-link

Creates or deletes a virtual link. A virtual link is used to restore backbone connectivity if the backbone is not physically contiguous.

```
ip ospf virtual-link area_id router_id [auth-type {none | simple | md5}] [auth-key key_string]  
[dead-interval seconds] [hello-interval seconds] [retrans-interval seconds] [transit-delay seconds]
```

```
no ip ospf virtual-link area_id router_id
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>router_id</i>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
<b>none</b>	Sets the virtual link authorization type to no authentication.
<b>simple</b>	Sets the virtual link authorization type to simple authentication. If <b>simple</b> is selected, a key must be specified as well.
<b>md5</b>	Sets the virtual link authorization type to MD5 authentication.
<i>key_string</i>	Sets the virtual link authorization key. The key can be up to 8 ASCII characters. See the example for more details.
<b>dead-interval</b> <i>seconds</i>	Sets the virtual link dead interval. If no hello packets on this link for the set number of seconds have been received, the virtual neighbor is declared dead. The valid range is 1–2147483647.
<b>hello-interval</b> <i>seconds</i>	Sets the virtual link hello interval, which is the time interval between OSPF hellos sent on this virtual link. The valid range is 1–65535.
<b>retrans-interval</b> <i>seconds</i>	Sets the virtual link retransmit interval. The router waits the set number of seconds before retransmitting OSPF packets. The valid range is 0–3600.
<b>transit-delay</b> <i>seconds</i>	Sets the virtual link transit delay, which is the number of seconds to transmit OSPF packets over this link. The valid range is 0–3600.

## Defaults

parameter	default
<b>none</b>   <b>simple</b>   <b>md5</b>	<b>none</b>
<i>key_string</i>	null string
<b>dead-interval</b> <i>seconds</i>	40
<b>hello-interval</b> <i>seconds</i>	10
<b>retrans-interval</b> <i>seconds</i>	5
<b>transit-delay</b> <i>seconds</i>	1

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- The **no** form of the command deletes the virtual link.
- It is possible to define areas in such a way that the backbone is no longer contiguous. In this case the system administrator can ensure backbone connectivity physically.
- Virtual links can be configured between any two backbone routers that have an interface to a common non-backbone area. Virtual links belong to the backbone. The protocol treats two routers joined by a virtual link as if they were connected by an unnumbered point-to-point network. The routing protocol traffic that flows along the virtual link uses intra-area routing only.
- If authentication is enabled, both routers at either end of the virtual link must share the same password. Simple authentication refers to the use of only clear-text passwords as an authentication method. MD5 authentication refers to the usage of message digests.
- The **dead-interval** value should be the same for all routers on the same network. This value should be some multiple of the value given for the hello interval.

## Examples

```
-> ip ospf virtual-link 0.0.0.1 172.22.2.115
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 auth-key "techpubs"
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 auth-type simple
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 dead-interval 50
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 hello-interval 20
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 retrans-interval 20
-> ip ospf virtual-link 0.0.0.1 172.22.2.115 transit-delay 50
-> no ip ospf virtual-link 0.0.0.1 172.22.2.115
```

## Release History

Release 6.1; command was introduced.



## Related Commands

**show ip ospf virtual-link**      Displays the virtual link information.

## MIB Objects

```
ospfVirtIfTable  
  ospfVirtIfAreaId  
  ospfVirtIfNeighbor  
  ospfVirtIfAuthKey  
  ospfVirtIfStatus  
  ospfVirtIfAuthType  
  ospfVirtIfRtrDeadInterval  
  ospfVirtIfHelloInterval  
  ospfVirtIfRetransInterval  
  ospfVirtIfTransitDelay
```

---

## ip ospf neighbor

Creates a static neighbor on a non-broadcast interface.

**ip ospf neighbor** *neighbor\_id* {**eligible** | **non-eligible**}

**no ip ospf neighbor** *neighbor\_id*

---

### Syntax Definitions

*neighbor\_id* A unique 32-bit IP address identical to the neighbor's interface address.

**eligible** Sets this router as eligible to be the DR.

**non-eligible** Sets this router as not eligible to be the DR.

### Defaults

parameter	default
<b>eligible</b>   <b>non-eligible</b>	<b>eligible</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- NBMA (Non Broadcast Multi Access), PMP (Point-to-Multipoint), and P2P (Point-to-Point) OSPF non-broadcast modes are supported over Ethernet interfaces (broadcast media).
- Neighboring routers on non-broadcast OSPF networks must be statically configured, because lack of OSPF multicast capabilities prevents using normal OSPF Hello protocol discovery.
- In the case of NBMA interface the static neighbor eligibility for becoming a DR can be configured while it is not necessary for point-to-multipoint and point-to-point interfaces.
- An interface connected to this neighbor must also be configured as a non-broadcast interface, which can be either point-to-multipoint or point-to-point, by using the **ip ospf interface type** command.
- For the correct working of an OSPF NBMA network, a fully meshed network is mandatory. Also, the neighbor eligibility configuration for a router on every other router should match the routers interface priority configuration.

### Examples

```
-> ip ospf neighbor 1.1.1.1 non-eligible
-> no ip ospf neighbor 1.1.1.1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip ospf interface type](#)

Configures the OSPF interface type.

[show ip ospf neighbor](#)

Displays information on OSPF non-virtual neighbor routers.

## MIB Objects

ospfNbrTable

ospfNbrPriority

ospfNbmaNbrStatus

---

## ip ospf area

Assigns an OSPF interface to a specified area.

**ip ospf area** *area\_id* [summary {enable | disable}] | [type {normal | stub | nssa}]

**no ip ospf area** *area\_id*

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<b>enable</b>	Enables summarization.
<b>disable</b>	Disables summarization.
<b>normal</b>	Sets the area as a regular OSPF area.
<b>stub</b>	Configures an OSPF area as a stub area.
<b>nssa</b>	Configures an OSPF area as a Not So Stubby Area (NSSA)

### Defaults

parameter	default
enable   disable	enable
normal   stub   nssa	normal

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The **no** form deletes the area.
- The **summary** options are used to enable or disable route summarization for stub and NSSA areas. Stub and NSSA areas will not receive LSA type 3 unless summary is enabled.
- The **type** command allows you to chose what type of area this is going to be.

### Examples

```
-> ip ospf area 0.0.0.1
-> ip ospf area 0.0.0.1 type stub
-> ip ospf area 0.0.0.1 type normal
-> no ip ospf area 0.0.0.1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip ospf area default-metric</b>	Creates or deletes an OSPF default metric.
<b>ip ospf area range</b>	Creates a route summarization instance whereby a range of addresses will be advertised as a single route.
<b>show ip ospf area</b>	Displays either all OSPF areas, or a specified OSPF area.

## MIB Objects

```
ospfAreaTable  
  ospfImportAsExtern  
  ospfAreaSummary  
  ospfAreaId
```

---

## ip ospf area default-metric

Creates or deletes a default metric for stub or Not So Stubby Area (NSSA) areas. The default metric configures the type of cost metric that a default area border router (ABR) will advertise in the default summary Link State Advertisement (LSA).

**ip ospf area *area\_id* default-metric *tos* [[cost *cost*] | [type {ospf | type 1 | type 2}]]**

**no ip ospf area *area\_id* default-metric *tos***

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>tos</i>	Type of service. The valid range is 0–15. Only ToS value 0 is supported at this time.
<i>cost</i>	The numerical cost of this area and ToS. Only 0 is supported in the current release.
<b>ospf</b>	Advertises external routes as OSPF autonomous system external (ASE) routes.
<b>type1</b>	Advertises external routes as a Type 1 (non-OSPF) metric.
<b>type2</b>	Advertises external routes as a Type 2 (calculated weight value from non-OSPF protocol) metric.

### Defaults

parameter	default
<i>tos</i>	0
<b>ospf   type 1   type 2</b>	<b>ospf</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The **no** form deletes the default metric from the specified area.
- The **type** command configures the type of cost metric for the specified ToS. To ensure that internal routers receiving external route advertisements choose the correct route, all border routers advertising a particular external network should be configured to advertise the route using the same metric type. That is, they must all advertise the route using an OSPF, Type 1, or Type 2 metric.

### Examples

```
-> ip ospf area 1.1.1.1 default-metric 0
-> no ip ospf area 1.1.1.1 default-metric 0
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip ospf area</a>	Creates or deletes an OSPF area.
<a href="#">ip ospf area range</a>	Creates a route summarization instance whereby a range of addresses will be advertised as a single route.
<a href="#">show ip ospf area</a>	Displays either all OSPF areas, or a specified OSPF area.

## MIB Objects

```
ospfStubAreaTable  
  ospfStubAreaId  
  ospfStubTOS  
  ospfStubStatus  
  ospfStubMetric  
  ospfStubMetricType
```

---

## ip ospf area range

Creates a route summarization instance whereby a range of addresses assigned for the route at the area border router will be advertised.

```
ip ospf area area_id range {summary | nssa} ip_address subnet_mask
[effect {admatching | noMatching}]
```

```
no ip ospf area area_id range {summary | nssa} ip_address subnet_mask
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<b>summary</b>	Advertises the address range as a summary link state advertisement (LSA).
<b>nssa</b>	Advertises the address range of Not So Stubby Area (NSSA) routes as a Type 5 advertisement.
<i>ip_address</i>	A 32-bit IP address for the range's area.
<i>subnet_mask</i>	A 32-bit subnet mask that determines how many bits of the IP address denote the network number.
<b>admatching</b>	Determines that routes specified falling within the specified range will be advertised.
<b>noMatching</b>	Determines that any route falling within the specified range will not be advertised.

### Defaults

parameter	default
summary   nssa	summary
admatching   noMatching	admatching

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Route summarization is the consolidation of addresses within an area which are advertised as a single route. When network numbers in an area are assigned consecutively, the area border router can be configured, using this command, to advertise a route that aggregates all the individual networks within the range.
- Using this command causes a single route to be advertised, for an address range in the specified area, to other areas.



- An NSSA (Not So Stubby Area) is similar to a stub area. However, where autonomous system (AS) external routes cannot be imported into a stub area, an NSSA will allow the importing of some AS external routes.
- Area ranges, once created, are enabled by default. Classless Inter-Domain Routing (CIDR) can work with OSPF to make route summarization more efficient. This is especially true for the summarization of routes in the global database. OSPF area address ranges can be configured on area border routers

## Examples

```
-> ip ospf area 1.1.1.1 range summary 172.22.2.0 255.255.255.0  
-> no ip ospf area 1.1.1.1 range summary 172.22.2.0 255.255.255.0
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip ospf area</a>	Creates or deletes an OSPF area.
<a href="#">ip ospf area default-metric</a>	Creates or deletes an OSPF default metric.
<a href="#">show ip ospf area range</a>	Displays all or specified route summaries in a given area.

## MIB Objects

```
ospfAreaAggregateTable  
  ospfAreaAggregateAreaId  
  ospfAreaAggregateLsdbType  
  ospfAreaAggregateNet  
  ospfAreaAggregateMask  
  ospfAreaAggregateEffect  
  ospfAreaAggregateStatus
```

---

## ip ospf interface

Creates and deletes an OSPF interface.

**ip ospf interface** {*interface\_name*}

**no ip ospf interface** {*interface\_name*}

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete an OSPF interface.
- The interface name cannot contain spaces.

### Examples

```
-> ip ospf interface vlan-101
-> no ip ospf interface vlan-101
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

**show ip ospf interface**                      Displays the status and statistics of an OSPF interface.

### MIB Objects

```
ospfIfTable
  ospfIfIpAddress
alaOspfIfAugTable
  alaOspfIfIntfName
```

---

## ip ospf interface status

Enables or disables the administrative status on an OSPF interface.

**ip ospf interface** {*interface\_name*} **status** {**enable** | **disable**}

**no ip ospf interface** {*interface\_name*} **status** {**enable** | **disable**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>enable</b>	Enables the OSPF interface.
<b>disable</b>	Disables the OSPF interface.

### Defaults

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete an OSPF interface.
- The OSPF interface must be enabled for it to participate in the OSPF protocol.

### Examples

```
-> ip ospf interface vlan-101 status enable
-> ip ospf interface vlan-101 status disable
-> no ip ospf interface vlan-101 status enable
-> no ip ospf interface vlan-101 status disable
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

**show ip ospf interface** Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
ospfIfAdminStat

---

---

## ip ospf interface area

Configures an OSPF area identifier for this interface.

```
ip ospf interface {interface_name} area area_id
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>area_id</i>	A unique 32-bit value in IP address format.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

An interface must be assigned to an area to become operational.

### Examples

```
-> ip ospf interface vlan-101 area 0.0.0.1
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

<a href="#">show ip ospf area</a>	Displays either all the OSPF areas, or a specified OSPF area.
<a href="#">show ip ospf interface</a>	Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
ospfIfAreaId

---

## ip ospf interface auth-key

Configures an OSPF authentication key for simple authentication on an interface.

```
ip ospf interface {interface_name} auth-key key_string
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>key_string</i>	An authentication key (8 characters maximum).

### Defaults

The default for the authentication key string is a null string.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Sets a password as a simple text string of 8 ASCII characters.
- Must be used in conjunction with the **auth-type** command, described on [page 22-30](#), set to **simple**.

### Examples

```
-> ip ospf interface vlan-101 auth-key pass
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

<a href="#">ip ospf interface auth-type</a>	Sets the authentication type.
<a href="#">show ip ospf interface</a>	Displays the status and statistics of an OSPF interface.

### MIB Objects

```
ospfIfTable  
  ospfIfAuthKey
```

---

## ip ospf interface auth-type

Sets the OSPF interface authentication type. Authentication allows the router to only respond to other routers that have the correct authentication information.

**ip ospf interface** {*interface\_name*} **auth-type** [**none** | **simple** | **md5**]

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>none</b>	No authentication.
<b>simple</b>	Simple, clear text authentication.
<b>md5</b>	MD5 encrypted authentication.

### Defaults

parameter	default
<b>none</b>   <b>simple</b>   <b>md5</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use this command to set the type of authentication that the OSPF interface uses to validate requests for route information from other OSPF neighbors on this interface.
- Simple authentication is authentication that uses only a text string as the password. The authentication type **simple** is used in conjunction with the **auth-key** keyword described, on [page 22-29](#).
- MD5 authentication is encrypted authentication that uses an encryption key string and a key identification number. Both of these are necessary as the password. The authentication type **md5** is used in conjunction with the commands described on [page 22-34](#) and [page 22-36](#). One command enables MD5 and the other sets the key identification number.

### Examples

```
-> ip ospf interface vlan-101 auth-type simple
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

**ip ospf interface auth-key**  
**show ip ospf interface**

Sets the password for simple authentication.  
Displays the status and statistics of an OSPF interface.

## MIB Objects

ospfIfTable  
ospfIfAuthType

---

## ip ospf interface dead-interval

Configures the OSPF interface dead interval.

**ip ospf interface** {*interface\_name*} **dead-interval** *seconds*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                                The dead interval, in seconds. The valid range is 1–65535.

### Defaults

parameter	default
<i>seconds</i> (broadcast and point-to-point)	40
<i>seconds</i> (NBMA and point-to-multi-point)	120

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This is the interval, in seconds, after which a neighbor on this interface is considered dead if no hello packets have been received from this neighbor.
- This interval should be greater than the hello interval or the multiple of the hello interval.

### Examples

```
-> ip ospf interface vlan-101 dead-interval 50
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[ip ospf interface hello-interval](#)    Configures the OSPF interface hello interval.

[show ip ospf interface](#)                Displays the status and statistics of an OSPF interface.

### MIB Objects

```
ospfIfTable
  ospfIfRtrDeadInterval
```

---



## ip ospf interface hello-interval

Configures the OSPF interface hello interval.

```
ip ospf interface {interface_name} hello-interval seconds
```

---

### Syntax Definitions

*interface\_name* The name of the interface.

*seconds* The hello interval, in seconds. The valid range is 1–65535.

### Defaults

parameter	default
<i>seconds</i> (broadcast and point-to-point)	10
<i>seconds</i> (NBMA and point-to-multi-point)	30

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This is the interval between two consecutive hello packets sent out on this interface.

### Examples

```
-> ip ospf interface vlan-101 hello-interval 50
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#) Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
ospfIfHelloInterval

---

## ip ospf interface md5

Creates and deletes the OSPF interface MD5 key identification number.

**ip ospf interface** {*interface\_name*} **md5** *key\_id* [**enable** | **disable**]

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>key_id</i>	A key identification number. The key identification number specifies a number that allows MD5 encrypted routers to communicate. Both routers must use the same key ID. The valid range is 1–255.
<b>enable</b>	Enables the interface key.
<b>disable</b>	Disables the interface key.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- MD5 authentication can be used to encrypt information sent over the network. MD5 authentication works by using shared secret keys. Keys are used to sign the packets with an MD5 checksum, and they cannot be forged or tampered with. Since the keys are not included in the packet, snooping the key is not possible.
- This command is used in conjunction with the commands described on [page 22-30](#) and [page 22-36](#).
- The **no** variant deletes the key ID number.

### Examples

```
-> ip ospf interface vlan-101 md5 100
-> ip ospf interface vlan-101 md5 10 disable
-> ip ospf interface vlan-101 md5 10 enable
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

<a href="#">ip ospf interface auth-type</a>	Sets the OSPF interface authentication type.
<a href="#">ip ospf interface md5 key</a>	Configures the OSPF key ID and key.
<a href="#">show ip ospf interface</a>	Displays the status and statistics of an OSPF interface.

## MIB Objects

```
alaOspfIfMd5Table  
  alaOspfIfMd5IpAddress  
  alaOspfIfMd5KeyId
```

---

## ip ospf interface md5 key

Configures the OSPF key string. This interface MD5 string, along with the key identification number, enables the interface to encode MD5 encryption.

```
ip ospf interface {interface_name} md5 key_id key key_string
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>key_id</i>	The key ID. The valid range is 1–255.
<i>key_string</i>	A key string.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used in conjunction with the commands described above on [page 22-30](#) and [page 22-34](#).
- For MD5 authentication to function properly the same key string must be configured on the neighboring router for that interface.

### Examples

```
-> ip ospf interface vlan-101 md5 100 key 1
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

<a href="#">ip ospf interface auth-type</a>	Sets the OSPF interface authentication type.
<a href="#">ip ospf interface md5</a>	Creates and deletes the OSPF interface MD5 key identification number.
<a href="#">show ip ospf interface</a>	Displays the status and statistics of an OSPF interface.

## **MIB Objects**

```
alaOspfIfMd5Table  
  alaOspfIfMd5IpAddress  
  alaOspfIfMd5KeyId  
  alaOspfIfMd5Key
```

---

## ip ospf interface type

Configures the OSPF interface type.

**ip ospf interface** {*interface\_name*} **type** {**point-to-point** | **point-to-multipoint** | **broadcast** | **non-broadcast**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>point-to-point</b>	Sets the interface to be a point-to-point OSPF interface.
<b>point-to-multipoint</b>	Sets the interface to be a point-to-multipoint OSPF interface.
<b>broadcast</b>	Sets the interface to be a broadcast OSPF interface.
<b>non-broadcast</b>	Sets the interface to be NBMA (Non Broadcast Multi Access) OSPF interface.

### Defaults

parameter	default
<b>broadcast</b>   <b>non-broadcast</b>   <b>point-to-point</b>   <b>point-to-multipoint</b>	<b>broadcast</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command sets an interface to be broadcast, non-broadcast, point-to-point, or point-to-multipoint.
- If the type is non-broadcast or point-to-multipoint, static neighbors should be configured.

### Examples

```
-> ip ospf interface vlan-101 type non-broadcast
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

## Related Commands

- |                               |                                                                             |
|-------------------------------|-----------------------------------------------------------------------------|
| <b>ip ospf neighbor</b>       | Creates a static neighbor on a Non Broadcast Multi Access (NBMA) interface. |
| <b>show ip ospf interface</b> | Displays the status and statistics of an OSPF interface.                    |

## MIB Objects

ospfIfTable  
ospfIfType

---

## ip ospf interface cost

Configures the OSPF interface cost.

```
ip ospf interface {interface_name} cost cost
```

---

### Syntax Definitions

*interface\_name* The name of the interface.

*cost* The interface cost. The valid range is 0 to 65535.

### Defaults

parameter	default
<i>cost</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The configured interface cost, if any, is used during OSPF route calculations.

### Examples

```
-> ip ospf interface vlan-101 cost 10
```

### Release History

Release 6.1; command was introduced.  
Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#) Displays the status and statistics of an OSPF interface.

### MIB Objects

```
ospfIfMetricTable  
  ospfIfMetricIpAddress  
  ospfIfMetricValue
```

---



## ip ospf interface poll-interval

Configures the OSPF poll interval for a Non Broadcast Multi Access (NBMA) interface.

**ip ospf interface** {*interface\_name*} **poll-interval** *seconds*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The poll interval, in seconds. The valid range is 1–2147483647.

### Defaults

parameter	default
<i>seconds</i>	120

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This parameter configures the larger time interval, in seconds, between hello packets sent to an inactive neighbor.

### Examples

```
-> ip ospf interface vlan-101 poll-interval 500
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#)                      Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
  ospfIfPollInterval

---

## ip ospf interface priority

Configures the OSPF interface priority. The priority number helps determine the eligibility of this router to become the designated router on the network.

```
ip ospf interface {interface_name} priority priority
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*priority*                              The interface priority. The valid range is 0–255.

### Defaults

parameter	default
<i>priority</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

When two routers attached to a network both attempt to become the designated router, the one with the highest priority becomes the designated router. A router whose router priority is set to 0 is ineligible to become the designated router.

### Examples

```
-> ip ospf interface vlan-101 priority 100
```

### Release History

Release 6.1; command was introduced.  
Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#)                      Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
ospfIfRtrPriority

---

## ip ospf interface retrans-interval

Configures the OSPF interface retransmit interval.

**ip ospf interface** {*interface\_name*} **retrans-interval** *seconds*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The retransmit interval, in seconds. The valid range 0–3600.

### Defaults

parameter	default
<i>seconds</i>	5

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The number of seconds between link retransmission of OSPF packets on this interface.

### Examples

```
-> ip ospf interface vlan-101 retrans-interval 500
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#)                      Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable

ospfIfRetransInterval

---

## ip ospf interface transit-delay

Configures the OSPF interface transit delay.

```
ip ospf interface {interface_name} transit-delay seconds
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The transit delay, in seconds. The valid range is 0–3600.

### Defaults

parameter	default
<i>seconds</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The estimated number of seconds required to transmit a link state update over this interface. This command takes into account transmission and propagation delays and must be greater than 0.

### Examples

```
-> ip ospf interface vlan-101 transit-delay 100
```

### Release History

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

### Related Commands

[show ip ospf interface](#)                      Displays the status and statistics of an OSPF interface.

### MIB Objects

ospfIfTable  
ospfIfTransitDelay

---

## ip ospf restart-support

Configures support for the graceful restart feature on an OSPF router.

**ip ospf restart-support {planned-unplanned | planned-only}**

**no ip ospf restart-support**

---

### Syntax Definitions

**planned-unplanned** Specifies support for planned and unplanned restarts.

**planned-only** This parameter is currently not supported.

### Defaults

Graceful restart is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable support for the graceful restart feature on an OSPF router.
- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch 6850 Series switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Examples

```
-> ip ospf restart-support planned-unplanned
-> no ip ospf restart-support
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show ip ospf restart** Displays the OSPF graceful restart related configuration and status.

### MIB Objects

```
alaProtocolOspf
  alaOspfRestartSupport
```

---

## ip ospf restart-interval

Configures the grace period for achieving a graceful OSPF restart.

**ip ospf restart-interval** [*seconds*]

---

### Syntax Definitions

*seconds*                                      The hitless restart timeout interval, in seconds. The valid range is 0–1800.

### Defaults

parameter	default
<i>seconds</i>	120

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch 6850 switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Example

```
-> ip ospf restart-interval 600
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip ospf restart-support](#)                      Administratively enables and disables support for the graceful restart feature on an OSPF router.
- [show ip ospf restart](#)                         Displays the OSPF graceful restart related configuration and status.

### MIB Objects

```
alaProtocolOspf  
  alaOspfRestartInterval
```

---

## ip ospf restart-helper status

Administratively enables and disables the capability of an OSPF router to operate in helper mode in response to a router performing a graceful restart.

**ip ospf restart-helper [status {enable | disable}]**

---

### Syntax Definitions

<b>enable</b>	Enables the capability of an OSPF router to operate in helper mode.
<b>disable</b>	Disables the capability of an OSPF router to operate in helper mode.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch 6850 switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Examples

```
-> ip ospf restart-helper status disable
-> ip ospf restart-helper status enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                                                          |                                                                                                                                                                   |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ip ospf restart-support</b>                           | Administratively enables and disables support for the graceful restart feature on an OSPF router.                                                                 |
| <b>ip ospf restart-helper strict-lsa-checking status</b> | Administratively enables and disables whether or not a changed Link State Advertisement (LSA) will result in termination of graceful restart by a helping router. |
| <b>show ip ospf restart</b>                              | Displays the OSPF graceful restart related configuration and status.                                                                                              |

## MIB Objects

```
alaProtocolOspf  
  alaOspfRestartHelperSupport
```

---



## ip ospf restart-helper strict-lsa-checking status

Administratively enables and disables whether or not a changed Link State Advertisement (LSA) will result in termination of graceful restart by a helping router.

**ip ospf restart-helper strict-lsa-checking status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables whether or not a changed LSA will result in termination of graceful restart by a helping router.
<b>disable</b>	Disables whether or not a changed LSA will result in termination of graceful restart by a helping router.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch 6850 switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Examples

```
-> ip ospf restart-helper strict-lsa-checking status disable  
-> ip ospf restart-helper strict-lsa-checking status enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip ospf restart-support</b>	Administratively enables and disables support for the graceful restart feature on an OSPF router.
<b>ip ospf restart-helper status</b>	Administratively enables and disables the capability of an OSPF router to operate in helper mode in response to a router performing a graceful restart.
<b>show ip ospf restart</b>	Displays the OSPF graceful restart related configuration and status.

## MIB Objects

```
alaProtocolOspf  
  alaOspfRestartHelperSupport
```

---

## ip ospf restart initiate

Initiates a planned graceful restart.

**ip ospf restart initiate**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You must execute this command on the primary CMM before executing a **takeover** command.
- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch 6850 switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Example

```
-> ip ospf restart initiate
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip ospf restart](#)

Displays the OSPF graceful restart related configuration and status.

### MIB Objects

alaProtocolOspf

alaOspfRestartInitiate

---

## show ip ospf

Displays the OSPF status and general configuration parameters.

**show ip ospf**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display the general configuration parameters of the OSPF router.
- See the Related Commands section below to modify the displayed parameters.

### Examples

-> show ip ospf

```

Router Id                = 10.255.11.242,
OSPF Version Number     = 2,
Admin Status            = Enabled,
Area Border Router?    = No,
AS Border Router Status = Disabled,
Route Tag               = 0,
SPF Hold Time (in seconds) = 10,
SPF Delay Time (in seconds) = 5,
MTU Checking           = Disabled,
# of Routes            = 0,
# of AS-External LSAs  = 0,
# of self-originated LSAs = 0,
# of LSAs received     = 0,
External LSDB Limit    = -1,
Exit Overflow Interval = 0,
# of SPF calculations done = 0,
# of Incr SPF calculations done = 0,
# of Init State Nbrs   = 0,
# of 2-Way State Nbrs  = 0,
# of Exchange State Nbrs = 0,
# of Full State Nbrs   = 0,
# of attached areas    = 1,
# of Active areas      = 0,
# of Transit areas     = 0,
# of attached NSSAs    = 0

```

*output definitions*


---

<b>Router Id</b>	The unique identification for the router.
<b>OSPF Version Number</b>	The version of OSPF the router is running.
<b>Admin Status</b>	Whether OSPF is currently enabled or disabled on the router.
<b>Area Border Router?</b>	Whether the router status is an area router or not.
<b>AS Border Router Status</b>	Whether the area Autonomous System Border Router status of this router is enabled or disabled.
<b>Route Tag</b>	Shows the route tag for this router.
<b>SPF Hold Time</b>	Shows the time in seconds between the reception of an OSPF topology change and the start of a SPF calculation.
<b>SPF Delay Time</b>	Shows the time in seconds between consecutive SPF calculations.
<b>MTU Checking</b>	Shows whether Maximum Transfer Unit checking is enabled or disabled. This is set using the <b>ip ospf mtu-checking</b> command.
<b># of routes</b>	The total number of OSPF routes known to this router.
<b># of AS-External LSAs</b>	The number of external routes learned from outside the router's Autonomous System (AS).
<b># of self-originated LSAs</b>	The number of times a new Link State Advertisement has been sent from this router.
<b># of LSAs received</b>	The number of times a new Link State Advertisement has been received by this router.
<b>External LSDB Limit</b>	The maximum number of entries allowed in the external Link State Database.
<b>Exit Overflow Interval</b>	The number of seconds the router remains in the overflow state before attempting to leave it. This is set using the <b>ip ospf exit-overflow-interval</b> command.
<b># of SPF calculations done</b>	The number of SPF calculations that have occurred.
<b># of Incr SPF calculations done</b>	The number of incremental SPF calculations done.
<b># of Init State Nbrs</b>	The number of neighbors in the initialization state.
<b># of 2-Way State Nbrs</b>	The number of OSPF 2-way state neighbors on this router.
<b># of Exchange State Nbrs</b>	The number of neighbors in the exchange state.
<b># of Full State Nbrs</b>	The number of neighbors in the full state.
<b># of attached areas</b>	The number of areas that are configured on the router.
<b># of Active areas</b>	The number of areas that are active.
<b># of Transit areas</b>	The number of transit areas that are configured on the router.
<b># of attached NSSAs</b>	The number of Not So Stubby Areas that are configured on the router.

---

**Release History**

Release 6.1; command was introduced.

---

## Related Commands

<b>ip ospf status</b>	Enables or disables the administration of OSPF on the router.
<b>ip ospf mtu-checking</b>	Enables or disables the use of Maximum Transfer Unit (MTU) checking.
<b>ip ospf spf-timer</b>	Configures timers for SPF calculation.
<b>ip ospf extlsdb-limit</b>	Assigns a limit to the number of External Link-State Database (LSDB) entries that can be learned.
<b>ip ospf exit-overflow-interval</b>	This command sets the overflow interval value.
<b>ip ospf route-tag</b>	Configures a tag value for Autonomous System External (ASE) routes created.
<b>ip router router-id</b>	Configures the router ID for the router.

## MIB Objects

```
ospfGeneralGroup
  ospfRouterId
  ospfAdminStat
  ospfVersionNumber
  ospfAreaBdrRtrStatus
  ospfASBdrRtrStatus
  ospfExternLsaCount
  ospfExternLsaChecksumSum
  ospfTOSSupport
  ospfOriginateNewLsas
  ospfRxNewLsas
  ospfExtLsdbLimit
  ospfExitOverflowInterval
alcatelIND1Ospf
  alaOspfRedistAdminStatus
  alaOspfRedistRouteTag
  alaOspfTimerSpfDelay
  alaOspfTimerSpfHold
  alaOspfRouteNumber
  alaOspfMTUcheck
```

---

## show ip ospf border-routers

Displays information regarding all or specified border routers.

**show ip ospf border-routers** [*area\_id*] [*router\_id*] [*tos*] [*gateway*]

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>router_id</i>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
<i>tos</i>	The Type of Service. The valid range is 0–15. Only ToS value 0 is supported at this time.
<i>gateway</i>	The 32-bit IP address of the gateway for the border router being displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display a list of border routers known by this OSPF router.
- By using the optional parameters, you can display the border routers using the specified parameter. For example, to find a router using a router ID of 1.1.1.1, enter the command using the router ID of 1.1.1.1 as a search criteria.
- See the related commands sections below to modify the list.

### Examples

```
-> show ip ospf border-routers 10.0.0.0
```

Router Id	Area Id	Gateway	TOS	Metric
10.0.0.0	1.0.0.1	143.209.92.71	1	1

#### *output definitions*

---

<b>Router ID</b>	The unique identification for the router.
<b>Area ID</b>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
<b>Gateway</b>	The next hop interface on which the border router has been learned.
<b>ToS</b>	The Type of Service. Only ToS value 0 is supported at this time.
<b>Metric</b>	The cost to the border router.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

alaOspfBdrRouterAreaId

alaOspfBdrRouterId

alaOspfBdrRouterTos

alaOspfBdrRouterMetric

---



## show ip ospf ext-lsdb

Displays external Link State Advertisements known by this router.

```
show ip ospf ext-lsdb [linkstate-id ls_id] [router-id router_id]
```

---

### Syntax Definitions

*ls\_id*

The Link state ID. The ID is a unique 32-bit value such as an IP address. This number is used as a record in the link state database.

*router\_id*

The Router ID. The ID is a unique 32-bit value such as an IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display the external link state database (LSDB) for the OSPF router.
- This command can be used for OSPF debugging purposes, specifically to narrow down sections of attached areas to determine which sections are receiving the specified external LSAs. You may specify only the parameters from the area LSDB in which you are interested using the optional command parameters.
- See the Related Commands section below to modify the list.

### Examples

```
-> show ip ospf ext-lsdb
```

LS Id	Orig Router-Id	SeqNo	Age	Protocol
198.168.100.100	198.168.100.100	10	100	STATIC

#### output definitions

---

<b>LS Id</b>	The Link state ID. The ID is a unique 32-bit value, such as an IP address. This number is used as a record in the link state database.
<b>Orig Router-Id</b>	The router ID of the router that originated the external LSDB.
<b>SeqNo</b>	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
<b>Age</b>	The age of the LSA in seconds. That is, the duration for which this entry has existed in the external database.
<b>Protocol</b>	The type of protocol, if any.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### [ip ospf extlsdb-limit](#)

Assigns a limit to the number of External Link-State Database (LSDB) entries that can be learned.

## MIB Objects

ospfExtLsdbTable

ospfExtLsdbLsid

ospfExtLsdbRouterId

ospfExtLsdbSequence

ospfExtLsdbAge

ospfExtLsdbType

---

## show ip ospf host

Displays information on the configured OSPF hosts.

```
show ip ospf host [ip_address]
```

---

### Syntax Definitions

*ip\_address*                      A 32-bit IP address for a directly attached host.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display general information for OSPF hosts directly attached to this router.
- See the Related Commands section below to modify the list.

### Examples

```
-> show ip ospf host 172.22.2.115
```

Host Address	TOS	Metric	Status	AreaId
143.209.92.12	1	0	Up	0.0.0.0

#### *output definitions*

---

<b>Host Address</b>	A 32-bit IP address for a directly attached host. This can be set using the <b>ip ospf host</b> command.
<b>ToS</b>	The Type of Service traffic from the host is labeled as. ToS is set using the <b>ip ospf host</b> command.
<b>Metric</b>	The metric assigned to the host. Metric is set using the <b>ip ospf host</b> command.
<b>Status</b>	Whether the host is enabled or disabled.
<b>AreaId</b>	The area identification for the host's area.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip ospf host**

Creates and deletes an OSPF entry for directly attached hosts.

## MIB Objects

ospfHostTable

ospfHostIpAddress

ospfHostTOS

ospfHostMetric

ospfHostStatus

ospfHostAreaID

---

## show ip ospf lsdb

Displays LSAs in the Link State Database associated with each area.

```
show ip ospf lsdb [area_id] [rtr | net | netsum | asbrsum] [linkstate-id ls_id] [router-id router_id]
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<b>rtr</b>	Specifies router LSAs.
<b>net</b>	Specifies network LSAs.
<b>netsum</b>	Specifies network summary LSAs.
<b>asbrsum</b>	Specifies Autonomous System Border Router summary LSAs.
<i>ls_id</i>	The Link state ID. The ID is a unique 32-bit value, such as an IP address. This number is used as a record in the link state database.
<i>router_id</i>	The Router ID. The ID is a unique 32-bit value such as an IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display the Link State Database (LSDB) of the OSPF router. This command can be used for OSPF debugging purposes, specifically to narrow down sections of an area to determine which sections are receiving the specified link state advertisements. You may specify only the parameters from the area LSDB in which you are interested using the optional command parameters.
- You can view link state advertisements by specifying either a link state identifier or a router identifier. However, when specifying a router ID, you must also supply a valid link state ID.

### Examples

```
-> show ip ospf lsdb
  Area Id      Type      LS Id      Orig Router-Id  SeqNo      Age
-----+-----+-----+-----+-----+-----
0.0.0.1      OSPF      198.168.100.100  198.168.100.100  1          100
```

#### *output definitions*

---

<b>Area Id</b>	The area identification for the area to which the record belongs.
<b>Type</b>	The protocol type from where the route was learned.
<b>LS Id</b>	The Link state ID. The ID is a unique 32-bit value such as an IP address. This number is used as a record in the link state database.

---

*output definitions (continued)*

---

<b>Orig Router-Id</b>	The router ID of the router that originated the external LSDB.
<b>SeqNo</b>	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
<b>Age</b>	The age of the LSA in seconds. That is, the duration for which this entry has existed in the external database.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show ip ospf](#) Displays the OSPF status and general configuration parameters.

**MIB Objects**

```
ospfLsdbTable
  ospfLsdbAreaId
  ospfLsdbType
  ospfLsdbLsid
  ospfLsdbRouterId
  ospfLsdbSequence
  ospfLsdbAge
```

---



```

-> show ip ospf neighbor 1.1.1.1
Neighbor's IP Address           = 1.1.1.1,
Neighbor's Router Id           = 0.0.0.0,
Neighbor's Area Id             = 255.255.255.255,
Neighbor's DR Address          = 0.0.0.0,
Neighbor's BDR Address         = 0.0.0.0,
Neighbor's Priority             = 1,
Neighbor's State               = Down,
Hello Suppressed ?            = No,
Neighbor's type                = Static,
DR Eligible                   = Yes,
# of State Events              = 0,
Mode                           = Slave,
MD5 Sequence Number           = 0,
Time since Last Hello         = 0 sec,
# of Outstanding LS Requests   = 0,
# of Outstanding LS Acknowledgements = 0,
# of Outstanding LS Retransmissions = 0,
Restart Helper Status          = Not Restarting,
Restart Age (in seconds)       = 0 sec,
Last Restart Helper Exit Reason = None

```

### *output definitions*

---

<b>Neighbor's IP Address</b>	The IP address of the neighbor.
<b>Neighbor's Router Id</b>	The identification number for the selected host's record. It is most often the router's IP address.
<b>Neighbor's Area Id</b>	Identifier of the OSPF Area to which the neighbor is attached. 255.255.255.255 shows that this neighbor is not attached to any area.
<b>Neighbor's DR Address</b>	The address of the neighbors Designated Router.
<b>Neighbor's BDR Address</b>	The address of the neighbors Backup Designated Router.
<b>Neighbor's Priority</b>	The priority value for this neighbor becoming the DR.
<b>Neighbor's State</b>	The condition of the OSPF neighbor's state machine.
<b>Hello Suppressed</b>	Whether sending hello messages to this neighbor is suppressed.
<b>Neighbor's type</b>	What type of neighbor this is, either dynamic or static.
<b>DR Eligible</b>	Shows the eligibility status of the static neighbor. If it is configured as "ineligible" during creation of the neighbor, it shows up as <b>No</b> . Otherwise, if configured as Eligible (the default), it shows up as <b>Yes</b> .
<b># of State Events</b>	The number of state events restricted for this neighbor and the local router.
<b>Mode</b>	The role the neighbor has with the local router during DD Exchange, which can be Master or Slave.
<b>MD5 Sequence Number</b>	The sequence number of the MD5 authorization key.
<b>Time since Last Hello</b>	The amount of time (in seconds) since the last HELLO messages was received from this neighbor.
<b># of Outstanding LS Requests</b>	The number of Link State requests to this neighbor that have not received a response from this neighbor.
<b># of Outstanding LS Acknowledgements</b>	Number of Link state Acknowledgements queued up by the local router to be sent to the neighbor.



*output definitions (continued)*

---

<b># of Outstanding LS Retransmissions</b>	The number of Link State updates to the neighbor that need to be retransmitted by the OSPF router.
<b>Restart Helper Status</b>	Indicates whether the router is acting as a hitless restart helper for the neighbor.
<b>Restart Age</b>	The remaining time, in seconds, for the current OSPF hitless restart interval if the router is acting as a restart helper for the neighbor.
<b>Last Restart Helper Exit Reason</b>	The outcome of the last attempt at acting as a hitless restart helper for the neighbor.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip ospf neighbor](#) Creates a static neighbor on a Non Broadcast Multi Access (NBMA) interface.

**MIB Objects**

```
ospfNbrTable
  ospfNbrIpAddr
  ospfNbrRtrId
  ospfNbrOptions
  ospfNbrPriority
  ospfNbrState
  ospfNbrEvents
  ospfNbrHelloSuppressed
alaOspfNbrAugTable
  alaOspfNbrRestartHelperStatus
  alaOspfNbrRestartHelperAge
  alaOspfNbrRestartHelperExitReason
```

---

## show ip ospf routes

Displays the OSPF routes known to the router.

**show ip ospf routes** [*ip\_addr mask tos gateway*]

---

### Syntax Definitions

<i>ip_addr</i>	The 32-bit IP address of the route destination in dotted decimal format.
<i>mask</i>	The IP subnet mask of the route destination.
<i>tos</i>	The Type of Service of the route.
<i>gateway</i>	The next hop IP address for this router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If no variables are entered, all routes are displayed. If the variables are entered, then only routes matching the specified criteria are shown. All the variables described above must be entered for a route match. If all of the variables are not entered, an error message is returned.

### Examples

-> show ip ospf routes

Destination/Mask	Gateway	Metric	Vlan	Type
-----+-----+-----+-----+-----				
198.168.100.100	195.5.2.8	0	5	AS-Ext

#### output definitions

---

<b>Destination/Mask</b>	The destination address of the route. This can also display the destination IP address mask if it is known.
<b>Gateway</b>	The gateway address of the route.
<b>Metric</b>	The cost of the route.
<b>Vlan</b>	The VLAN number on which the gateway can be routed.
<b>Type</b>	The type of OSPF route.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**show ip ospf**

Displays the OSPF status and general configuration parameters.

## MIB Objects

AlcatellINDospf

alaOspfRouteDest

alaOspfRouteMask

alaOspfRouteNextHop

alaOspfRouteMetric1

---



## Related Commands

- ip ospf virtual-link**                      Creates or deletes a virtual link.  
**show ip ospf virtual-neighbor**        Displays OSPF virtual neighbors.

## MIB Objects

```
ospfVirtIfTable  
  ospfVirtIfAreaId  
  ospfVirtIfNeighbor  
  ospfVirtIfState  
  ospfVirtIfAuthType
```

---

## show ip ospf virtual-neighbor

Displays OSPF virtual neighbors. A virtual neighbor is connected to the router via a virtual link rather than a physical one.

```
show ip ospf virtual-neighbor area_id router_id
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>router_id</i>	A unique 32-bit value, such as an IP address, that identifies the configured OSPF area in the AS.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display all virtual neighbors for the OSPF router.
- See the Related Commands section below to modify the list.

### Examples

```
-> show ip ospf virtual-neighbor 0.0.0.0 10.0.0.1
```

AreaId	RouterId	Priority	Events	RxmtQlen	LastHello	State
0.0.0.0	10.0.0.1	1	10	100	323	INIT

### output definitions

---

<b>AreaId</b>	The area identification for the area of which the virtual neighbor is a part.
<b>RouterId</b>	The router identification of the virtual neighbor.
<b>Priority</b>	The number used to determine whether the virtual neighbor will become the designated router for its area.
<b>Events</b>	The number of OSPF control message sent by the neighbor to the router.
<b>RxmtQlen</b>	The length (in number of packets) of the retransmit queue.
<b>LastHello</b>	The last Hello message sent by the neighbor
<b>State</b>	The current state the virtual neighbor is in relative to the router; this will be INIT, Exchange, or Full.

---

```

-> show ip ospf virtual-neighbor 0.0.0.1 2.0.0.254
Neighbor's IP Address           = 2.0.0.254,
Neighbor's Router Id           = 2.0.0.254,
Neighbor's Area Id             = 0.0.0.1,
Neighbor's DR Address          = 2.0.0.1,
Neighbor's BDR Address         = 2.0.0.254,
Neighbor's Priority             = 1,
Neighbor's State                = Full,
Hello Suppressed ?             = No,
Neighbor's type                 = Dynamic,
# of State Events              = 6,
Mode = Master,
MD5 Sequence Number           = 0,
Time since Last Hello         = 5 sec,
Last DD I_M_MS                =
# of Outstanding LS Requests   = 0,
# of Outstanding LS Acknowledgements = 0,
# of Outstanding LS Retransmissions = 0,
Restart Helper Status         = Not Restarting,
Restart Age (in seconds)       = 0 sec,
Last Restart Helper Exit Reason = None

```

### *output definitions*

---

<b>Neighbor's IP Address</b>	The IP address of the virtual neighbor.
<b>Neighbor's Router Id</b>	The identification number for the selected host's record. It is most often the router's IP address.
<b>Neighbor's Area Id</b>	Identifier of the OSPF Area to which the virtual neighbor is attached. 255.255.255.255 shows that this virtual neighbor is not attached to any area.
<b>Neighbor's DR Address</b>	The address of the virtual neighbor's Designated Router.
<b>Neighbor's BDR Address</b>	The address of the virtual neighbor's Backup Designated Router.
<b>Neighbor's Priority</b>	The priority value for this virtual neighbor becoming the DR.
<b>Neighbor's State</b>	The condition of the OSPF virtual neighbor's state machine.
<b>Hello Suppressed</b>	Whether sending hello messages to this virtual neighbor is suppressed.
<b>Neighbor's type</b>	What type of virtual neighbor this is, either dynamic or static.
<b>DR Eligible</b>	Shows the eligibility status of the virtual neighbor. If it is configured as "ineligible" during creation of the neighbor, it shows up as <b>No</b> . Otherwise, if configured as Eligible (the default), it shows up as <b>Yes</b> .
<b># of State Events</b>	The number of state events restricted for this virtual neighbor and the local router.
<b>Mode</b>	The role the virtual neighbor has with the local router during DD Exchange, which can be Master or Slave.
<b>MD5 Sequence Number</b>	The sequence number of the MD5 authorization key.
<b>Time since Last Hello</b>	The amount of time (in seconds) since the last HELLO messages was received from this virtual neighbor.
<b>Last DD I_M_MS</b>	The initialize (I), more (M) and master (MS) bits, and Options field Data Description (DD) packet received from the virtual neighbor. This parameter is used to determine whether the next DD packet has been received or not.

*output definitions (continued)*


---

<b># of Outstanding LS Requests</b>	The number of Link State requests to this virtual neighbor that have not received a response from this virtual neighbor.
<b># of Outstanding LS Acknowledgements</b>	Number of Link state Acknowledgements queued up by the local router to be sent to the virtual neighbor.
<b># of Outstanding LS Retransmissions</b>	The number of Link State updates to the virtual neighbor that need to be retransmitted by the OSPF router.
<b>Restart Helper Status</b>	Indicates whether the router is acting as a hitless restart helper for the virtual neighbor.
<b>Restart Age</b>	The remaining time, in seconds, for the current OSPF hitless restart interval if the router is acting as a restart helper for the virtual neighbor.
<b>Last Restart Helper Exit Reason</b>	The outcome of the last attempt at acting as a hitless restart helper for the virtual neighbor.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip ospf virtual-link](#)                      Creates or deletes a virtual link.

**MIB Objects**

```
ospfVirtNbrTable
  ospfVirtNbrArea
  ospfVirtNbrRtrId
  ospfVirtNbrState
alaOspfVirtNbrAugTable
  alaOspfVirtNbrRestartHelperStatus
  alaOspfVirtNbrRestartHelperAge
  alaOspfVirtNbrRestartHelperExitReason
```

---



## show ip ospf area

Displays either all OSPF areas, or a specified OSPF area.

**show ip ospf area** [*area\_id*]

---

### Syntax Definitions

*area\_id* A unique 32-bit value in IP address format.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Allows you to view the details of a specified OSPF area.
- Not specifying an OSPF area will display all known areas for the OSPF router.
- See the Related Commands section below for information on modifying an area.

### Examples

```
-> show ip ospf area
```

Area Id	AdminStatus	Type	OperStatus
1.1.1.1	disabled	normal	down
0.0.0.1	disabled	normal	down

```
-> show ip ospf area 0.0.0.0
```

```
Area Identifier          = 1.1.1.1,
Admin Status            = Disabled,
Operational Status     = Down,
Area Type               = normal,
Area Summary            = Enabled,
Time since last SPF Run = 00h:00m:27s,
# of Area Border Routers known = 0,
# of AS Border Routers known = 0,
# of LSAs in area      = 0,
# of SPF Calculations done = 0,
# of Incremental SPF Calculations done = 0,
# of Neighbors in Init State = 0,
# of Neighbors in 2-Way State = 0,
# of Neighbors in Exchange State = 0,
# of Neighbors in Full State = 0,
# of Interfaces attached = 0
Attached Interfaces     = vlan-213
```

*output definitions*


---

<b>Area Identifier</b>	The unique 32-bit value, such as IP address, that identifies the OSPF area in the AS.
<b>Admin Status</b>	Whether the area is enabled or disabled.
<b>Operational Status</b>	Whether the area is active.
<b>Area Type</b>	The area type. This field will be <b>normal</b> , <b>stub</b> , or <b>NSSA</b> .
<b>Area Summary</b>	Whether Area Summary is enabled or disabled.
<b>Time since last SPF Run</b>	The last time the Shortest Path First calculation was performed.
<b># of Area Border Routers known</b>	The number of Area Border Routers in the area.
<b># of AS Border Routers known</b>	The number of Autonomous System Border Routers in the area.
<b># of LSAs</b>	The total number of Link State Advertisements for the Area.
<b># of SPF Calculations</b>	The number of times the area has calculated the Shortest Path.
<b># of Incremental SPF Calculations</b>	The number of incremental Shortest Path First calculations that have been performed in the area.
<b># of Neighbors in Init State</b>	The number of OSPF neighbors that are in initialization.
<b># of Neighbors in 2-Way State</b>	The number of OSPF 2-way state neighbors in this area.
<b># of Neighbors in Exchange State</b>	The number of OSPF neighbors that are currently establishing their status.
<b># of Neighbors in Full State</b>	The number of OSPF neighbors.
<b># of Interfaces attached</b>	The number of OSPF interfaces.
<b>Attached Interfaces</b>	The names of the OSPF interfaces attached to this area.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>ip ospf area</b>	Creates or deletes an OSPF area, assigning default metric, cost, and type.
<b>ip ospf area range</b>	Creates a route summarization instance whereby a range of addresses will be advertised as a single route.
<b>show ip ospf interface</b>	Displays OSPF interface information.

## **MIB Objects**

ospfAreaTable

ospfAreaId

ospfImportAsExtern

ospfSpfRuns

ospfAreaBdrRtrCount

ospfAsBdrRtrCount

ospfAreaLsaCount

ospfAreaSummary

ospfAreaStatus

alaOspfIfAugTable

alaOspfIfIntfName

---

## show ip ospf area range

Displays all or specified route summaries in a given area.

```
show ip ospf area area_id range [{summary | nssa} ip_address ip_mask]
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<b>summary</b>	Specifies that routes are summarized.
<b>nssa</b>	Specifies the Not So Stubby Area (NSSA) routers are summarized.
<i>ip_address</i>	A 32-bit IP address.
<i>ip_mask</i>	A 32-bit subnet mask.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Allows you to view the details of a specified OSPF area range.
- See the Related Commands section below for information on modifying an area.

### Examples

```
-> show ip ospf area 0.0.0.0 range
```

AreaId	Type	Destination	Advertise
0.0.0.0	Summary	192.168.12.1/24	Matching
0.0.0.0	NSSA	143.209.92.71/24	noMatching

#### *output definitions*

---

<b>AreaId</b>	The area identification for the area range.
<b>Type</b>	The type of area the range is associated with.
<b>Destination</b>	The destination address of the range.
<b>Advertise</b>	Shows the filter effect of the range. LSAs in the range are either advertised (Matching) or not advertised (noMatching).

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### **ip ospf area range**

Creates a route summarization instance whereby a range of addresses assigned for the route at the area border router will be advertised.

## MIB Objects

```
ospfAreaRangeTable  
  ospfAreaRangeAreaId  
  ospfAreaRangeNet  
  ospfAreaRangeMask  
  ospfAreaRangeStatus  
  ospfAreaRangeEffect
```

---

## show ip ospf area stub

Displays stub default area metrics, if configured.

**show ip ospf area *area\_id* stub**

---

### Syntax Definitions

*area\_id* A unique 32-bit value in IP address format.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip ospf area 0.0.0.1 stub
```

```

      Area Id      TOS      Metric      MetricType
-----+-----+-----+-----
0.0.0.1          1          1          ospf

```

#### *output definitions*

---

<b>Area Id</b>	The identification number of the stub area.
<b>TOS</b>	The Type of Service assignment.
<b>Metric</b>	The metric assignment of the default router in the stub area.
<b>MetricType</b>	The metric type of the stub area. It will be either <b>ospf</b> , <b>type1</b> , or <b>type2</b> .

---

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip ospf area** Creates or deletes an OSPF area.

## **MIB Objects**

```
ospfStubAreaTable  
  ospfStubAreaId  
  ospfStubTOS  
  ospfStubMetric  
  ospfStubStatus  
  ospfStubMetricType
```

---

## show ip ospf interface

Displays OSPF interface information.

**show ip ospf interface** [*interface\_name*]

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Not specifying an interface name displays all known interfaces for the OSPF router.

### Examples

No interface name is specified:

```
-> show ip ospf interface
```

Interface Name	DR Address	Backup DR Address	Admin Status	Oper Status	State
vlan-213	213.10.10.1	213.10.10.254	enabled	up	DR
vlan-215	215.10.10.254	215.10.10.1	enabled	up	BDR

#### *output definitions*

---

<b>Interface Name</b>	The name of the interface.
<b>DR Address</b>	The designated router IP address on this network segment. Make sure you configure a VLAN for the router IP. (See <a href="#">Chapter 5, “VLAN Management Commands,”</a> for more information.)
<b>Backup DR Address</b>	The IP address of the backup designated router.
<b>Vlan</b>	The VLAN to which the interface is assigned.
<b>Admin Status</b>	The current administration status of the interface, either <b>enabled</b> or <b>disabled</b> .
<b>Oper Status</b>	Whether the interface is an active OSPF interface.
<b>State</b>	The current state of the OSPF interface. It will be <b>down</b> , <b>up</b> , <b>dp</b> , <b>dr</b> , or <b>other</b> .

---



The following is an example of MD5 authentication (an interface name is used in this example).

```
-> show ip ospf interface vlan-3
Interface IP Name           = vlan-3
VLAN Id                     = 3,
Interface IP Address        = 100.10.10.2,
Interface IP Mask           = 255.255.255.0,
Admin Status                = Enabled,
Operational Status         = Up,
OSPF Interface State       = BDR,
Interface Type              = Broadcast,
Area Id                     = 0.0.0.2,
Designated Router IP Address = 100.10.10.88,
Designated Router RouterId  = 100.10.10.88,
Backup Designated Router IP Address = 100.10.10.2,
Backup Designated Router RouterId = 192.169.1.2,
MTU (bytes)                 = 1500,
Metric Cost                 = 1,
Priority                     = 1,
Hello Interval (seconds)    = 10,
Transit Delay (seconds)     = 1,
Retrans Interval (seconds)  = 5,
Dead Interval (seconds)     = 40,
Poll Interval (seconds)     = 120,
Link Type                   = Broadcast,
Authentication Type         = md5,
#  Id  Key  Status  StartAccept  StopAccept  StartGen  StopGen
---+---+---+-----+-----+-----+-----+
1  1    Set  Enabled    0           0           0           0
# of Events                  = 2,
# of Init State Neighbors   = 0,
# of 2-Way State Neighbors  = 0,
# of Exchange State Neighbors = 0,
# of Full State Neighbors   = 1
```

---

**Note.** See the table of the following page for output definitions.

---

The following is an example of simple authentication (an interface name is used in this example):

```
-> show ip ospf interface vlan-3
Interface IP Name           = vlan-3
VLAN Id                     = 3,
Interface IP Address        = 100.10.10.2,
Interface IP Mask           = 255.255.255.0,
Admin Status                = Enabled,
Operational Status         = Up,
OSPF Interface State       = DR,
Interface Type              = Broadcast,
Area Id                     = 0.0.0.2,
Designated Router IP Address = 100.10.10.2,
Designated Router RouterId  = 192.169.1.2,
Backup Designated Router IP Address = 0.0.0.0,
Backup Designated Router RouterId = 0.0.0.0,
MTU (bytes)                 = 1500,
Metric Cost                 = 1,
Priority                     = 1,
Hello Interval (seconds)    = 10,
Transit Delay (seconds)     = 1,
Retrans Interval (seconds)  = 5,
Dead Interval (seconds)     = 40,
Poll Interval (seconds)     = 120,
Link Type                   = Broadcast,
Authentication Type         = simple,
Authentication Key          = Set,
# of Events                 = 3,
# of Init State Neighbors   = 0,
# of Exchange State Neighbors = 0,
# of 2-Way State Neighbors  = 0,
# of Full State Neighbors   = 0
```

Output fields when an interface name is specified are described below:

#### *output definitions*

<b>Interface IP Name</b>	The name of the IP interface to which the OSPF interface is assigned.
<b>VLAN Id</b>	The VLAN to which the interface is assigned.
<b>Interface IP Address</b>	The IP address assigned to the interface.
<b>Interface IP Mask</b>	The IP mask associated with the IP address assigned to the interface.
<b>Admin Status</b>	The current administration status of the interface, either <b>enabled</b> or <b>disabled</b> .
<b>Operational Status</b>	Whether the interface is an active OSPF interface.
<b>OSPF Interface State</b>	The current state of the OSPF interface. It will be <b>down</b> , <b>up</b> , <b>dp</b> , <b>dr</b> , or <b>other</b> .
<b>Interface Type</b>	The OSPF interface type, which can be Broadcast, NBMA, Point-to-Point, or Point-to-Multipoint.
<b>Area Id</b>	The area identification number to which the interface is assigned. This field is not applicable if an interface has not yet been assigned to an area.
<b>Designated Router IP Address</b>	The designated router IP address.
<b>Designated Router RouterId</b>	The identification number of the designated router.

*output definitions (continued)*


---

<b>Backup Designated Router IP Address</b>	The IP address of the backup designated router.
<b>Backup Designated Router RouterId</b>	The identification number of the backup designated router.
<b>MTU</b>	The Maximum Transfer Unit (in bytes) for the interface.
<b>Metric Cost</b>	The cost added to routes learned on this interface.
<b>Priority</b>	The priority of the interface with regards to becoming the designated router. The higher the number, the higher the priority.
<b>Hello Interval</b>	The number of seconds between hello messages sent out on the interface.
<b>Transit Delay</b>	The estimated number of seconds required to transmit a link state update over this interface.
<b>Retrans Interval</b>	The number of seconds the interface waits before resending hello messages.
<b>Dead Interval</b>	The number of seconds the interface waits for hello messages received from a neighbor before declaring the neighbor as dead.
<b>Poll Interval</b>	The larger time interval, in seconds, between hello messages sent to inactive neighbors.
<b>Link Type</b>	The IP interface type, either <b>broadcast</b> or <b>non broadcast</b> .
<b>Authentication Type</b>	The type of authentication used by this interface, either <b>none</b> , <b>simple</b> , or <b>md5</b> .
<b>#</b>	The indexing of the MD5 key. (This field is only displayed for MD5 authentication.)
<b>Id</b>	A key identifier that identifies the algorithm and MD5 secret key associated with this interface. (This field is only displayed for MD5 authentication.)
<b>Key</b>	Indicates whether the MD5 key has been set or not. (This field is only displayed for MD5 authentication.)
<b>Status</b>	The status of the configured MD5 authentication key. (This field is only displayed for MD5 authentication.)
<b>StartAccept</b>	The time that the OSPF router will start accepting packets that have been created with this key. (This field is only displayed for MD5 authentication.)
<b>StopAccept</b>	The time that the OSPF router will stop accepting packets that have been created with this key. (This field is only displayed for MD5 authentication.)
<b>StartGen</b>	The time that the OSPF router will start using this key for packet generation. (This field is only displayed for MD5 authentication.)
<b>StopGen</b>	The time that the OSPF router will stop using this key for packet generation. (This field is only displayed for MD5 authentication.)
<b>Authentication Key</b>	This field displays whether the authentication key has been configured or not. (This field is only displayed for simple and no authentication.)
<b># of Events</b>	The number of interface state machine events.
<b># of Init State Neighbors</b>	The number of OSPF neighbors in the initialization state.

*output definitions (continued)*


---

<b># of 2-Way State Neighbors</b>	The number of OSPF 2-way state neighbors on this interface.
<b># of Exchange State Neighbors</b>	The number of OSPF neighbors in the exchange state.
<b># of Full State Neighbors</b>	The number of OSPF neighbors in the full state. The full state is a neighbor that is recognized and passing data between itself and the interface.

---

**Release History**

Release 6.1; command was introduced.

Release 6.2.1; *ip\_address* parameter deprecated.

**Related Commands**

<b>ip ospf interface</b>	Creates and deletes an OSPF interface.
<b>ip ospf interface auth-key</b>	Configures an OSPF authentication key for simple authentication on an interface.
<b>ip ospf interface dead-interval</b>	Configures the OSPF interface dead interval.
<b>ip ospf interface hello-interval</b>	Configures the OSPF interface hello interval.
<b>ip ospf interface md5</b>	Creates and deletes the OSPF interface MD5 key identification number.
<b>ip ospf interface md5 key</b>	Configures the OSPF key string.
<b>ip ospf interface cost</b>	Configures the OSPF interface cost.
<b>ip ospf interface poll-interval</b>	Configures the OSPF poll interval for a Non Broadcast Multi Access (NBMA) interface.
<b>ip ospf interface priority</b>	Configures the OSPF interface priority.
<b>ip ospf interface retrans-interval</b>	Configures the OSPF interface retransmit interval.
<b>ip ospf interface transit-delay</b>	Configures the OSPF interface transit delay.
<b>ip ospf interface auth-type</b>	Sets the OSPF interface authentication type.
<b>ip ospf interface area</b>	Configures an OSPF interface area.
<b>ip ospf interface type</b>	Configures the OSPF interface type.
<b>ip ospf interface status</b>	Enables or disables the administration status on an OSPF interface.

**MIB Objects**

## ospfIfTable

- ospfIfIpAddress
- ospfIfAreaId
- ospfIfType
- ospfIfAdminStat
- ospfIfRtrPriority
- ospfIfTransitDelay
- ospfIfRetransInterval
- ospfIfHelloInterval
- ospfIfRtrDeadInterval
- ospfIfPollInterval
- ospfIfState
- ospfIfDesignatedRouter
- ospfIfBackupDesignatedRouter
- ospfIfEvents
- ospfIfAuthType
- ospfIfStatus
- ospfIfAuthKey

## alaOspfIfMd5Table

- alaOspfIfMd5IpAddress
- alaOspfIfMd5KeyId
- alaOspfIfMd5Key
- alaOspfIfMd5EncryptKey
- alaOspfIfMd5KeyStartAccept
- alaOspfIfMd5KeyStopAccept
- alaOspfIfMd5KeyStartGenerate
- alaOspfIfMd5KeyStopGenerate

## alaOspfIfAugTable

- alaOspfIfIntfName

---

## show ip ospf restart

Displays the OSPF graceful restart related configuration and status.

```
show ip ospf restart
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on OmniSwitch chassis-based switches with a single CMM or OmniSwitch stackable switches in a standalone configuration.
- On OmniSwitch stackable switches, a graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary switch in a stack.

### Examples

```
-> show ip ospf restart
Restart Support                = Enabled,
Restart Interval (in seconds)  = 120,
Restart Status                 = Not Restarting,
Restart Age (in seconds)       = 0,
Last Restart Exit Reason       = None,
Restart Helper Support         = Enabled,
Restart Helper Strict Checking = Enabled,
Restart Helper Mode            = NotHelping
```

### *output definitions*

---

<b>Restart Support</b>	The administrative status of OSPF graceful restart, which can be <b>Enabled</b> or <b>Disabled</b> .
<b>Restart Interval</b>	The configured OSPF hitless restart timeout interval, in seconds. Use the <b>ip ospf restart-interval</b> command to modify this parameter.
<b>Restart Status</b>	The current status of OSPF graceful restart, which can be <b>Not Restarting</b> , <b>Unplanned Restart</b> (after a CMM takeover), or <b>Planned Restart</b> (before CMM takeover).
<b>Restart Age</b>	The remaining time, in seconds, for the current OSPF graceful restart interval.

*output definitions (continued)*

---

<b>Last Restart Exit Reason</b>	The outcome of the last attempt at a graceful restart. If the value is <b>None</b> , then no restart has yet been attempted. If the value is <b>In Progress</b> , then a restart attempt is currently underway. Other possible values include <b>Completed</b> (successfully completed), <b>Timed Out</b> (timed out), and <b>Topology Changed</b> (aborted due to topology change).
<b>Restart Helper Support</b>	The administrative status of the capability of an OSPF router to operate in helper mode in response to a router performing a graceful restart, which can be <b>Enabled</b> or <b>Disabled</b> . Use the <a href="#">ip ospf restart-helper status</a> command to modify this parameter.
<b>Restart Helper Strict Checking</b>	The administrative status of whether or not a changed Link State Advertisement (LSA) will result in termination of graceful restart by a helping router, which can be <b>Enabled</b> or <b>Disabled</b> . Use the <a href="#">ip ospf restart-helper strict-lsa-checking status</a> command to modify this parameter.
<b>Restart Helper Mode</b>	Whether this OSPF router is operating as a helper to a restarting router.

---





# 23 OSPFv3 Commands

Open Shortest Path First version 3 (OSPFv3) routing is a shortest path first (SPF) or link-state protocol. This protocol is compatible with 128-bit IPv6 address space, while OSPF is compatible with 32-bit IPv4 address space. OSPFv3 is an interior gateway protocol (IGP) that distributes routing information between routers in a single autonomous system (AS). OSPFv3 chooses the least-cost path as the best path.

Each participating router distributes its local state (i.e., the router's usable interfaces and reachable neighbors) throughout the AS by flooding. In a link-state protocol, each router maintains a database describing the entire AS topology. This database is built from the collected link state advertisements of all routers. Each multi-access network that has at least two attached routers has a designated router and a backup designated router. The designated router floods a link state advertisement for the multi-access network and has other special responsibilities.

OSPFv3 allows collections of contiguous networks and hosts to be grouped together. A group, together with the routers having interfaces to any one of the included networks, is called an *area*. Each area runs a separate copy of the basic link-state routing algorithm. This means that each area has its own topological database, as explained in the previous section.

---

**Note.** OSPFv3 is supported only on OmniSwitch 6850 Series, OmniSwitch 6855, OmniSwitch 6850E Series, and 9000E switches.

---

Alcatel-Lucent's version of OSPFv3 complies with RFCs 2740, 1826, 1827, 2553, 2373, 2374, and 2460.

MIB information for OSPFv3 is as follows:

*Filename:* AlcatelIND1DrcTm.mib  
*Module:* ALCATEL-IND1-DRCTM-MIB

*Filename:* AlcatelIND1Ospf3.mib  
*Module:* ALCATEL-IND1-OSPF3-MIB

*Filename:* IETF-OSPF-OSPFv3.MIB  
*Module:* OSPF-OSPFv3-MIB

---

The following is a list of the commands for configuring OSPFv3:

---

<b>Global OSPFv3 Commands</b>	<code>ipv6 ospf status</code> <code>ipv6 load ospf</code> <code>ipv6 ospf host</code> <code>ipv6 ospf mtu-checking</code> <code>ipv6 ospf route-tag</code> <code>ipv6 ospf spf-timer</code> <code>ipv6 ospf virtual-link</code> <code>show ipv6 ospf</code> <code>show ipv6 ospf border-routers</code> <code>show ipv6 ospf host</code> <code>show ipv6 ospf lsdb</code> <code>show ipv6 ospf neighbor</code> <code>show ipv6 ospf routes</code> <code>show ipv6 ospf virtual-link</code>
<b>OSPFv3 Area Commands</b>	<code>ipv6 ospf area</code> <code>show ipv6 ospf area</code>
<b>OSPFv3 Interface Commands</b>	<code>ipv6 ospf interface</code> <code>ipv6 ospf interface status</code> <code>ipv6 ospf interface area</code> <code>ipv6 ospf interface dead-interval</code> <code>ipv6 ospf interface hello-interval</code> <code>ipv6 ospf interface cost</code> <code>ipv6 ospf interface priority</code> <code>ipv6 ospf interface retrans-interval</code> <code>ipv6 ospf interface transit-delay</code> <code>show ipv6 ospf interface</code>

---

## ipv6 ospf status

Enables or disables the OSPFv3 administrative status for the router.

`ipv6 ospf status {enable | disable}`

---

### Syntax Definitions

<code>enable</code>	Enables OSPFv3.
<code>disable</code>	Disables OSPFv3.

### Defaults

parameter	default
<code>enable   disable</code>	<code>enable</code>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The OSPFv3 protocol should be enabled to route traffic.

### Examples

```
-> ipv6 ospf status enable
-> ipv6 ospf status disable
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf](#) Displays OSPFv3 status and general configuration parameters.

### MIB Objects

```
ospfv3GeneralGroup
  ospfv3AdminStat
```

---

## ipv6 load ospf

Loads the OSPFv3 software on the router.

**ipv6 load ospf**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Example

```
-> ipv6 load ospf
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

N/A

### MIB Objects

ALADRCTMCONFIG

alaDrcTmIPOspf3Status

---

## ipv6 ospf host

Creates or deletes an OSPFv3 entry for directly attached hosts.

**ipv6 ospf host** *ipv6\_address* [**area** *area\_id*] [**metric** *metric*]

**no ipv6 ospf host** *ipv6\_address* **area** *area\_id*

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IP address of the OSPF host.
<i>area_id</i>	Area to which the host route belongs.
<i>metric</i>	The cost metric value assigned to the specified host. The valid range is 0–65535.

### Defaults

<b>parameter</b>	<b>default</b>
<i>metric</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove the record of the OSPFv3 host.
- Use this command when multiple paths exist to a host. The specified host must be directly attached to the router. A metric value is the cost of all the hops necessary for a packet to reach its destination. Routers use the metric to determine the best possible path.
- This command allows you to modify the host parameter **metric**.

### Examples

```
-> ipv6 ospf host 2001::1/64 metric 10
-> no ipv6 ospf host 2001::1/64 metric 10
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf host](#) Displays information on the configured OSPFv3 hosts.

**MIB Objects**

ospfv3HostTable

ospfv3HostStatus

ospfv3HostAreaID

ospfv3HostAddress

ospfv3HostMetric

---

## ipv6 ospf mtu-checking

Enables or disables Maximum Transfer Unit (MTU) checking. The MTU limits the size of a transmitted or received packet.

**ipv6 ospf mtu-checking**

**no ipv6 ospf mtu-checking**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable MTU checking.
- This command is used to disable the checking for mismatch of the interface MTU while establishing a neighbor adjacency with a router. MTU mismatch occurs when a router receives packets that contain a larger MTU value than that of the interface on which adjacency is being established. The interface MTU is the largest IP datagram size (in bytes) that the interface can accept.

### Examples

```
-> ipv6 ospf mtu-checking  
-> no ipv6 ospf mtu-checking
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf](#) Displays the OSPFv3 status and general configuration parameters.

### MIB Objects

```
alaProtocolOspf3  
  alaOspf3MTUCheck
```

---

## ipv6 ospf route-tag

Configures a tag value for the Autonomous System External (ASE) routes created.

**ipv6 ospf route-tag** *tag*

---

### Syntax Definitions

*tag* The set tag value. The valid range is 0–2, 147, 483, 647.

### Defaults

parameter	default
<i>tag</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows you to set a tag value for ASE routes that are learned by this OSPF router. The tag value allows for quick identification.
- OSPF ASE route advertisements contain a tag value field. This field allows the exchange of information between autonomous system border routers (ASBRs).

### Examples

```
-> ipv6 ospf route-tag 2
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf](#) Displays OSPFv3 status and general configuration parameters.

### MIB Objects

alaProtocolOspf3  
alaOspf3RedistRouteTag

---



## ipv6 ospf spf-timer

Configures timers for Shortest Path First (SPF) calculation.

```
ipv6 ospf spf-timer [delay delay_seconds] [hold hold_seconds]
```

---

### Syntax Definitions

*delay\_seconds*

Specifies time (from 0 to 65535 seconds) between the reception of an OSPF topology change and the start of an SPF calculation.

*hold\_seconds*

Specifies the minimum time (from 0 to 65535 seconds) between consecutive SPF calculations.

### Defaults

parameter	default
<i>delay_seconds</i>	5
<i>hold_seconds</i>	10

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows you to configure the time interval between SPF calculations.
- Use the delay timer to determine how much time to postpone an SPF calculation after the router receives a topology change.
- Use the hold timer to configure the amount of time that must elapse between consecutive SPF calculations.
- There will be no delay in the SPF calculation if either the delay timer or hold timer is set to 0. The SPF calculations will occur immediately upon the reception of a topology change and/or that back-to back SPF calculations can take place with no break in-between the two.

### Examples

```
-> ipv6 ospf spf-timer delay 20 hold 35
```

### Release History

Release 6.1.3; command was introduced.

**Related Commands****show ipv6 ospf**

Displays the OSPFv3 status and general configuration parameters.

**MIB Objects**

```
alaProtocolOspf3  
  alaOspf3TimerSpfDelay  
  alaOspf3TimerSpfHold
```

---

## ipv6 ospf virtual-link

Creates or deletes a virtual link. A virtual link restores the backbone connectivity if the backbone is not physically contiguous.

```
ipv6 ospf virtual-link area area_id router router_id
[dead-interval seconds] [hello-interval seconds] [retrans-interval seconds] [transit-delay seconds]
```

```
no ipv6 ospf virtual-link area area_id router router_id
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>router_id</i>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
<b>dead-interval</b> <i>seconds</i>	Sets the virtual link dead interval. If no hello packets on this link for the set number of seconds have been received, the virtual neighbor is declared dead. The valid range is 1–2147483647.
<b>hello-interval</b> <i>seconds</i>	Sets the virtual link hello interval, which is the time interval between OSPF hellos sent on this virtual link. The valid range is 1–65535.
<b>retrans-interval</b> <i>seconds</i>	Sets the virtual link retransmit interval. The router waits the set number of seconds before retransmitting OSPF packets. The valid range is 0–3600.
<b>transit-delay</b> <i>seconds</i>	Sets the virtual link transit delay, which is the number of seconds to transmit OSPF packets over this link. The valid range is 0–3600.

### Defaults

parameter	default
<b>dead-interval</b> <i>seconds</i>	40
<b>hello-interval</b> <i>seconds</i>	10
<b>retrans-interval</b> <i>seconds</i>	5
<b>transit-delay</b> <i>seconds</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of the command to delete the virtual link.
- You can define areas in such a way that the backbone is no longer contiguous. In this case, the system administrator can ensure backbone connectivity physically.
- Virtual links can be configured between any two backbone routers that have an interface to a common non-backbone area. Virtual links belong to the backbone. The protocol treats two routers joined by a virtual link as if they were connected by an unnumbered point-to-point network. The routing protocol traffic that flows along the virtual link uses intra-area routing only.
- If authentication is enabled, both routers at either end of the virtual link must share the same password. Simple authentication refers to the use of only clear-text passwords as an authentication method. MD5 authentication refers to the usage of message digests.
- The **dead-interval** value should be the same for all the routers on the same network. This value should be a multiple of the value provided for the **hello-interval**.

## Examples

```
-> ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115
-> ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115 dead-interval 50
-> ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115 hello-interval 20
-> ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115 retrans-interval 20
-> ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115 transit-delay 50
-> no ipv6 ospf virtual-link area 0.0.0.1 router 172.22.2.115
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

**show ipv6 ospf virtual-link**      Displays the virtual link information.

## MIB Objects

```
ospfv3VirtIfTable
  ospfv3VirtIfAreaId
  ospfv3VirtIfNeighbor
  ospfv3VirtIfStatus
  ospfv3VirtIfRtrDeadInterval
  ospfv3VirtIfHelloInterval
  ospfv3VirtIfRetransInterval
  ospfv3VirtIfTransitDelay
```

---

## ipv6 ospf area

Assigns an OSPFv3 interface to a specified area.

**ipv6 ospf area** *area\_id* [**type** {**normal** | **stub** [**default-metric** *metric*]}]

**no ipv6 ospf area** *area\_id*

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IPv4 address format.
<b>normal</b>	Sets the area as a regular OSPFv3 area.
<b>stub</b>	Configures an OSPFv3 area as a stub area.
<i>metric</i>	Defines the metric to be used for default routes injected into the stub.

### Defaults

---

parameter	default
<b>normal</b>   <b>stub</b>	<b>normal</b>

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete the OSPFv3 area.
- The **default-metric** parameter defines the metric to be used for default routes injected into the stub area.

### Examples

```
-> ipv6 ospf area 0.0.0.1
-> ipv6 ospf area 0.0.0.1 stub
-> ipv6 ospf area 0.0.0.1 type normal
-> no ipv6 ospf area 0.0.0.1
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf area](#) Displays either all the OSPFv6 areas, or a specified OSPFv6 area.

**MIB Objects**

```
ospfv3AreaTable  
  ospfv3ImportAsExtern  
  ospfv3AreaSummary  
  ospfv3StubMetric  
  ospfv3AreaId
```

---

## ipv6 ospf interface

Creates or deletes an OSPFv3 interface.

**ipv6 ospf interface** *interface\_name*

**no ipv6 ospf interface** *interface\_name*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete an OSPFv3 interface.
- The interface name cannot contain spaces.

### Examples

```
-> ipv6 ospf interface vlan-101  
-> no ipv6 ospf interface vlan-101
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

**show ipv6 ospf interface**              Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

ospfv3IfTable  
ospfv3IfIndex

---

## ipv6 ospf interface status

Enables or disables the administration status on an OSPFv3 interface.

**ipv6 ospf interface** *interface\_name* **status** {**enable** | **disable**}

**no ipv6 ospf interface** *interface\_name*

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>enable</b>	Enables the OSPFv3 interface.
<b>disable</b>	Disables the OSPFv3 interface.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete an OSPFv3 interface.
- The OSPFv3 interface must be enabled to participate in the OSPFv3 protocol.

### Examples

```
-> ipv6 ospf interface vlan-101 status enable
-> ipv6 ospf interface vlan-101 status disable
-> no ipv6 ospf interface vlan-101
-> no ipv6 ospf interface vlan-101
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

**show ipv6 ospf interface** Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable
  ospfv3IfIndex
  ospfv3IfAdminStat
```

---



## ipv6 ospf interface area

Configures an OSPFv3 area identifier for this interface.

```
ipv6 ospf interface interface_name area area_id
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*area\_id*                              A unique 32-bit value in IP address format.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

An interface must be assigned to an area to become operational.

### Examples

```
-> ipv6 ospf interface vlan-101 area 0.0.0.1
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf area](#)                      Displays either all the OSPFv3 areas, or a specified OSPFv3 area.

[show ipv6 ospf interface](#)                Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable  
  ospfv3IfIndex  
  ospfv3IfAreaId
```

---

## ipv6 ospf interface dead-interval

Configures the OSPFv3 interface dead interval.

**ipv6 ospf interface** *interface\_name* **dead-interval** *seconds*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The dead interval, in seconds. The valid range is 1–65535.

### Defaults

parameter	default
<i>seconds</i> (broadcast and point-to-point)	40
<i>seconds</i> (NBMA and point-to-multi-point)	120

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- After the dead interval, a neighbor on this interface is considered dead if no hello packets have been received from this neighbor.
- This interval should be greater than the hello interval or multiples of the hello interval.

### Examples

```
-> ipv6 ospf interface vlan-101 dead-interval 50
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

[ipv6 ospf interface hello-interval](#)

Configures the OSPFv3 interface hello interval.

[show ipv6 ospf interface](#)

Displays the status and statistics of an OSPFv3 interface.

## MIB Objects

ospfv3IfTable

ospfv3IfIndex

ospfv3IfRtrDeadInterval

---

## ipv6 ospf interface hello-interval

Configures the OSPFv3 interface hello interval.

**ipv6 ospf interface** *interface\_name* **hello-interval** *seconds*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The hello interval, in seconds. The valid range is 1–65535.

### Defaults

parameter	default
<i>seconds</i> (broadcast and point-to-point)	10
<i>seconds</i> (NBMA and point-to-multi-point)	30

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This is the interval between two consecutive hello packets sent out on this interface.

### Examples

```
-> ipv6 ospf interface vlan-101 hello-interval 50
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[ipv6 ospf interface dead-interval](#)                      Configures the OSPFv3 interface dead interval.

[show ipv6 ospf interface](#)                      Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable
  ospfv3IfIndex
  ospfv3IfHelloInterval
```

---

## ipv6 ospf interface cost

Configures the OSPFv3 interface cost.

```
ipv6 ospf interface interface_name cost cost
```

---

### Syntax Definitions

*interface\_name* The name of the interface.

*cost* The interface cost. The valid range is 0–65535.

### Defaults

parameter	default
<i>cost</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The configured interface cost (if any) is used during OSPFv3 route calculations.

### Examples

```
-> ipv6 ospf interface vlan-101 cost 10
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf interface](#) Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable  
  ospfv3IfIndex  
  ospfv3IfMetricValue
```

---

## ipv6 ospf interface priority

Configures the OSPFv3 interface priority. The priority number helps determine the eligibility of this router to become the designated router on the network.

**ip ospf interface** *interface\_name* **priority** *priority*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*priority*                              The interface priority. The valid range is 0–255.

### Defaults

parameter	default
<i>priority</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

When two routers attached to a network both attempt to become the designated router, the one with the highest priority becomes the designated router. A router whose router priority is set to 0 is ineligible to become the designated router.

### Examples

```
-> ipv6 ospf interface vlan-101 priority 100
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf interface](#)              Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

ospfv3IfTable  
    ospfv3IfIndex  
    ospfv3IfRtrPriority

---

## ipv6 ospf interface retrans-interval

Configures the OSPFv3 interface retransmit time interval.

**ipv6 ospf interface** *interface\_name* **retrans-interval** *interval*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*interval*                              The retransmit interval, in seconds. The valid range 0–3600.

### Defaults

parameter	default
<i>interval</i>	5

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The number of seconds between link retransmission of OSPFv3 packets on this interface.

### Examples

```
-> ipv6 ospf interface vlan-101 retrans-interval 500
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

**show ipv6 ospf interface**              Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable  
  ospfv3IfIndex  
  ospfv3IfRetransInterval
```

---

## ipv6 ospf interface transit-delay

Configures the OSPFv3 interface transit time delay.

```
ipv6 ospf interface interface_name transit-delay delay
```

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*delay*                                The transit delay, in seconds. The valid range is 0–3600.

### Defaults

parameter	default
<i>seconds</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The estimated number of seconds required to transmit a link state update over this interface. This command takes into account transmission and propagation delays and must be greater than 0.

### Examples

```
-> ipv6 ospf interface vlan-101 transit-delay 100
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ipv6 ospf interface](#)            Displays the status and statistics of an OSPFv3 interface.

### MIB Objects

```
ospfv3IfTable  
  ospfv3IfIndex  
  ospfv3IfTransitDelay
```

---



## show ipv6 ospf

Displays the OSPFv3 status and general configuration parameters.

**show ipv6 ospf**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display the general configuration parameters of the OSPFv3 router.
- See the Related Commands section below to modify the displayed parameters.

### Examples

```
-> show ipv6 ospf
```

```
Status = Enabled,
Router ID = 5.5.5.5,
# Areas = 2,
# Interfaces = 4,
Area Border Router = Yes,
AS Border Router = No,
External Route Tag = 0,
SPF Hold (seconds) = 10,
SPF Delay (seconds) = 5,
MTU checking = Enabled,
# SPF calculations performed = 3,
Last SPF run (seconds ago) = N/A,
# of neighbors that are in:
  Full state = 3,
  Loading state = 0,
  Exchange state = 0,
  Exstart state = 0,
  2way state = 0,
  Init state = 0,
  Attempt state = 0,
  Down state = 0,
```

*output definitions*


---

<b>Status</b>	Displays whether OSPFv3 is currently enabled or disabled on the router.
<b>Router Id</b>	The unique identification for the router.
<b># Areas</b>	Number of areas to which the router belongs.
<b># Interface</b>	Number of interfaces participating in OSPF
<b>Area Border Router</b>	Displays whether the router status is an area router or not.
<b>AS Border Router</b>	Displays whether the area Autonomous System Border Router status of this router is enabled or disabled.
<b>External Route Tag</b>	Displays the route tag for this router.
<b>SPF Hold (seconds)</b>	Displays the time in seconds between the reception of an OSPFv3 topology change and the start of a SPF calculation.
<b>SPF Delay (seconds)</b>	Displays the time in seconds between consecutive SPF calculations.
<b>MTU Checking</b>	Displays whether Maximum Transfer Unit checking is enabled or disabled. This is set using the <b>ipv6 ospf mtu-checking</b> command.
<b># SPF calculations performed</b>	Displays the number of SPF calculation performed.
<b>Last SPF run (seconds ago)</b>	N/A
<b>Full state</b>	Displays the number of neighbor routers that are in Full state.
<b>Loading state</b>	Displays the number of neighbor routers that are in Loading state.
<b>Exchange state</b>	Displays the number of neighbor routers that are in Exchange state.
<b>Exstart state</b>	Displays the number of neighbor routers that are in Exstart state.
<b>2way state</b>	Displays the number of neighbor routers that are in 2way state.
<b>Init state</b>	Displays the number of neighbor routers that are in Init state.
<b>Attempt state</b>	Displays the number of neighbor routers that are in Attempt state.
<b>Down state</b>	Displays the number of neighbor routers that are in Down state.

---

**Release History**

Release 6.1.3; command was introduced.

## Related Commands

<b>ipv6 ospf status</b>	Enables or disables the administration of OSPFv3 on the router.
<b>ipv6 ospf mtu-checking</b>	Enables or disables the use of Maximum Transfer Unit (MTU) checking.
<b>ipv6 ospf spf-timer</b>	Configures timers for SPF calculation.
<b>ipv6 ospf route-tag</b>	Configures a tag value for Autonomous System External (ASE) routes created.
<b>ip router router-id</b>	Configures the router ID for the router.

## MIB Objects

```
ospfv3GeneralGroup
  ospfv3RouterId
  ospfv3AdminStat
  ospfv3VersionNumber
  ospfv3AreaBdrRtrStatus
  ospfv3ASBdrRtrStatus
  ospfv3OriginateNewLsas
  ospfv3RxNewLsas
  ospfv3ExitOverflowInterval
alaProtocolOspf3
  alaOspf3RedistAdminStatus
  alaOspf3RedistRouteTag
  alaOspf3TimerSpfDelay
  alaOspf3TimerSpfHold
  alaOspf3MTUCheck
```

---

## show ipv6 ospf border-routers

Displays information regarding all or specified border routers.

**show ipv6 ospf border-routers** [**area** *area\_id*] [**router** *router\_id*]

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<i>router_id</i>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display a list of border routers known by this OSPFv3 router.
- By using the optional parameters, you can display the border routers using the specified parameter. For example, to find a router using a router ID of 1.1.1.1, enter the command using the router ID of 1.1.1.1 as a search criteria.
- See the Related Commands sections below to modify the list.

### Examples

```
-> show ipv6 ospf border-routers
```

```
Router ID          Area          Metric  Type
-----+-----+-----+-----
6.6.6.6            0.0.0.0        2      INTRA
6.6.6.6            0.0.0.1        2      INTRA
    fe80::2d0:95ff:fee2:6bda -> pseudo1
    fe80::2d0:95ff:fee2:6bda -> pseudo2
```

#### *output definitions*

---

<b>Router ID</b>	The unique identification for the router.
<b>Area</b>	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
<b>Metric</b>	The metric used by the routes.
<b>Type</b>	The type of routes specified (intra or inter).

---

### **Release History**

Release 6.1.3; command was introduced.

### **Related Commands**

N/A

### **MIB Objects**

N/A

---

## show ipv6 ospf host

Displays information on the configured OSPFv3 hosts.

**show ipv6 ospf host** [*ipv6\_address*]

---

### Syntax Definitions

*ipv6\_address*                      A 128-bit IP address for a directly attached host.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display general information for OSPFv3 hosts directly attached to this router.
- See the Related Commands section below to modify the list.

### Examples

-> show ipv6 ospf host

```
Area           Metric   Address
-----+-----+-----
0.0.0.1        1       2001::1/64
```

#### *output definitions*

---

<b>Area</b>	A 32-bit IP address for a directly attached host. This can be set using the <b>ipv6 ospf host</b> command.
<b>Metric</b>	The metric assigned to the host. Metric is set using the <b>ipv6 ospf host</b> command.
<b>Address</b>	IPV6 address of the host.

---

### Release History

Release 6.1.3; command was introduced.

## Related Commands

[ipv6 ospf host](#)

Creates or deletes an OSPFv3 entry for directly attached hosts.

## MIB Objects

```
ospfv3HostTable  
  ospfv3HostIpAddress  
  ospfv3HostMetric  
  ospfHostStatus  
  ospfv3HostAreaID
```

---

## show ipv6 ospf lsdb

Displays Link State Advertisements (LSAs) in the Link State Database (LSDB) associated with each area.

```
show ipv6 ospf lsdb [area area_id] [rtr | net | netsum | asbrsum] [linkstate-id ls_id] [router-id router_id]
```

---

### Syntax Definitions

<i>area_id</i>	A unique 32-bit value in IP address format.
<b>rtr</b>	Specifies router LSAs.
<b>net</b>	Specifies network LSAs.
<b>netsum</b>	Specifies network summary LSAs.
<b>asbrsum</b>	Specifies Autonomous System Border Router summary LSAs.
<i>ls_id</i>	The Link state ID. The ID is a unique 32-bit value, such as an IP address. This number is used as a record in the link state database.
<i>router_id</i>	The Router ID. The ID is a unique 32-bit value such as an IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display the LSDB of the OSPF router. It can be used for OSPF debugging, specifically to narrow down sections of an area to determine which sections are receiving the specified LSAs. You can specify the parameters of only the area LSDB using the optional command parameters.
- You can view LSAs by specifying either a link state identifier or a router identifier. However, when specifying a router ID, you also need to supply a valid link state ID.



## Examples

```
-> show ipv6 ospf lsdb
```

Area	Type	Link ID	Advertising Rtr	Sequence #	Age
0.0.0.0	Router	0	1.1.1.1	8000020f	1117
0.0.0.0	Router	0	3.3.3.3	80000208	1121
0.0.0.0	Router	0	5.5.5.5	800001f1	1117
0.0.0.0	Router	0	30.30.30.30	800000da	1115

### *output definitions*

---

<b>Area</b>	The identification of the area to which the router belongs.
<b>Type</b>	The protocol type from where the route was learned.
<b>Link ID</b>	The Link state ID. The ID is a unique 32-bit value expressed as an IPv6 address. This number is used as a record in the link state database.
<b>Advertising Rtr</b>	The ID of the router that advertises the routes.
<b>Sequence #</b>	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
<b>Age</b>	The age of the LSA in seconds. That is, the duration for which this entry has existed in the external database.

---

## Release History

Release 6.1.3; command was introduced.

## Related Commands

[ipv6 ospf status](#) Displays the OSPFv3 status and general configuration parameters.

## MIB Objects

```
ospfv3AsLsdbTable  
  ospfv3AsLsdbAreaId  
  ospfv3AsLsdbType  
  ospfv3AsLsdbLsid  
  ospfv3AsLsdbRouterId  
  ospfv3AsLsdbAdvertisement  
  ospfv3AsLsdbSequence  
  ospfv3AsLsdbAge
```

---

## show ipv6 ospf neighbor

Displays information on OSPFv3 non-virtual neighbors.

**show ipv6 ospf neighbor** [**router** *ipv4\_address*][**interface** *interface\_name*]

---

### Syntax Definitions

*ipv4\_address*                      A 32-bit router ID of the neighboring router.  
*interface\_name*                    The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used to display all non-virtual neighbors of the OSPF router.
- See the Related Commands section below to modify the list.

### Examples

```
-> show ipv6 ospf neighbor
```

Router ID	Area/Transit Area	State	Interface
1.1.1.1	0.0.0.0	FULL	vlan-2071
3.3.3.3	0.0.0.0	FULL	vlan-2071
5.5.5.5	0.0.0.0	FULL	vlan-2071
23.23.23.23	0.0.0.1	FULL	vlan-2055
23.23.23.23	0.0.0.1	FULL	vlan-2056
24.24.24.24	0.0.0.1	FULL	vlan-2065
24.24.24.24	0.0.0.1	FULL	vlan-2066

#### *output definitions*

---

<b>Router ID</b>	The unique identification for the router.
<b>Area/Transit Area</b>	The area identifier.
<b>State</b>	The state of the OSPF neighbor adjacency.
<b>Interface</b>	The name of the interface.

---

```
-> show ipv6 ospf neighbor router 24.24.24.24
```

Router ID	Area/Transit Area	State	Interface
24.24.24.24	0.0.0.1	FULL	vlan-2070
24.24.24.24	0.0.0.1	FULL	vlan-2073

*output definitions*

---

<b>Router ID</b>	The unique identification for the router.
<b>Area/Transit Area</b>	The area identifier.
<b>State</b>	The state of the OSPF neighbor adjacency.
<b>Interface</b>	The name of the interface.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

N/A

**MIB Objects**

```
ospfv3NbrTable  
  ospfNbrAddress  
  ospfv3NbrRtrId  
  ospfv3NbrOptions  
  ospfv3NbrPriority  
  ospfv3NbrState  
  ospfv3NbrEvents  
  ospfv3NbrHelloSuppressed
```

---

## show ipv6 ospf routes

Displays the OSPFv3 routes known to the router.

**show ipv6 ospf routes** [**prefix** *ipv6\_address\_prefix*][**gateway** *gateway*]

---

### Syntax Definitions

*ipv6\_address\_prefix*                    The 128-bit IPv6 address of the route destination in hexadecimal format.

*gateway*                                The next hop IPv6 address for this router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If no variables are entered, all routes are displayed.
- If the variables are entered, then only routes matching the specified criteria are shown.
- All the variables described above must be entered for a route match. If all of the variables are not entered, an error message is returned.

### Examples

```
-> show ipv6 ospf routes
```

Prefix	Gateway Address -> Interface	Path Type	Path Metric Metric 1 : 2
::30.30.31.0/120	:: -> v6-intf1001	INTRA	1 : -
::30.30.32.0/120	:: -> v6-intf1002	INTRA	1 : -
::30.30.33.0/120	:: -> v6-intf1003	INTRA	1 : -

#### *output definitions*

---

<b>Prefix</b>	The destination address of the IPv6 route in the hexadecimal format.
<b>Gateway Address</b>	The address of the gateway.
<b>Interface</b>	The outgoing interface on the switch.
<b>Path Type</b>	The type of routes specified (intra or inter).
<b>Path Metric</b>	The cost of the route.

---

### **Release History**

Release 6.1.3; command was introduced.

### **Related Commands**

[ipv6 ospf status](#)

Displays the OSPFv3 status and general configuration parameters.

### **MIB Objects**

N/A

---



## Related Commands

[ipv6 ospf virtual-link](#)

Creates or deletes a virtual link.

## MIB Objects

```
ospfv3VirtIfTable  
  ospfv3VirtIfAreaId  
  ospfv3VirtIfNeighbor  
  ospfv3VirtIfState
```

---

## show ipv6 ospf area

Displays either all OSPFv3 areas, or a specified OSPFv3 area.

```
show ipv6 ospf area [area_id]
```

---

### Syntax Definitions

*area\_id* A unique 32-bit value in IP address format.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Allows you to view the details of a specified OSPFv3 area.
- If an OSPF area is not specified, all known areas for the OSPFv3 router will be displayed.
- See the Related Commands section below for information on modifying an area.

### Examples

```
-> show ipv6 ospf area
```

Area ID	Type	Stub Metric	Number of Interfaces
0.0.0.0	Normal	NA	2
0.0.0.1	Normal	NA	2

```
-> show ipv6 ospf area 0.0.0.0
```

```
Area Type = Normal,
Area Stub Metric = 0,
# of SPF calculations = 52,
# Interfaces = 3,
# Router LSAs = 2,
# Network LSAs = 3,
# Intra-area-prefix LSAs = 4,
# Inter-area-prefix LSAs = 15,
# Inter-area-router LSAs = 0,
# hosts = 0,
```

### output definitions

---

<b>Area Type</b>	The area type. This field will be <b>normal</b> or <b>stub</b> .
<b>Area Stub Metric</b>	Indicates whether the area is enabled or disabled.
<b># Router LSAs</b>	The total number of Link State Advertisements for the Area.



*output definitions (continued)*

---

<b># Network LSAs</b>	The total number of inter-area Link State Advertisements.
<b># of SPF calculations</b>	The number of times the area has calculated the Shortest Path.
<b># Interfaces</b>	The number of OSPF interfaces.
<b># Intra-area-prefix LSAs</b>	The number of intra-area-prefix LSAs, which associates a list of IPv6 address prefixes with a router by referencing a router-LSA.
<b># Inter-area-prefix LSAs</b>	The number of inter-area-prefix LSAs. Corresponds to Type 3 summary-LSA of OSPF.
<b># Inter-area-router LSAs</b>	The number of inter-area-router LSAs. Corresponds to Type 4 summary-LSA of OSPF.
<b># hosts</b>	The number of directly attached hosts.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

<a href="#">ipv6 ospf area</a>	Creates or deletes an OSPFv3 area, assigning default metric, cost, and type.
<a href="#">show ipv6 ospf interface</a>	Displays OSPFv3 interface information.

**MIB Objects**

```
ospfv3AreaTable
  ospfv3AreaId
  ospfv3ImportAsExtern
  ospfv3SpfRuns
  ospfv3AreaBdrRtrCount
  ospfv3AreaSummary
  ospfv3AreaStatus
```

---

## show ipv6 ospf interface

Displays OSPFv3 interface information.

**show ipv6 ospf interface** [*interface\_name*]

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Not specifying the interface name displays all known interfaces for the OSPFv3 router.

### Examples

```
-> show ipv6 ospf interface
```

Name	DR Router ID	BDR Router ID	Admin Status	Oper Status	State
vlan-2071	5.5.5.5	0.0.0.0	Enabled	Up	DR
vlan-2055	7.7.7.7	5.5.5.5	Enabled	Up	BDR
vlan-2056	7.7.7.7	5.5.5.5	Enabled	Up	BDR

### output definitions

---

<b>Name</b>	The name of the interface.
<b>DR Router ID</b>	The designated router address on this network segment. Make sure you configure a VLAN for the router IP. (See <a href="#">Chapter 5, “VLAN Management Commands,”</a> for more information.)
<b>BDR Router ID</b>	The IP address of the backup designated router.
<b>Vlan</b>	The VLAN to which the interface is assigned.
<b>Admin Status</b>	The current administration status of the interface, either <b>enabled</b> or <b>disabled</b> .
<b>Oper Status</b>	Indicates whether the interface is an active OSPF interface.
<b>State</b>	The current state of the OSPF interface. It will be <b>DR</b> , <b>BDR</b> , <b>other</b> .

---

```

-> show ipv6 ospf interface vlan-2071
Type                               = BROADCAST,
Admin Status                       = Enabled,
IPv6 Interface Status              = Up,
Oper Status                         = Up,
State                               = DR,
Area                               = 0.0.0.0,
Priority                            = 100,
Cost                               = 1,
Designated Router                  = 3.3.3.3,
Backup Designated Router           = 0.0.0.0,
Hello Interval                     = 1,
Router Dead Interval               = 4,
Retransmit Interval                = 5,
Transit Delay                      = 1,
Ifindex                            = 17,
IPv6 'ifindex'                    = 2071,
MTU                                 = 1500,
# of attached neighbors            = 0,
Globally reachable prefix #0       = 2071::2/64

```

Output fields when an IP address or interface name is specified are described below:

#### *output definitions*

<b>Type</b>	The OSPF interface type, which can be Broadcast, NBMA, Point-to-Point, or Point-to-Multipoint.
<b>Admin Status</b>	The current administrative status of the interface, either <b>enabled</b> or <b>disabled</b> .
<b>IPv6 Interface Status</b>	The current administrative status of the IPv6 interface, either <b>up</b> or <b>down</b> .
<b>Oper Status</b>	Indicates whether the interface is an active OSPF interface.
<b>State</b>	The current state of the OSPF interface. It will be <b>down</b> , <b>up</b> , <b>dp</b> , <b>dr</b> , or <b>other</b> .
<b>Area</b>	The area identification number to which the interface is assigned. This field is not applicable if an interface has not yet been assigned to an area.
<b>Priority</b>	The priority of the interface with regards to becoming the designated router. The higher the number, the higher the priority.
<b>Cost</b>	The cost added to routes learned on this interface.
<b>Designated Router</b>	The identification number of the designated router.
<b>Backup Designated Router</b>	The identification number of the backup designated router.
<b>Hello Interval</b>	The number of seconds between hello messages sent out on the interface.
<b>Router Dead Interval</b>	The number of seconds the interface waits for hello messages received from a neighbor before declaring the neighbor as dead.
<b>Retransmit Interval</b>	The number of seconds the interface waits before resending hello messages.
<b>Transit Delay</b>	The estimated number of seconds required to transmit a link state update over this interface.

*output definitions (continued)*


---

<b>Ifindex</b>	The unique value assigned to an interface.
<b>IPv6 'ifindex'</b>	The unique value assigned to an IPv6 interface.
<b>MTU</b>	The Maximum Transfer Unit (in bytes) for the interface.
<b># of attached neighbors</b>	The number of OSPFv3 neighbors in the initialization state.
<b>Globally reachable prefix #0</b>	A globally unique IPv6 address.

---

**Release History**

Release 6.1.3; command was introduced.

**Related Commands**

<b>ipv6 ospf interface</b>	Creates and deletes an OSPFv3 interface.
<b>ipv6 ospf interface dead-interval</b>	Configures the OSPFv3 interface dead interval.
<b>ipv6 ospf interface hello-interval</b>	Configures the OSPFv3 interface hello interval.
<b>ipv6 ospf interface cost</b>	Configures the OSPFv3 interface cost.
<b>ipv6 ospf interface priority</b>	Configures the OSPFv3 interface priority.
<b>ipv6 ospf interface retrans-interval</b>	Configures the OSPFv3 interface retransmit interval.
<b>ipv6 ospf interface transit-delay</b>	Configures the OSPFv3 interface transit delay.
<b>ipv6 ospf interface area</b>	Configures an OSPFv3 interface area.
<b>ipv6 ospf interface status</b>	Enables or disables the administration status on an OSPFv3 interface.

## **MIB Objects**

```
ospfv3IfTable  
  ospfv3IfAreaId  
  ospfv3IfType  
  ospfv3IfAdminStat  
  ospfv3IfRtrPriority  
  ospfv3IfTransitDelay  
  ospfv3IfRetransInterval  
  ospfv3IfHelloInterval  
  ospfv3IfRtrDeadInterval  
  ospfv3IfPollInterval  
  ospfv3IfState  
  ospfv3IfDesignatedRouter  
  ospfv3IfBackupDesignatedRouter  
  ospfv3IfEvents  
  ospfv3IfStatus
```

---



# 24 IS-IS Commands

Intermediate System-Intermediate System (IS-IS) is a shortest path first (SPF) or link-state protocol. IS-IS is an interior gateway protocol (IGP) that distributes routing information between routers in a single autonomous system (AS) for IP as well as OSI environments. This feature allows a single routing protocol to support pure IP and OSI environments, and dual environments. Integrated IS-IS is also deployed extensively in an IP-only environment.

Each participating router distributes its local state (i.e., the router's usable interfaces and reachable neighbors) throughout the AS by flooding. In a link-state protocol, each router maintains a database describing the entire AS topology. IS-IS routers have adjacencies with other routers on point-to-point links. In a multi-access network, routers report their adjacencies to a Designated Intermediate System (DIS), which generates an additional Link State PDU (LSP), commonly known as the pseudo-node LSP. The DIS is responsible for flooding the LAN with LSP and also for synchronizing the entire AS topology. This database is built from the collected link state advertisements of all routers.

IS-IS is a hierarchical protocol where the autonomous system is divided into multiple areas to reduce the size of the Routing table. Routing within an area is referred to as Level-1 routing and that between two or more areas is referred to as Level 2 routing. Each area runs a separate copy of the basic link-state routing algorithm.

---

**Note.** IS-IS is currently supported only on the OmniSwitch 6850 and 6850E Series

---

Alcatel-Lucent's version of IS-IS complies with RFC 1142.

MIB information for the IP commands is as follows:

*Filename:* AlcatelIND1Iisis.mib  
*Module:* ALCATEL-IND1-ISIS-MIB

*Filename:* IETF\_ISIS.MIB  
*Module:* ISIS-MIB

A summary of the available commands is listed here:

---

**Global IS-IS Commands**

**ip load isis**  
**ip isis status**  
**ip isis area-id**  
**ip isis level-capability**  
**ip isis auth-check**  
**ip isis auth-type**  
**ip isis csnp-auth**  
**ip isis hello-auth**  
**ip isis psnp-auth**  
**ip isis lsp-lifetime**  
**ip isis lsp-wait**  
**ip isis spf-wait**  
**ip isis summary-address**  
**ip isis overload**  
**ip isis overload-on-boot**  
**ip isis graceful-restart**  
**ip isis graceful-restart helper**  
**ip isis strict-adjacency-check**  
**ip isis level auth-type**  
**ip isis level hello-auth**  
**ip isis level csnp-auth**  
**ip isis level psnp-auth**  
**ip isis level wide-metrics-only**  
**show ip isis adjacency**  
**show ip isis database**  
**show ip isis hostname**  
**show ip isis routes**  
**show ip isis spf**  
**show ip isis spf-log**  
**show ip isis statistics**  
**show ip isis status**  
**show ip isis summary-address**

---



**Interface Commands**

---

```
ip isis interface
ip isis interface status
ip isis interface interface-type
ip isis interface csnp-interval
ip isis interface hello-auth-type
ip isis interface level-capability
ip isis interface lsp-pacing-interval
ip isis interface passive
ip isis interface retransmit-interval
ip isis interface default-type
ip isis interface level hello-auth-type
ip isis interface level hello-interval
ip isis interface level hello-multiplier
ip isis interface level metric
ip isis interface level passive
ip isis interface level priority
show ip isis interface
```

---

**Clear Commands**

```
clear ip isis adjacency
clear ip isis lsp-database
clear ip isis spf-log
clear ip isis statistics
```

---

## ip load isis

Loads the IS-IS software on the router.

**ip load isis**

---

### Syntax Definitions

N/A

### Defaults

By default, IS-IS is not loaded on the switch.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- You need to load IS-IS on the switch before executing any IS-IS configuration command.
- To unload IS-IS, remove all the IS-IS configuration from “boot.cfg”.

### Examples

```
-> ip load isis
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip protocols](#) Displays switch routing protocol information and status.

### MIB Objects

alaDrcTmIPISISStatus

---

## ip isis status

Enables or disables the administrative status of IS-IS on the switch.

**ip isis status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables IS-IS.
<b>disable</b>	Disables IS-IS.

### Defaults

---

parameter	default
enable / disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

When IS-IS status is disabled, the configuration settings and related statistics of the protocol remain unaffected.

### Examples

```
-> ip isis status enable
-> ip isis status disable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis status](#) Displays the IS-IS status.

### MIB Objects

```
isisSysTable
  isisSysAdminState
```

---



## ip isis level-capability

Configures the router level of the IS-IS protocol globally.

**ip isis level-capability {level-1 | level-2 | level-1/2}**

---

### Syntax Definitions

<b>level-1</b>	Specifies that the router can operate at Level-1 only.
<b>level-2</b>	Specifies that the router can operate at Level-2 only.
<b>level-1/2</b>	Specifies that the router can operate at both Level-1 and Level-2.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>level-1 / level-2 / level-1/2</b>	<b>level-1/2</b>

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Changing the level capability restarts the IS-IS protocol.
- You can also configure the level capability at per interface level.

### Examples

```
-> ip isis level-capability level-1  
-> ip isis level-capability level-2
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**ip isis interface level-capability** Configures the IS-IS level on the specified interface.  
**show ip isis status** Displays the IS-IS status.

### MIB Objects

isisSysTable  
isisSysType

---

## ip isis auth-check

Enables or disables authentication check for IS-IS PDUs.

**ip isis auth-check {enable | disable}**

---

### Syntax Definitions

enable	Enables authentication check for IS-IS PDUs.
disable	Disables authentication check for IS-IS PDUs.

### Defaults

By default, authentication check is enabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- If enabled, IS-IS PDUs that fail to match either of the authentication type and key requirements are rejected.
- If disabled, the authentication PDUs are generated and the IS-IS PDUs are authenticated on receipt. An error message will be generated in case of a mismatch; but PDUs will not be rejected.

### Examples

```
-> ip isis auth-check enable
-> ip isis auth-check disable
```

### Release History

Release 6.3.1; command was introduced;

### Related Commands

<a href="#">ip isis auth-type</a>	Enables authentication and configures the authentication type of IS-IS protocol globally.
<a href="#">ip isis level auth-type</a>	Enables authentication and configures the authentication types for specific IS-IS levels.
<a href="#">show ip isis status</a>	Displays the IS-IS status.

### MIB Objects

```
vRtrIisisTable
  vRtrIisisAuthCheck
```

---

## ip isis auth-type

Enables authentication and configures the authentication type of IS-IS protocol globally.

```
ip isis auth-type {simple {key key | encrypt-key encrypt-key} | md5 {key key | encrypt-key encrypt-key} | none}
```

---

### Syntax Definitions

<b>simple</b>	Simple authentication will be used.
<b>md5</b>	Specifies that MD5 authentication algorithm will be used. Hash-key will be used in MD5 authentication.
<i>key</i>	Key will be plain text ASCII up to 118 characters. Use quotes around string if the key contains multiple words with spaces between them.
<i>encrypt-key</i>	The key in hexadecimal format to provide security consideration on the authentication key. Configuration snapshot always displays authentication key in the encrypted form.
<b>none</b>	No authentication will be used.

### Defaults

parameter	default
simple / md5 / none	none

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Simple authentication uses only a text string as the password in the packet. This helps to protect the routers from a configuration mishap. MD5 authentication is used to protect the system from malicious actions.
- MD5 authentication is used to encrypt the information that is sent over the network. MD5 authentication uses shared secret key. The Key is used to sign the packets with an MD5 checksum to sign the packet, so that the packets cannot be tampered. As the key is not included in the packet, snooping the key is not possible.
- Use the Key parameter to configure the password for Simple or MD5 authentication. Alternatively, use the *encrypt-key* parameter to configure the password by supplying the encrypted form of the password as the *encrypt-key*. The Configuration snapshot always displays the password in the encrypted form. You should use only this *key* parameter during the CLI configuration.
- If the *encrypt-key* parameter is used to configure the password through the CLI, then its value should be the same as the one that appears in the configuration snapshot. Only valid system generated values are accepted as *encrypt-key*.
- This command configures the authentication type of ISIS protocol globally. These settings can be overridden at each level.

- By default, the authentication is disabled and no authentication type is configured.

## Examples

```
-> ip isis auth-type simple key rachel  
-> ip isis auth-type md5 encrypt-key 7a1e441a014b4030
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **key** and **encrypt-key** parameters were added.

## Related Commands

<a href="#">ip isis level auth-type</a>	Enables authentication and configures the authentication types for specific IS-IS levels.
<a href="#">show ip isis status</a>	Displays the IS-IS status.

## MIB Objects

```
vRtrIsisTable  
  vRtrIsisAuthType  
  vRtrIsisAuthKey
```

---



## ip isis csnp-auth

Enables or disables the authentication of Complete Sequence Number PDUs (CSNPs).

**ip isis csnp-auth**

**no ip isis csnp-auth**

---

### Syntax Definitions

N/A

### Defaults

CSNP authentication check is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to prevent the CSNP authentication.

### Examples

```
-> ip isis csnp-auth  
-> no ip isis csnp-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

---

<a href="#">ip isis level csnp-auth</a>	Configures CSNP authentication for specific IS-IS levels.
<a href="#">show ip isis status</a>	Displays the IS-IS status.

---

### MIB Objects

```
vRtrIisTable  
    vRtrIisCsnpAuthentication
```

---

## ip isis hello-auth

Enables or disables the authentication of Hello PDUs globally.

**ip isis hello-auth**

**no ip isis hello-auth**

---

### Syntax Definitions

N/A

### Defaults

Authentication check of Hello PDUs is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to prevent the authentication of Hello packets.

### Examples

```
-> ip isis hello-auth  
-> no ip isis hello-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**ip isis level hello-auth** Enables or disables the authentication of Hello PDUs for specific IS-IS levels.

**show ip isis status** Displays the IS-IS status.

### MIB Objects

```
vRtrIsisTable  
    vRtrIsisHelloAuthentication
```

---

## ip isis psnp-auth

Enables or disables the authentication of Partial Sequence Number PDUs (PSNPs).

**ip isis psnp-auth**

**no ip isis psnp-auth**

---

### Syntax Definitions

N/A

### Defaults

PSNP authentication check is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to prevent the authentication of PSNP packets.

### Examples

```
-> ip isis psnp-auth  
-> no ip isis psnp-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[ip isis level psnp-auth](#)

Configures the PSNP authentication for specific IS-IS levels.

[show ip isis status](#)

Displays the IS-IS status.

### MIB Objects

vRtrIisisTable

vRtrIisisPsnpAuthentication

---

## ip isis lsp-lifetime

Configures the time interval for which Link State PDUs generated by a router are considered valid by other routers in the same domain.

**ip isis lsp-lifetime** *seconds*

**no ip isis lsp-lifetime**

---

### Syntax Definitions

*seconds* Validity interval in seconds. The valid range is 350–65535.

### Defaults

parameter	default
<i>seconds</i>	1200

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to restore the default value.

### Examples

```
-> ip isis lsp-lifetime 760
-> no ip isis lsp-lifetime
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

<a href="#">ip isis interface lsp-pacing-interval</a>	Configures the time interval between IS-IS LSP PDUs sent from the specified interface.
<a href="#">show ip isis status</a>	Displays the IS-IS status.
<a href="#">show ip isis database</a>	Displays IS-IS LSP database information of the adjacent routers.

### MIB Objects

```
vRtrIisisTable
vRtrIisisLspLifetime
```

---

## ip isis lsp-wait

Configures the intervals between the first, second and subsequently generated LSPs.

**ip isis lsp-wait** {**max-wait** | **initial-wait** | **second-wait**} *seconds*

**no ip isis lsp-wait** {**max-wait** | **initial-wait** | **second-wait**}

---

### Syntax Definitions

<b>max-wait</b>	Specifies the maximum interval between two successive LSPs, in seconds. The valid range is 1–120.
<b>initial-wait</b>	Specifies the initial LSP generation delay, in seconds. The valid range is 0–100.
<b>second-wait</b>	Specifies the time interval between the first and second generated LSPs, in seconds. The valid range is 1–100.
<i>seconds</i>	Specifies the time interval.

### Defaults

<b>parameter</b>	<b>default</b>
<i>seconds</i> ( <b>max-wait</b> )	5
<i>seconds</i> ( <b>initial-wait</b> )	0
<i>seconds</i> ( <b>second-wait</b> )	1

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default value.
- Successive LSPs are generated at increasing **second-wait** interval until a maximum value is reached.

### Examples

```
-> ip isis lsp-wait max-wait 25
-> no ip isis lsp-wait initial-wait
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**ip isis interface lsp-pacing-interval**

Configures the time interval between IS-IS LSP PDUs sent from the specified interface.

**show ip isis status**

Displays the IS-IS status.

## MIB Objects

vRtrIsisTable

    vRtrIsisLspInitialWait

    vRtrIsisLspSecondWait

    vRtrIsisLspMaxWait

---

## ip isis spf-wait

Configures the intervals between the first, second, and subsequent SPF calculations.

**ip isis spf-wait** {**max-wait** *seconds* | **initial-wait** *milliseconds*| **second-wait** *milliseconds*}

**no ip isis spf-wait** {**max-wait** | **initial-wait** | **second-wait**}

---

### Syntax Definitions

<b>max-wait</b> <i>seconds</i>	Specifies the maximum interval between two successive SPF calculations, in seconds. The valid range is 1–120 seconds.
<b>initial-wait</b> <i>milliseconds</i>	Specifies the initial SPF calculation delay, in milliseconds. The valid range is 10–100000 milliseconds.
<b>second-wait</b> <i>milliseconds</i>	Specifies the interval between first and second generated SPFs, in milliseconds. The valid range is 1–100000 milliseconds.

### Defaults

parameter	default
<b>max-wait</b> <i>seconds</i>	10
<b>initial-wait</b> <i>milliseconds</i>	1000
<b>second-wait</b> <i>milliseconds</i>	1000

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default value.
- Successive SPF calculations are generated at exponentially increasing **second-wait** interval until a maximum value is reached.

### Examples

```
-> ip isis spf-wait max-wait 25
-> no ip isis spf-wait initial-wait
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**show ip isis status** Displays the IS-IS status.

**MIB Objects**`vRtrIisisTable``vRtrIisisSpfWait``vRtrIisisSpfInitialWait``vRtrIisisSpfSecondWait`

---



## ip isis summary-address

Adds or deletes the summary address.

**ip isis summary-address** {*ip-prefix/mask* | *ip-prefix* [*/netmask*]} {**level-1** | **level-2** | **level-1/2**}

**no ip isis summary-address** {*ip-prefix/mask* | *ip-prefix* [*/netmask*]}

---

### Syntax Definitions

<i>ip-prefix/mask</i>	Specifies the IP prefix in dotted decimal notation and the mask length.
<i>ip-prefix</i>	Specifies the IP prefix in dotted decimal notation.
<i>/netmask</i>	Specifies the subnet mask in dotted decimal notation.
<b>level-1</b>	Specifies the IS-IS level as Level-1.
<b>level-2</b>	Specifies the IS-IS level as Level-2.
<b>level-1/2</b>	Specifies the IS-IS level as Level-1/2.

### Defaults

parameter	default
<b>level-1</b>   <b>level-2</b>   <b>level-1/2</b>	<b>level-1/2</b>

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an already configured summary address.
- Native IS-IS routes can only be summarized into Level-2 from the Level-1 database.
- It is not possible to summarize IS-IS internal routes at Level-1, although it is possible to summarize external (redistributed) routes at Level-1.
- IS-IS routes are not summarised by default.

### Examples

```
-> ip isis summary-address 10.0.0.0/8 level-2
-> no ip isis summary-address 10.0.0.0/8
```

### Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **level-1/2** parameter was added, *netmask* parameter is optional.

## Related Commands

**show ip isis summary-address** Displays the IS-IS summary address database.

## MIB Objects

vRtrIsisSummaryTable  
vRtrIsisSummRowStatus

---

## ip isis overload

Enables and configures the IS-IS router to operate in the overload state for a specified time period.

**ip isis overload** [*timeout seconds*]

**no ip isis overload** [*timeout*]

---

### Syntax Definitions

**timeout** *seconds* Specifies the timeout interval, in seconds. The valid range is 60–1800.

### Defaults

By default, the IS-IS overload state is disabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to make the router exit the overload state.
- If the time period is not specified, the router remains in the overload state for an infinite period.
- During normal operation, the router may be forced to enter an overload state due to a lack of resources. When in the overload state, the router is used only if the destination route is directly reachable by the router i.e., it will not be used for other transit traffic.
- This command can be used when the router is overloaded or before executing a shutdown command to divert traffic around the router.

### Examples

```
-> ip isis overload timeout 70  
-> no ip isis overload timeout
```

### Release History

Release 6.2.1; command was introduced..

## Related Commands

- ip isis overload-on-boot** Configures the IS-IS router to be in the overload state during bootup for a specified time period.
- show ip isis status** Displays the IS-IS status.

## MIB Objects

```
isisSysTable
  isisSysSetOverload
vRtrIisisTable
  vRtrIisisOverloadTimeout
```

---

## ip isis overload-on-boot

Configures the IS-IS router to be in the overload state after bootup for a specified time period.

**ip isis overload-on-boot** [*timeout seconds*]

**no ip isis overload-on-boot** [*timeout seconds*]

---

### Syntax Definitions

**timeout** *seconds* Specifies the timeout interval, in seconds. The valid range is 60–1800.

### Defaults

By default, the IS-IS router will not be in the overload state.

parameter	default
<b>timeout</b> <i>seconds</i>	60

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to prevent the router from entering the overload state after bootup.
- The router in the overload state is used only if there is no alternate path to reach the destination.
- This command configures the router after bootup in the overload state until the timeout timer expires or a timeout value is specified in the **no** form of this command.
- The **no overload** command does not influence the overload-on-boot function.

### Examples

```
-> ip isis overload-on-boot timeout 80  
-> no ip isis overload-on-boot timeout
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

<code>ip isis overload</code>	Sets the IS-IS router to operate in the overload state.
<code>show ip isis status</code>	Displays the IS-IS status.

## MIB Objects

```
vRtrIisTable  
  vRtrIisOverloadOnBoot  
  vRtrIisOverloadOnBootTimeout
```

---

## ip isis graceful-restart

Configures graceful restart of the router. It allows routing protocols to reconverge faster, minimizing service interruption.

**ip isis graceful-restart**

**no ip isis graceful-restart**

---

### Syntax Definitions

N/A

### Defaults

Graceful restart is disabled on the router by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable graceful restart and remove the graceful restart configuration from the IS-IS router.
- When graceful restart is enabled, the router can either be a helper (which helps a neighbor router to restart) or a restarting router, or both. In the current release, only the helper mode of a router is supported.

### Examples

```
-> ip isis graceful-restart  
-> no ip isis graceful-restart
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**ip isis graceful-restart helper** Configures the helper mode of routers for graceful restart.  
**show ip isis status** Displays the IS-IS status.

### MIB Objects

```
vRtrIisisTable  
    vRtrIisisGracefulRestart
```

---

## ip isis graceful-restart helper

Administratively enables and disables the IS-IS router to operate in the helper mode in response to a router performing a graceful restart.

```
ip isis graceful-restart helper {enable | disable}
```

---

### Syntax Definitions

<b>enable</b>	Enables the helper mode on the router.
<b>disable</b>	Disables the helper mode on the router.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- When graceful restart is enabled, the helper mode is enabled by default.
- When graceful restart helper is enabled on a router, it can help other restarting routers.

### Examples

```
-> ip isis graceful-restart helper disable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

<a href="#">ip isis graceful-restart</a>	Configures graceful restart on the router.
<a href="#">show ip isis status</a>	Displays the IS-IS status.

### MIB Objects

```
vRtrIisisTable  
vRtrIisisGRHelperMode
```

---



## ip isis strict-adjacency-check

Enables or disables the adjacency check configuration on the router.

**ip isis strict-adjacency-check {enable | disable}**

---

### Syntax Definitions

**enable** Enables the adjacency check configuration on the router.

**disable** Disables the adjacency check configuration on the router.

### Defaults

By default, the adjacency check configuration is disabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- When the adjacency check configuration is enabled, both routers have to run the same IP version only in the IS-IS protocol to form an adjacency.
- When the adjacency check configuration is disabled, one common IP version running between two routers is enough to form an adjacency in the IS-IS protocol.

### Examples

```
-> ip isis strict-adjacency-check enable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis status](#) Displays the IS-IS status.

### MIB Objects

```
vRtrIsisTable  
  vRtrIsisStrictAdjacencyCheck
```

---

## ip isis level auth-type

Enables authentication and configures the authentication types for specific IS-IS levels.

**ip isis level {1 | 2} auth-type {simple {key *key* | encrypt-key *encrypt-key*} | md5 {key *key* | encrypt-key *encrypt-key*} | none}**

---

### Syntax Definitions

<b>1</b>	Specifies the IS-IS level as Level-1.
<b>2</b>	Specifies the IS-IS level as Level-2.
<b>simple</b>	Simple authentication will be used.
<b>md5</b>	Specifies that MD5 authentication algorithm will be used. Hash-key will be used in MD5 authentication.
<i>key</i>	Key will be plain text ASCII up to 118 characters. Use quotes around string if the key contains multiple words with spaces between them.
<i>encrypt-key</i>	The key in hexadecimal format to provide security consideration on the authentication key. Configuration snapshot always displays authentication key in the encrypted form.
<b>none</b>	No authentication will be used.

### Defaults

parameter	default
simple / md5 / none	none

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Simple authentication uses only a text string as the password in the packet. This helps to protect the routers from a configuration mishap. MD5 authentication is used to protect the system from malicious actions.
- MD5 authentication is used to encrypt the information that is sent over the network. MD5 authentication uses shared secret key. The Key is used to sign the packets with an MD5 checksum to sign the packet, so that the packets cannot be tampered. As the key is not included in the packet, snooping the key is not possible.
- Use the Key parameter to configure the password for Simple or MD5 authentication. Alternatively, use the *encrypt-key* parameter to configure the password by supplying the encrypted form of the password as the *encrypt-key*. The Configuration snapshot always displays the password in the encrypted form. You should use only this *key* parameter during the CLI configuration.

- If the *encrypt-key* parameter is used to configure the password through the CLI, then its value should be the same as the one that appears in the configuration snapshot. Only valid system generated values are accepted as *encrypt-key*.
- This command overrides the global configuration of IS-IS authentication type.
- This command also sets the password or hash-key according to the type of authentication.
- By default, the authentication is disabled and no authentication type is configured.

## Examples

```
-> ip isis level 2 auth-type simple key rachel  
-> ip isis level 2 auth-type md5 encrypt-key 7a1e441a014b4030
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **key** and **encrypt-key** parameters were added.

## Related Commands

<a href="#">ip isis auth-type</a>	Enables authentication and configures the authentication type of IS-IS protocol globally.
<a href="#">show ip isis status</a>	Displays the IS-IS status.

## MIB Objects

```
vRtrIisisLevelTable  
  vRtrIisisLevelAuthType  
  vRtrIisisLevelAuthKey
```

---

## ip isis level hello-auth

Enables or disables the authentication of Hello PDUs for specific IS-IS levels.

**ip isis level {1 | 2} hello-auth**

**no ip isis level {1 | 2} hello-auth**

---

### Syntax Definitions

- |   |                                       |
|---|---------------------------------------|
| 1 | Specifies the IS-IS level as Level-1. |
| 2 | Specifies the IS-IS level as Level-2. |

### Defaults

Authentication check of Level Hello PDUs is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to prevent the authentication of Hello packets at the specified IS-IS level.
- This command overrides the global configuration of IS-IS Hello authentication.

### Examples

```
-> ip isis level 1 hello-auth  
-> no ip isis level 1 hello-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

- |                                     |                                                                |
|-------------------------------------|----------------------------------------------------------------|
| <a href="#">ip isis hello-auth</a>  | Enables or disables the authentication of Hello PDUs globally. |
| <a href="#">show ip isis status</a> | Displays the IS-IS status.                                     |

### MIB Objects

```
vRtrIisisLevelTable  
  vRtrIisisLevelHelloAuthentication
```

---

## ip isis level csnp-auth

Enables or disables the CSNP authentication for specific IS-IS levels.

**ip isis level {1 | 2} csnp-auth**

**no ip isis level {1 | 2} csnp-auth**

---

### Syntax Definitions

- |   |                                       |
|---|---------------------------------------|
| 1 | Specifies the IS-IS level as Level-1. |
| 2 | Specifies the IS-IS level as Level-2. |

### Defaults

CSNP authentication check for specific IS-IS levels is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to prevent the authentication of CSNPs at the specified IS-IS level.
- This command overrides the global configuration of IS-IS CSNP authentication.

### Examples

```
-> ip isis level 1 csnp-auth
-> no ip isis level 1 csnp-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

- |                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| <a href="#">ip isis csnp-auth</a>   | Enables or disables the authentication of CSNPs. |
| <a href="#">show ip isis status</a> | Displays the IS-IS status.                       |

### MIB Objects

```
vRtrIisisLevelTable
  vRtrIisisLevelCsnpAuthentication
```

---

## ip isis level psnp-auth

Enables or disables PSNP authentication for specific IS-IS levels.

**ip isis level {1 | 2} psnp-auth**

**no ip isis level {1 | 2} psnp-auth**

---

### Syntax Definitions

- |   |                                       |
|---|---------------------------------------|
| 1 | Specifies the IS-IS level as Level-1. |
| 2 | Specifies the IS-IS level as Level-2. |

### Defaults

PSNP authentication check for specific IS-IS levels is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to prevent the authentication of PSNPs at the specified IS-IS level.
- This command overrides the global configuration of IS-IS PSNP authentication.

### Examples

```
-> ip isis level 1 psnp-auth  
-> no ip isis level 1 psnp-auth
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

- |                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| <a href="#">ip isis psnp-auth</a>   | Enables or disables the authentication of PSNPs. |
| <a href="#">show ip isis status</a> | Displays the IS-IS status.                       |

### MIB Objects

```
vRtrIsisLevelTable  
vRtrIsisLevelPsnpAuthentication
```

---

## ip isis level wide-metrics-only

Enables the wide metrics in LSPs for specific IS-IS levels.

**ip isis level {1 | 2} wide-metrics-only**

**no ip isis level {1 | 2} wide-metrics-only**

---

### Syntax Definitions

- |   |                                       |
|---|---------------------------------------|
| 1 | Specifies the IS-IS level as Level-1. |
| 2 | Specifies the IS-IS level as Level-2. |

### Defaults

By default, wide metrics is disabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the narrow metric (1–63).
- Wide metrics are used for improved granularity of metrics.
- Numeric values above 63 indicate wide metrics.

### Examples

```
-> ip isis level 1 wide-metrics-only  
-> no ip isis level 1 wide-metrics-only
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis status](#) Displays the IS-IS status.

### MIB Objects

```
vRtrIsisLevelTable  
  VrtrIsisLevelWideMetricsOnly
```

---

## show ip isis adjacency

Displays information about IS-IS adjacent routers.

**show ip isis adjacency** [{system-id *nbr\_sys\_id* | interface *interface\_name*}] [**detail**]

---

### Syntax Definitions

<i>nbr_sys_id</i>	The system ID of the neighbor router.
<i>interface_name</i>	The name of the IS-IS interface.
<b>detail</b>	Indicates that the output is displayed in a detailed manner.

### Defaults

By default adjacency information for all the neighbor routers are displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use *the nbr\_sys\_id* or *interface\_name* parameter with this command to view the adjacency information for a specific neighbor.

### Examples

```
-> show ip isis adjacency
=====
ISIS Adjacency
=====
System ID          Type      State    Hold    Interface  Host-name
-----
1720.2116.0051    L2        UP       8       vlan2      kite-2
1720.2116.0051    L1        UP       8       vlan2      kite-2
1720.2116.0051    L1        UP       8       vlan3      kite-2
1720.2116.0051    L2        UP       8       vlan3      kite-2
-----
Adjacency : 4
=====
```

#### *output definitions*

---

<b>System ID</b>	The system ID of the adjacent router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-octet hexadecimal system ID.
<b>Type</b>	The level ( <b>L1</b> , <b>L2</b> , or <b>L1/L2</b> ) of the adjacent router.
<b>State</b>	The state of the adjacent router ( <b>Up</b> or <b>Down</b> ).
<b>Hold</b>	The Hold time of the adjacent router.
<b>Interface</b>	The interface name of the adjacent router.



*output definitions*


---

<b>Host-name</b>	The hostname of the adjacent router.
<b>Adjacencies</b>	The total number of adjacent routers.

---

```
-> show ip isis adjacency detail
```

```
=====
ISIS adjacency
=====
```

```
-----
SystemID      : 1720.2116.0051      SNPA         : 00:d0:95:f3:0f:08
Interface     : vlan2              Up Time      : SUN OCT 01 05:18:51 2006
State        : UP                  Priority      : 64
Nbr Sys Type : L2                  L.CircType   : L1L2
Hold Time    : 6                   Max Hold     : 9
Adj Level    : L2                  Host-name    : kite-2
IPv4 Neighbor : 2.2.2.3
Restart Support : Disabled
Restart Status : Not currently being helped
Restart Suppressed : Disabled
-----
```

```
-----
SystemID      : 172.2116.0052      SNPA         : 00:d0:95:f3:0f:08
Interface     : vlan2              Up Time      : SUN OCT 01 05:18:51 2006
State        : UP                  Priority      : 64
Nbr Sys Type : L1                  L.CircType   : L1L2
Hold Time    : 6                   Max Hold     : 9Adj Level    : L2IPv4
Neighbor     : 2.2.2.3
Restart Support : Disabled
Restart Status : Not currently being helped
Restart Suppressed : Disabled
-----
```

```
Adjacency : 2
=====
```

*output definitions*


---

<b>SystemID</b>	The system ID of the adjacent router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-octet hexadecimal system ID.
<b>Interface</b>	The interface name of the adjacent router.
<b>State</b>	The state of the adjacent router ( <b>Up</b> or <b>Down</b> ).
<b>Adj Level</b>	The adjacency level ( <b>L1</b> or <b>L2</b> ) of the router.
<b>Nbr Sys Type</b>	The type of the neighboring router( <b>L1</b> , <b>L2</b> or <b>L1L2</b> )
<b>Hold Time</b>	The Hold time of the adjacent router.
<b>IPv4 Neighbor</b>	The 32-bit IP address of the neighbor.
<b>Restart Support</b>	Indicates if graceful restart is <b>enabled</b> or <b>disabled</b> .
<b>Restart Status</b>	Indicates whether the router is currently helping an adjacent router to restart.
<b>Restart Suppressed</b>	Indicates whether the advertisement of LSPs are suppressed ( <b>enabled</b> ) or not ( <b>disabled</b> ) as per the request of adjacent router.
<b>SNPA</b>	The SNPA address of the adjacent router.
<b>Up Time</b>	Indicates the time period in seconds, during which the router was in the adjacency.

*output definitions*


---

<b>Priority</b>	The priority of the adjacent router.
<b>Host-name</b>	The hostname of the adjacent router.
<b>L. CircType</b>	Indicates the level circuit type ( <b>L1</b> , <b>L2</b> or <b>L1L2</b> ) of the adjacent router.
<b>Max Hold</b>	Indicates the maximum Hold time of the adjacent router.

---

**Release History**

Release 6.2.1; command was introduced.

Release 6.3.1; System ID/HostName field removed; System ID, Host-name, and IPv4 neighbor fields added.

**Related Commands**

**clear ip isis adjacency**                      Clears and resets the IS-IS adjacency database.

**MIB Objects**

```
isisISAdjTable
  isisISAdjIndex
  isisISAdjState
  isisISAdjNeighSNPAddress
  isisISAdjNeighSysType
  isisISAdjNeighSysID
  isisISAdjUsage
  isisISAdjNeighPriority
  isisISAdjUpTime
  isisISAdjHoldTimer
vRtrIisisISAdjTable
  vRtrIisisISAdjCircLevel
  vRtrIisisISAdjRestartSupport
  vRtrIisisISAdjRestartSupressed
  vRtrIisisISAdjExpireIn
  vRtrIisisISAdjNeighborIP
  vRtrIisisISAdjRestartStatus
```

---

## show ip isis database

Displays IS-IS LSP database information of the adjacent routers.

```
show ip isis database [{system_id system_id | lsp_id lsp_id}] [detail] [level {1 | 2}]
```

---

### Syntax Definitions

<i>system_id</i>	The system ID of the router.
<i>lsp_id</i>	The LSP ID.
<b>detail</b>	Indicates that the output is displayed in a detailed manner.
<b>level</b>	Indicates the IS-IS level, either <b>1</b> or <b>2</b> .

### Defaults

By default the entire LSP database is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use *system-id* or *lsp-id* parameter with this command to view specific LSP database information.
- Use the **level** parameter with this command to view the LSP database information of a particular level.

### Examples

```
-> show ip isis database
Legends : P           = The Partition repair bit is set
OV      = The overload bit is set
ATT     = The Attach bit is set
L1      = Specifies a Level 1 IS type
L2      = Specifies a Level 2 IS type
=====
ISIS Database
=====
LSP ID           Sequence  Checksum  Lifetime  Attributes
-----
Displaying level-1 database
-----
1720.2116.0051.00-00    0x44      0xb664    919        L1L2
level-1 LSP count : 1

Displaying level-2 database
-----
1720.2116.0051.00-00    0x45      0xb465    1083       L1L2
level-2 LSP count : 1
=====
```

*output definitions*


---

<b>LSP ID</b>	The LSP ID. Indicates the system ID and the pseudo-node ID of the originating router.
<b>Sequence</b>	The sequence number of the LSP. The sequence number is a value used to identify old and duplicate LSPs.
<b>Checksum</b>	The checksum value of the LSP.
<b>Lifetime</b>	The number of seconds the LSP remains valid. The LSP lifetime value of zero indicates that this LSP is being removed from the Link State Database of all the routers.
<b>Attributes</b>	The level capability of the router.
<b>LSP Count</b>	The number of LSPs in the Link State Database.

---

```
show isis database detail
```

```

  Legends : P           = The Partition repair bit is set
           OV          = The overload bit is set
           ATT         = The Attach bit is set
           L1          = Specifies a Level 1 IS type
           L2          = Specifies a Level 2 IS type
=====
ISIS Database
=====
Displaying level-1 database
-----
LSP ID       : 1720.2116.0051.00-00          Level       : L1
Sequence     : 0x44          Checksum    : 0xb664    Lifetime    : 818
Version      : 1            Pkt Type   : 18         Pkt Ver     : 1
Attributes   : L1L2        Max Area   : 3
SysID Len    : 6           Used Len   : 635      Alloc Len   : 1489

TLVs :
Area Addresses :
  Area Address : (3) 49.0000
Supp protocols :
  Protocols    : Ipv4 , Ipv6
IS-Hostname    :
  Hostname     : kite-53
IS Neighbors   :
  Virtual Flag : 0
  Neighbor     : 1720.2116.0052.00 Metric : 10 (I)
IPv4 I/F Address :
  IP Address   : 172.21.160.51
  IP Address   : 172.21.160.52
IPv4 Internal Reach :
  IP Prefix    : 16.16.16.0/24 (Dir.: UP ) Metric : 10 (I)
  IP Prefix    : 17.17.17.0/24 (Dir.: UP ) Metric : 10 (I)
IPv4 External Reach :
  IP Prefix    : 24.24.24.0/24 (Dir.: UP ) Metric : 10 (E)
  IP Prefix    : 25.25.25.0/24 (Dir.: UP ) Metric : 10 (E)

level-1 LSP count : 1

Displaying level-2 database
-----

```

```
LSP ID       : 1720.2116.0051.00-00      Level       : L2
Sequence     : 0x45          Checksum      : 0xb465      Lifetime    : 981
Version      : 1             Pkt Type    : 20          Pkt Ver     : 1
Attributes   : L1L2         Max Area    : 3
SysID Len    : 6             Used Len    : 635         Alloc Len   : 1489
```

```
TLVs  :
Area Addresses :
  Area Address : (3) 49.0000
Supp protocols :
  Protocols    : Ipv4 Ipv6
IS-Hostname    :
  Hostname     : kite-53
IS Neighbors   :
  Virtual Flag : 0
  Neighbor     : 1720.2116.0052.00 Metric : 10 (I)
IPv4 I/F Address :
  IP Address   : 172.21.160.51
  IP Address   : 172.21.160.52
IPv4 Internal Reach :
  IP Prefix    : 16.16.16.0/24 (Dir.: UP ) Metric : 10 (I)
  IP Prefix    : 17.17.17.0/24 (Dir.: UP ) Metric : 10 (I)
IPv4 External Reach :
  IP Prefix    : 24.24.24.0/24 (Dir.: UP ) Metric : 10 (E)
  IP Prefix    : 25.25.25.0/24 (Dir.: UP ) Metric : 10 (E)
```

```
level-2 LSP count : 1
```

```
=====
```

*output definitions*


---

<b>LSP ID</b>	The LSP ID. Indicates the system ID and the pseudo-node ID of the originating router.
<b>Sequence</b>	The sequence number of the LSP. The Sequence number is a value used to identify old and duplicate LSPs.
<b>Checksum</b>	The checksum value of the LSP.
<b>Lifetime</b>	The number of seconds the LSP remains valid. The LSP lifetime value of zero indicates that this LSP is being removed from the Link State Database of all the routers.
<b>Version</b>	The version of the IS-IS protocol that has generated the LSP.
<b>Pkt Type</b>	The IS-IS PDU type number derived from the PDU header, which can be <b>18</b> or <b>20</b> . The number 18 represents L1 LSP PDU type and 20 represents L2 LSP PDU type.
<b>Pkt Ver</b>	The version of the IS-IS protocol that has generated the packet.
<b>Attributes</b>	The level capability of the router.
<b>Max Area</b>	The Maximum number of areas supported by the originating router of the LSP.
<b>SysID Len</b>	The length of the system-id as used by the originating router.
<b>Used Len</b>	The length used by the LSP.
<b>Alloc Len</b>	The length allocated for the LSP to be stored.
<b>Area Address</b>	The area ID of the router.
<b>Supp protocols</b>	The network layer protocols that are supported.
<b>IS-Host Name</b>	The host name of the router.
<b>System ID</b>	The system ID of the adjacent router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-octet hexadecimal system ID.
<b>IS Neighbors</b>	The list of reachable IS-IS neighbors.
<b>IPv4 Internal Reach</b>	The list of IS-IS internal routes.
<b>IP Prefix</b>	The IP address and subnet mask of the destination.
<b>Metrics</b>	The metric value to reach the destination.
<b>IPv4 External Reach</b>	The list of external IS-IS routes.
<b>level-1 LSP Count</b>	The number of Level-1 LSPs.
<b>level-2 LSP Count</b>	The number of Level-2 LSPs.

---

**Release History**

Release 6.2.1; command was introduced..

## Related Commands

<b>show ip isis hostname</b>	Displays the database of IS-IS host name and its corresponding system ID.
<b>clear ip isis lsp-database</b>	Clears and resets the IS-IS LSP database information.

## MIB Objects

```
vRtrIisisLSPTable  
  vRtrIisisLSPId  
  vRtrIisisLSPSeq  
  vRtrIisisLSPChecksum  
  vRtrIisisLSPLifetimeRemain  
  vRtrIisisLSPAttributes  
  vRtrIisisLSPVersion  
  vRtrIisisLSPpktType  
  vRtrIisisLSPSysIdLen  
  vRtrIisisLSPAllocLen  
  vRtrIisisLSPMaxArea  
  vRtrIisisLSPBuff  
  vRtrIisisLSPUsedLen
```

---

## show ip isis hostname

Displays the database of IS-IS host name and its corresponding system ID.

**show ip isis hostname**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip isis hostname
```

```
Hosts
```

```
=====
System Id                Hostname
-----
1800.0000.0002           core_west
1800.0000.0005           core_east
1800.0000.0008           asbr_west
1800.0000.0009           asbr_east
1800.0000.0010           abr_sjc
1800.0000.0011           abr_lax
1800.0000.0012           abr_nyc
1800.0000.0013           abr_dfw
1800.0000.0015           dist_oak
1800.0000.0018           dist_nj
1800.0000.0020           acc_nj
1800.0000.0021           acc_ri
1800.0000.0027           dist_arl
1800.0000.0028           dist_msq
1800.0000.0029           acc_arl
```

#### *output definitions*

---

<b>System Id</b>	The system ID of the router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-Octet hexadecimal system ID.
<b>Hostname</b>	The host name of the router.

---



## Release History

Release 6.2.1; command was introduced.

## Related Commands

[show ip isis adjacency](#)

Displays information about IS-IS adjacent routers.

[show ip isis database](#)

Displays IS-IS LSP database information of the adjacent routers

[ip isis area-id](#)

Configures the area ID for the router.

## MIB Objects

vRtrIsisHostnameTable

    vRtrIsisSysID

    vRtrIsisHostname

---

## show ip isis routes

Displays the IS-IS route information from the routing table.

**show ip isis routes**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show isis routes
```

```
=====
ISIS Routes
=====
Prefix                Metric      Lvl/Type   SPF-num  Nexthop    System ID
-----
1.1.1.0/24            10          1/Int      7        0.0.0.0    1720.2116.0051
2.2.2.0/24            10          1/Int      1        0.0.0.0    1720.2116.0051
3.3.3.0/24            10          1/Int      1        0.0.0.0    1720.2116.0051
4.4.4.0/24            10          1/Int      1        0.0.0.0    1720.2116.0051
5.5.5.0/24            10          1/Int      1        0.0.0.0    1720.2116.0051
6.6.6.0/24            10          1/Int      1        0.0.0.0    1720.2116.0051
-----
Routes : 8
=====
```

### *output definitions*

---

<b>Prefix</b>	The IP prefix and mask of the destination routes.
<b>Metric</b>	The cost to reach the destination route.
<b>Lvl/Type</b>	The level and route type of the routes.
<b>SPF-num</b>	The version of the SPF calculation used to select the route.
<b>Nexthop</b>	The Next Hop address to reach the destination.
<b>System ID</b>	The system ID of the adjacent router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-octet hexadecimal system ID.

---

## Release History

Release 6.2.1; command was introduced.

## Related Commands

N/A

## MIB Objects

```
vRtrIisisRouteTable
  vRtrIisisRouteLevel
  vRtrIisisRouteSpfVersion
  vRtrIisisRouteType
  vRtrIisisRouteDest
  vRtrIisisRouteNextHopIP
  vRtrIisisRouteNextHopSysID
  vRtrIisisRouteMetric
  vRtrIisisRouteMask
```

---

## show ip isis spf

Displays the IS-IS SPF calculation information.

**show ip isis spf [detail]**

---

### Syntax Definitions

**detail** Indicates that the output is displayed in a detailed manner.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip isis spf
=====
ISIS Path Table
=====
Node                               Interface           Nexthop
-----
1720.2116.0051.00                  vlan2               1720.2116.0051
1720.2116.0051.00                  vlan3               1720.2116.0051
1720.2116.0051.00                  vlan4               1720.2116.0051
1720.2116.0051.00                  vlan5               1720.2116.0051
1720.2116.0051.00                  vlan2               1720.2116.0051
1720.2116.0051.00                  vlan3               1720.2116.0051
1720.2116.0051.00                  vlan4               1720.2116.0051
-----
SPF count: 7
=====
```

#### *output definitions*

---

<b>Node</b>	The system ID of the routers.
<b>Interface</b>	The Interface name of the router.
<b>Nexthop</b>	The system ID of the Next Hop router.

---

```
-> show ip isis spf detail
=====
ISIS Path Table
=====
Node       : 1720.2116.0051.00      Metric   : 10
Interface  : vlan2                  SNPA     : 00:d0:95:f3:0f:08
```

Nexthop : 1720.2116.0051

Node : 1720.2116.0051.00      Metric : 10  
Interface : vlan3              SNPA : 00:d0:95:f3:0f:08  
Nexthop : 1720.2116.0051

Node : 1720.2116.0051.00      Metric : 10  
Interface : vlan4              SNPA : 00:d0:95:f3:0f:08  
Nexthop : 1720.2116.0051

Node : 1720.2116.0051.00      Metric : 10  
Interface : vlan5              SNPA : 00:d0:95:f3:0f:08  
Nexthop : 1720.2116.0051

-----  
SPF count: 4  
=====

### *output definitions*

---

<b>Node</b>	The system ID of the routers.
<b>Metric</b>	The metric value used for SPF calculations.
<b>Interface</b>	The interface name of the router.
<b>SNPA</b>	The SNPA address of the router.
<b>Nexthop</b>	The system ID of the Next Hop router.
<b>SPF count</b>	The number of SPF calculations done by the router.

---

## **Release History**

Release 6.2.1; command was introduced.

## **Related Commands**

**show ip isis spf-log**              Displays the IS-IS SPF log.  
**show ip isis status**              Displays the IS-IS status.

## **MIB Objects**

vRtrIisisPathTable  
  vRtrIisisPathID  
  vRtrIisisPathIfIndex  
  vRtrIisisPathNHopSysID  
  vRtrIisisPathMetric  
  vRtrIisisPathSNPA

---

## show ip isis spf-log

Displays the IS-IS SPF log.

**show ip isis spf-log [detail]**

---

### Syntax Definitions

**detail** Indicates that the output is displayed in a detailed manner.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

This command displays the last 20 IS-IS SPF events.

### Examples

```
-> show ip isis spf-log
ISIS SPFLog
=====
When          Duration      L1-Nodes    L2-Nodes    Event-Count
-----
01/30/2005 11:01:54 <0.01s 1           1           3
-----
Log Entries : 1
```

#### *output definitions*

---

<b>When</b>	The date on which the SPF calculation was completed.
<b>Duration</b>	The time duration of the event.
<b>L1-Nodes</b>	The number of Level-1 nodes.
<b>L2-Nodes</b>	The number of Level-2 nodes.
<b>Event-Count</b>	The number of SPF calculations.
<b>Log Entries</b>	The total number of log entries.

---

```
-> show ip isis spf-log detail
=====
ISIS SPFLog
=====
SpfTimeStamp      : SUN OCT 01 05:15:29 2006
spfRunTime        : 0
Spf Involved L1 Nodes : 69
Spf Involved L2 Nodes : 71
Spf Event-count    : 169
Last TriggeredLspId : 0020.0200.2001.00-4a
```

```

Spf Trigger Reason      : newAdjacency(0) ,lspExpired(8) ,lspChanged(10)
SpfTimeStamp           : SUN OCT 01 05:15:46 2006
spfRunTime             : 0
Spf Involved L1 Nodes  : 72
Spf Involved L2 Nodes  : 72
Spf Event-count        : 227
Last TriggeredLspId   : 0020.0200.2001.00-4a
Spf Trigger Reason     : newAdjacency(0) ,lspExpired(8) ,lspChanged(10)

```

```

-----
Log Entries : 2
=====

```

### *output definitions*

<b>SpfTimeStamp</b>	The timestamp when the SPF run started on the system.
<b>spfRunTime</b>	The time (in hundredths of a second) required to complete the SPF run.
<b>Spf Involved L1 Nodes</b>	The number of Level-1 nodes involved in the SPF calculation.
<b>Spf Involved L2 Nodes</b>	The number of Level-2 nodes involved in the SPF calculation.
<b>Spf Event-count</b>	The number of SPF events that triggered the SPF calculation.
<b>Last TriggeredLspId</b>	The LSP ID of the last LSP processed before the SPF run.
<b>Spf trigger Reason</b>	Indicates the reasons ( <b>newAdjacency</b> , <b>lspExpired</b> , or <b>lspChanged</b> ) for SPF calculations.
<b>Log Entries</b>	The number of SPF logs.

## Release History

Release 6.2.1; command was introduced.

## Related Commands

[show ip isis spf](#) Displays the IS-IS SPF calculation information.  
[clear ip isis spf-log](#) Clears and resets the IS-IS SPF log information.

## MIB Objects

```

vRtrIisisSpfLogTable
  vRtrIisisSpfRunTime
  vRtrIisisSpfL1Nodes
  vRtrIisisSpfL2Nodes
  vRtrIisisSpfEventCount
  vRtrIisisSpfLastTriggerLSPId
  vRtrIisisSpfTriggerReason

```

## show ip isis statistics

Displays the IS-IS statistics information.

**show ip isis statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip isis statistics
```

```
=====
ISIS Statistics
=====
ISIS Instance           : 1                SPF Runs           : 44
Purge Intiated         : 0                LSP Regens        : 54
CSPF Statistics
Requests               : 0                Request Drops     : 0
Paths Found            : 0                Paths Not Found   : 0
-----
PDU Type  Received  Processed  Dropped  Sent      Retransmitted
-----
LSP        185       184       1        54        0
IIH        8382      8382      0        2796      0
CSNP       3352      352       0         0         0
PSNP        0         0         0         4         0
Unknown    0           0         0         0         0
```

#### *output definitions*

---

<b>ISIS Instance</b>	The number of IS-IS instances.
<b>SPF Runs</b>	The number of SPF calculations that have been performed.
<b>Purge Intiated</b>	The number of purges that the system initiated. A purge is initiated if the router decides that a link-state PDU must be removed from the data-base.
<b>LSP Regens</b>	The number of LSPs that have been regenerated. An LSP is regenerated when it nears the end of its lifetime and has not changed.
<b>Requests</b>	The number of CSNP requests received.



*output definitions (continued)*

---

<b>Request Drops</b>	The number of CSNP requests that are dropped.
<b>Paths Found</b>	The number of paths found.
<b>Paths Not Found</b>	The number of paths not found.
<b>PDU Type</b>	The type of PDU.
<b>Received</b>	The number of PDUs received since IS-IS started or since the statistics were set to zero.
<b>Processed</b>	The number of PDUs that are processed (number of PDUs received less the number dropped).
<b>Dropped</b>	The number of PDUs that are dropped.
<b>Sent</b>	The number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
<b>Retransmitted</b>	The number of PDUs that are retransmitted.

---

**Release History**

Release 6.2.1; command was introduced.

**Related Commands**

[clear ip isis statistics](#) Clears and resets the IS-IS statistics information.

---

## MIB Objects

vRtrIisisStatsTable  
vRtrIisisSpfRuns  
vRtrIisisLSPRegenerations  
vRtrIisisInitiatedPurges  
vRtrIisisLSPRecd  
vRtrIisisLSPDrop  
vRtrIisisLSPSent  
vRtrIisisLSPRetrans  
vRtrIisisIIHRecd  
vRtrIisisIIHDrop  
vRtrIisisIIHSent  
vRtrIisisIIHRetrans  
vRtrIisisCSNPRecd  
vRtrIisisCSNPDrop  
vRtrIisisCSNPSent  
vRtrIisisCSNPRetrans  
vRtrIisisPSNPRecd  
vRtrIisisPSNPDrop  
vRtrIisisPSNPSent  
vRtrIisisPSNPRetrans  
vRtrIisisUnknownRecd  
vRtrIisisUnknownDrop  
vRtrIisisUnknownSent  
vRtrIisisUnknownRetrans  
vRtrIisisCSPFRequests  
vRtrIisisCSPFDroppedRequests  
vRtrIisisCSPFPathsFound  
vRtrIisisCSPFPathsNotFound

---

## show ip isis status

Displays the IS-IS status.

**show ip isis status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show isis status
=====
ISIS Status
=====
System Id : 0050.0500.5001
Admin State      : UP
Last Enabled    : WED OCT 24 10:05:55 2007
Level Capability : L1L2
Authentication Check : True
Authentication Type : None
Graceful Restart : Disabled
GR helper-mode   : Disabled
LSP Lifetime     : 1200
LSP Wait         : Max :5 sec, Initial :0 sec, Second :1 sec
Adjacency Check  : Loose
L1 Auth Type     : None
L2 Auth Type     : None
L1 Wide Metrics-only : Disabled
L2 Wide Metrics-only : Disabled
L1 LSDB Overload : Disabled
L2 LSDB Overload  : Disabled
L1 LSPs          : 177
L2 LSPs          : 177
Last SPF         : FRI OCT 26 05:04:09 2007
SPF Wait        : Max :10000 ms, Initial :1000 ms, Second :1000 ms
Hello-Auth Check : Enabled
Csnp-Auth Check  : Enabled
Psnp-Auth Check  : Enabled
L1 Hello-Auth Check : Enabled
L1 Csnp-Auth Check : Enabled
L1 Psnp-Auth Check : Enabled
```

```

L2 Hello-Auth Check      : Enabled
L2 Csnp-Auth Check      : Enabled
L2 Psnp-Auth Check      : Enabled
Area Address             : 49.0000
=====

```

### *output definitions*

<b>System Id</b>	The system ID of the router. The system ID is a fixed size, six octet field in the NSAP. In an IS-IS routing domain, each router is identified by a 6-octet hexadecimal system ID.
<b>Admin State</b>	The state of the router ( <b>Up</b> or <b>Down</b> ).
<b>Last Enabled</b>	The date and time when the router is enabled.
<b>Level Capability</b>	The level capability of the router ( <b>L1</b> , <b>L2</b> , or <b>L1L2</b> ).
<b>Authentication Check</b>	Indicates the status of the authentication ( <b>true</b> or <b>false</b> ).
<b>Authentication Type</b>	The type of authentication ( <b>password</b> or <b>md5</b> ).
<b>Graceful Restart</b>	Indicates if graceful restart is <b>Enabled</b> or <b>Disabled</b> .
<b>GR helper-mode</b>	Indicates if the helper mode of graceful restart is <b>Enabled</b> or <b>Disabled</b> .
<b>LSP Lifetime</b>	The Lifetime of the LSP (in seconds).
<b>LSP Wait</b>	The Wait time of the LSP (in seconds).
<b>Adjacency Check</b>	The adjacency check configuration on the router
<b>L1 Auth Type</b>	The authentication type ( <b>password</b> or <b>md5</b> ) for Level-1 adjacency.
<b>L2 Auth Type</b>	The authentication type ( <b>password</b> or <b>md5</b> ) for Level-2 adjacency.
<b>L1 Wide Metrics-only</b>	Indicates whether wide metrics is <b>Enabled</b> or <b>Disabled</b> for Level-1 adjacency.
<b>L2 Wide Metrics-only</b>	Indicates whether wide metrics is <b>Enabled</b> or <b>Disabled</b> for Level-2 adjacency.
<b>L1 LSDB Overload</b>	Indicates whether LSDB Overload is <b>Enabled</b> or <b>Disabled</b> for Level-1 adjacency.
<b>L2 LSDB Overload</b>	Indicates whether LSDB Overload is <b>Enabled</b> or <b>Disabled</b> for Level-2 adjacency.
<b>L1 LSPs</b>	The number of LSPs for Level-1 adjacency.
<b>L2 LSPs</b>	The number of LSPs for Level-2 adjacency.
<b>Last SPF</b>	The date and duration of the last SPF calculation.
<b>SPF Wait</b>	The Wait time for the SPF calculation.
<b>Hello-Auth Check</b>	Indicates the status of global Hello authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Csnp-Auth Check</b>	Indicates the status of global CSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Psnp-Auth Check</b>	Indicates the status of global PSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>L1 Hello-Auth Check</b>	Indicates the status of L1 Hello authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>L1 Csnp-Auth Check</b>	Indicates the status of L1 CSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).

*output definitions (continued)*

<b>L1 Psnp-Auth Check</b>	Indicates the status of L1 PSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>L2 Hello-Auth Check</b>	Indicates the status of L2 Hello authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>L2 Csnp-Auth Check</b>	Indicates the status of L2 CSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>L2 Psnp-Auth Check</b>	Indicates the status of L2 PSNP authentication check ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Area Address</b>	The area address of the router.

**Release History**

Release 6.2.1; command was introduced.

Release 6.3.1; Adjacency Check field was added.

**Related Commands**

<b>ip isis status</b>	Enables or disables the administration status of IS-IS on the router.
<b>ip isis level-capability</b>	Configures the router level of the IS-IS protocol globally.
<b>ip isis auth-type</b>	Configures authentication type of IS-IS protocol globally.
<b>ip isis csnp-auth</b>	Enables or disables the authentication of CSNPs.
<b>ip isis hello-auth</b>	Enables or disables the authentication of Hello PDUs globally.
<b>ip isis psnp-auth</b>	Enables or disables the authentication of PSNPs.
<b>ip isis graceful-restart</b>	Configures graceful restart on the router.
<b>ip isis overload</b>	Sets the IS-IS router to operate in the overload state for a specified time period.
<b>ip isis overload-on-boot</b>	Configures the IS-IS router to be in the overload state after bootup for a specified time period.
<b>ip isis lsp-wait</b>	Configures the time interval between successively generated LSPs.
<b>ip isis spf-wait</b>	Configures the time interval between successive Shortest Path First (SPF) calculations.
<b>ip isis level auth-type</b>	Enables the authentication and configures the authentication types for specific IS-IS levels.
<b>ip isis level hello-auth</b>	Enables or disables the authentication of Hello PDUs for specific IS-IS levels.
<b>ip isis level csnp-auth</b>	Enables or disables the authentication of CSNPs for specific IS-IS levels.
<b>ip isis level psnp-auth</b>	Enables or disables the authentication of PSNP PDUs for specific IS-IS levels.
<b>ip isis level wide-metrics-only</b>	Configures wide metrics in LSPs for specific IS-IS levels.
<b>ip isis area-id</b>	Configures the area ID for the switch.
<b>ip isis auth-check</b>	Enables or disables authentication check for IS-IS PDUs.

- ip isis graceful-restart helper** Administratively enables and disables the IS-IS router to operate in the helper mode in response to a router performing a graceful restart.
- ip isis lsp-lifetime** Configures the time interval for which Link State PDUs generated by a router are considered valid by other routers in the same domain.
- ip isis strict-adjacency-check** Enables or disables the adjacency check configuration on the router.

**MIB Objects**

```
isisSysTable
  isisSysType
  isisSysID
  isisSysSetOverload
  isisSysAdminState
vRtrIisisTable
  vRtrIisisLastEnabledTime
  vRtrIisisAuthKey
  vRtrIisisAuthType
  vRtrIisisLspLifetime
  vRtrIisisOverloadTimeout
  vRtrIisisLastSpfRun
  vRtrIisisGracefulRestart
  vRtrIisisOverloadOnBootv
  vRtrIisisOverloadOnBootimeout
  vRtrIisisSpfWait
  vRtrIisisSpfInitialWait
  vRtrIisisSpfSecondWait
  vRtrIisisLspMaxWait
  vRtrIisisLspInitialWait
  vRtrIisisLspSecondWait
  vRtrIisisCsnpAuthentication
  vRtrIisisHelloAuthentication
  vRtrIisisPsnpAuthentication
  vRtrIisisGRHelperMode
  vRtrIisisSpfWait
vRtrIisisLevelTable
  vRtrIisisLevelAuthKey
  vRtrIisisLevelAuthType
  vRtrIisisLevelExtPreference
  vRtrIisisLevelPreference
  vRtrIisisLevelWideMetricsOnly
  vRtrIisisLevelCsnpAuthentication
  vRtrIisisLevelPsnpAuthentication
  vRtrIisisLevelHelloAuthentication
  vRtrIisisLevelWideMertic
  vRtrIisisLevelNumLSPs
```

---

## show ip isis summary-address

Displays the IS-IS summary address database.

**show ip isis summary-address** [*ip-addr* [/i>mask]]

---

### Syntax Definitions

*ip-addr*                                    The 32-bit IP address.

*/mask*                                     The netmask value. The valid range is 1–32.

### Defaults

By default summary address information for all the IP addresses is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the *ip-addr* parameter with this command to view the summary address information for a specific IP address.

### Examples

```
-> show ip isis summary-address
=====
ISIS Summary Address
=====
Address                                    Level
-----
1.0.0.0/8                                 L1
2.1.0.0/24                                L1L2
3.1.2.3/32                                L2
-----

Summary Address : 3
```

#### *output definitions*

---

<b>Address</b>	The summary address for a range of IPv4 addresses.
<b>Level</b>	The capability level of the router.
<b>Summary Address</b>	The number of summarized addresses.

---

### Release History

Release 6.2.1; command was introduced.



## Related Commands

**ip isis summary-address** Adds or deletes the summary address.

## MIB Objects

vRtrIsissummaryTable

    vRtrIsisSummPefix

    vRtrIsisSummMask

    vRtrIsisSummLevel

---

## ip isis interface

Creates an IS-IS interface.

**ip isis interface** *interface\_name*

**no ip isis interface** *interface\_name*

---

### Syntax Definitions

*interface\_name*                      The name of the IS-IS interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the IS-IS interface.
- The interface name cannot contain spaces.

### Examples

```
-> ip isis interface vlan-101
-> no ip isis interface vlan-101
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#)                      Displays the IS-IS interface information.

### MIB Objects

```
vRtrIisisIfTable
  vRtrIisisIfRowStatus
```

---

## ip isis interface status

Enables or disables IS-IS on an interface.

**ip isis interface** *interface\_name* **status {enable / disable}**

---

### Syntax Definitions

<i>interface_name</i>	Name of the interface.
<b>enable</b>	Administratively enables IS-IS on the interface.
<b>disable</b>	Administratively disables IS-IS on the interface.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

When the status is manually disabled, the configuration settings and related statistics of the protocol remain unaffected.

### Examples

```
-> ip isis interface vlan-101 status enable
-> ip isis interface vlan-101 status disable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#) Displays the IS-IS interface information.

### MIB Objects

```
isisCircTable
  isisCircAdminState
```

---

## ip isis interface interface-type

Configures the IS-IS interface as broadcast or point-to-point.

**ip isis interface** *interface\_name* **interface-type** {**broadcast** | **point-to-point**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>broadcast</b>	Sets the interface as a broadcast IS-IS interface.
<b>point-to-point</b>	Sets the interface as a point-to-point IS-IS interface.

### Defaults

parameter	default
<b>broadcast</b>   <b>point-to-point</b>	<b>broadcast</b>

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A.

### Examples

```
-> ip isis interface vlan-101 interface-type broadcast
-> ip isis interface vlan-101 interface-type point-to-point
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

<a href="#">ip isis interface default-type</a>	Sets the interface type to default
<a href="#">show ip isis interface</a>	Displays the IS-IS interface information.

### MIB Objects

```
isisCircTable
    isisCircType
```

---

## ip isis interface csnp-interval

Configures the time interval to send CSNPs from the specified interface.

**ip isis interface** *interface\_name* **csnp-interval** *seconds*

**no ip isis interface** *interface\_name* **csnp-interval**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The time interval (1–65535) in seconds between successive CSNP PDUs sent on this interface.

### Defaults

parameter	default
<i>seconds (broadcast)</i>	10
<i>seconds (point-to-point)</i>	5

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to restore the settings to the default value.

### Examples

```
-> ip isis interface vlan-101 csnp-interval 50
-> no ip isis interface vlan-101 csnp-interval
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#)                      Displays the IS-IS interface information.

### MIB Objects

vRtrisisIftable  
vRtrIsisIfCsnpInterval

---

## ip isis interface hello-auth-type

Configures the authentication of Hello PDUs on a specific interface.

```
ip isis interface interface_name hello-auth-type {simple {key key | encrypt-key encrypt-key} | md5 {key key | encrypt-key encrypt-key} | none}
```

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>simple</b>	Simple authentication will be used.
<b>md5</b>	Specifies that MD5 authentication algorithm will be used. Hash-key will be used in MD5 authentication.
<i>key</i>	Key will be plain text ASCII up to 118 characters. Use quotes around string if the key contains multiple words with spaces between them.
<i>encrypt-key</i>	The key in hexadecimal format to provide security consideration on the authentication key. Configuration snapshot always displays authentication key in the encrypted form.
<b>none</b>	No authentication will be used.

### Defaults

parameter	default
simple / md5 / none	none

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Simple authentication uses only a text string as the password in the packet. This helps to protect the routers from a configuration mishap. MD5 authentication is used to protect the system from malicious actions.
- MD5 authentication is used to encrypt the information that is sent over the network. MD5 authentication uses shared secret key. The Key is used to sign the packets with an MD5 checksum to sign the packet, so that the packets cannot be tampered. As the key is not included in the packet, snooping the key is not possible.
- Use the Key parameter to configure the password for Simple or MD5 authentication. Alternatively, use the *encrypt-key* parameter to configure the password by supplying the encrypted form of the password as the *encrypt-key*. The Configuration snapshot always displays the password in the encrypted form. You should use only this *key* parameter during the CLI configuration.
- If the *encrypt-key* parameter is used to configure the password through the CLI, then its value should be the same as the one that appears in the configuration snapshot. Only valid system generated values are accepted as *encrypt-key*.

- By default, the authentication is disabled and no authentication type is configured.

## Examples

```
-> ip isis interface vlan-101 hello-auth-type md5 encrypt-key 7a1e441a014b4030
-> ip isis interface vlan-101 hello-auth-type none
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **key** and **encrypt-key** parameters were added.

## Related Commands

<a href="#">ip isis interface level hello-auth-type</a>	Configures the authentication of Hello PDUs for the specified IS-IS level of an interface.
<a href="#">show ip isis interface</a>	Displays the IS-IS interface information.

## MIB Objects

```
vRtrIisisIfTable
  vRtrIisisIfHelloAuthType
  vRtrIisisIfHelloAuthKey
```

---

## ip isis interface level-capability

Configures the IS-IS level on the specified interface.

**ip isis interface** *interface\_name* **level-capability** [level-1 | level-2 | level-1/2]

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>level-1</b>	Specifies that the interface can operate at Level-1 only.
<b>level-2</b>	Specifies that the interface can operate at Level-2 only.
<b>level-1/2</b>	Specifies that the interface can operate at both Level-1 and Level-2.

### Defaults

parameter	default
level-1   level-2   level-1/2	level-1/2

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Changing the level capability restarts the IS-IS protocol on the interface.
- If the level capability is configured globally and on a specific interface, the combination of the two settings will decide the potential adjacency.

### Examples

```
-> ip isis interface vlan-101 level-capability level-1
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

<a href="#">ip isis level-capability</a>	Configures the router level of the IS-IS protocol globally.
<a href="#">show ip isis interface</a>	Displays the IS-IS interface information.

### MIB Objects

```
isisCircTable
  isisCircLevel
```

---



## ip isis interface lsp-pacing-interval

Configures the time interval between IS-IS LSP PDUs sent from the specified interface.

**ip isis interface** *interface\_name* **lsp-pacing-interval** *milliseconds*

**no ip isis interface** *interface\_name* **lsp-pacing-interval**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*milliseconds*                      The time interval in milliseconds (from 0 to 65535) between IS-IS LSPs.

### Defaults

parameter	default
<i>milliseconds</i>	100

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default settings.
- No LSPs are sent from the specified interface if the time interval is set to 0.

### Examples

```
-> ip isis interface vlan-101 lsp-pacing-interval 120  
-> no ip isis interface vlan-101 lsp-pacing-interval
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**ip isis lsp-lifetime**                      Configures the time interval for which LSPs generated by a router is considered valid by other routers in the same domain.

**ip isis lsp-wait**                      Configures the time interval between successively generated LSPs.

**show ip isis interface**                      Displays the IS-IS interface information.

### MIB Objects

vRtrIisisIfTable  
vRtrIisisIfLspPacingInterval

---

---

## ip isis interface passive

Configures the interface as passive.

**ip isis interface** *interface\_name* **passive**

**no ip isis interface** *interface\_name* **passive**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

By default, the interface passive configuration is disabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the passive attribute.
- The passive interface will not permit ingressing and egressing IS-IS PDUs.

### Examples

```
-> ip isis interface lan-1 passive
-> no ip isis interface lan-1 passive
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

**ip isis interface level passive**      Configures the interface as passive at the specified IS-IS level.  
**show ip isis interface**              Displays the IS-IS interface information.

### MIB Objects

```
isisCircTable
    isisCircPassiveCircuit
```

---

## ip isis interface retransmit-interval

Configures the minimum time interval between LSP retransmissions on a point-to-point interface.

**ip isis interface** *interface\_name* **retransmit-interval** *seconds*

**no ip isis interface** *interface\_name* **retransmit-interval**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The minimum time interval (1–65535) in seconds between LSP transmissions on a point-to-point interface.

### Defaults

parameter	default
<i>seconds</i>	5

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to restore the default settings.

### Examples

```
-> ip isis interface lan-3 retransmit-interval 130
-> no ip isis interface lan-4 retransmit-interval
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#)                      Displays the IS-IS interface information.

### MIB Objects

```
vRtrIisisIfTbale
  vRtrIisisIfRetransmitInterval
```

---

---

## ip isis interface default-type

Sets the interface type to default.

**ip isis interface** *interface\_name* **default-type**

---

### Syntax Definitions

*interface\_name*                      The IP interface name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

This command is used to indicate whether the circuit type is default or has been modified.

### Examples

```
-> ip isis interface lan-3 default-type
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[ip isis interface interface-type](#)    Configures the IS-IS interface as broadcast or point-to-point.

### MIB Objects

vRtrIisisIfTable  
    vRtrIisisIfTypeDefault

---

## ip isis interface level hello-auth-type

Configures the authentication of Hello PDUs for the specified IS-IS level of an interface.

**ip isis interface** *interface\_name* **level** [1 | 2] **hello-auth-type** {**simple** {**key** *key* | **encrypt-key** *encrypt-key*} | **md5** {**key** *key* | **encrypt-key** *encrypt-key*} | **none**}

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>1</b>	Specifies the IS-IS level as Level-1.
<b>2</b>	Specifies the IS-IS level as Level-2.
<b>simple</b>	Simple authentication will be used.
<b>md5</b>	Specifies that MD5 authentication algorithm will be used. Hash-key will be used in MD5 authentication.
<i>key</i>	Key will be plain text ASCII up to 118 characters. Use quotes around string if the key contains multiple words with spaces between them.
<i>encrypt-key</i>	The key in hexadecimal format to provide security consideration on the authentication key. Configuration snapshot always displays authentication key in the encrypted form.
<b>none</b>	No authentication will be used.

### Defaults

parameter	default
<b>simple / md5 / none</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Simple authentication uses only a text string as the password in the packet. This helps to protect the routers from a configuration mishap. MD5 authentication is used to protect the system from malicious actions.
- MD5 authentication is used to encrypt the information that is sent over the network. MD5 authentication uses shared secret key. The Key is used to sign the packets with an MD5 checksum to sign the packet, so that the packets cannot be tampered. As the key is not included in the packet, snooping the key is not possible.
- Use the Key parameter to configure the password for Simple or MD5 authentication. Alternatively, use the *encrypt-key* parameter to configure the password by supplying the encrypted form of the password as the encrypt-key. The Configuration snapshot always displays the password in the encrypted form. You should use only this *key* parameter during the CLI configuration.

- If the *encrypt-key* parameter is used to configure the password through the CLI, then its value should be the same as the one that appears in the configuration snapshot. Only valid system generated values are accepted as *encrypt-key*.
- This command also configures the authentication type and the corresponding key. These settings override the configuration done on the specific interface.
- By default, the authentication is disabled and no authentication type is configured.

## Examples

```
-> ip isis interface wan-50 level 1 hello-auth-type md5 key xyz123
-> ip isis interface man-80 level 2 hello-auth-type none
```

## Release History

Release 6.2.1; command was introduced.

## Related Commands

**ip isis interface hello-auth-type** Configures the authentication of Hello PDUs on a specific interface.  
**show ip isis interface** Displays the IS-IS interface information.

## MIB Objects

```
vRtrIisisIfLevelTable
  vRtrIisisIfLevelHelloAuthType
  vRtrIisisIfLevelHelloAuthKey
```

---

## ip isis interface level hello-interval

Configures the time interval between the successive Hello PDUs for the specified IS-IS level of an interface.

**ip isis interface** *interface\_name* **level** [1 | 2] **hello-interval** *seconds*

**no ip isis interface** *interface\_name* **level** [1 | 2] **hello-interval**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

*seconds*                              The Hello interval, in seconds. The valid range is 1–20000.

### Defaults

parameter	default
<i>seconds (designated routers)</i>	3
<i>seconds (non-designated routers)</i>	9

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to restore the default settings.

### Examples

```
-> ip isis interface man-1 level 1 hello-interval 50
-> no isis interface wan-876 level 2 hello-interval
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#)                      Displays the IS-IS interface information.

### MIB Objects

vRtrIsisIfLevelTable  
vRtrIsisIfLevelHelloTimer

---

## ip isis interface level hello-multiplier

Configures the number of missing Hello PDUs from a neighbor, after which the adjacency is declared as down.

**ip isis interface** *interface\_name* **level** [1 | 2] **hello-multiplier** *number*

**no ip isis interface** *interface\_name* **level** [1 | 2] **hello-multiplier**

---

### Syntax Definitions

*interface\_name*                      The name of the interface.  
*number*                                The multiplier (2–100) of the Hello interval.

### Defaults

parameter	default
<i>number</i>	3

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to restore the default settings.

### Examples

```
-> ip isis interface lan-1 level 1 hello-multiplier 10
-> no ip isis interface lan-1 level 2 hello-multiplier
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis interface](#)                      Displays the IS-IS interface information.

### MIB Objects

```
isisCircLevelTable
  isisCircLevelHelloMultiplier
```

---



## ip isis interface level metric

Configures the metric value of the specified IS-IS level of the interface.

**ip isis interface** *interface\_name* **level** [1 | 2] **metric** *number*

**no ip isis interface** *interface\_name* **level** [1 | 2] **metric**

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>1</b>	Specifies the IS-IS level as Level-1.
<b>2</b>	Specifies the IS-IS level as Level-2.
<i>number</i>	The metric value (1–16777215) assigned for the specified level of the interface.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>number</i>	10

---

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default value.
- To calculate the lowest cost to reach a destination, each configured level on each interface must have a cost.

### Examples

```
-> ip isis interface interface-1 level 1 metric 25  
-> no ip isis interface interface-2 level 2 metric
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**show ip isis interface**      Displays the IS-IS interface information.

## MIB Objects

vRtrIisisIfLevelTable  
vRtrisisIfLevelAdminMetric

---

## ip isis interface level passive

Configures the interface as passive at the specified IS-IS level.

**ip isis interface** *interface\_name* **level [1 | 2] passive**

**no ip isis interface** *interface\_name* **level [1 | 2] passive**

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<b>1</b>	Specifies the IS-IS level as Level-1.
<b>2</b>	Specifies the IS-IS level as Level-2.

### Defaults

By default, the interface level passive configuration is disabled.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the passive attribute.
- The passive interface will not permit ingressing and egressing IS-IS PDUs.

### Examples

```
-> ip isis interface lan-5 level 1 passive
-> no ip isis interface wan-10 level 1 passive
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

<a href="#">ip isis interface passive</a>	Configures the interface as passive.
<a href="#">show ip isis interface</a>	Displays the IS-IS interface information.

### MIB Objects

```
vRtrIisisIfLevelTable
  vRtrIisisIfLevelPassive
```

---

## ip isis interface level priority

Configures the IS-IS router interface priority for the designated router election on a multi-access network.

**ip isis interface** *interface\_name* **level** [1 | 2] **priority** *number*

**no ip isis interface** *interface\_name* **level** [1 | 2] **priority**

---

### Syntax Definitions

<i>interface_name</i>	The name of the given IP interface.
<b>1</b>	Specifies the IS-IS level as Level-1.
<b>2</b>	Specifies the IS-IS level as Level-2.
<i>number</i>	The priority value of this interface at this level. The valid range is 0–127.

### Defaults

parameter	default
<i>number</i>	64

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default value.
- The router with the highest priority is the preferred designated router.
- The designated router sends LSPs to this network and also to the routers that are attached to it.

### Examples

```
-> ip isis interface vlan-isis level 1 priority 4
-> ip isis interface vlan-isis level 2 priority 4
-> no ip isis interface vlan-isis level 1 priority
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

**show ip isis interface**                      Displays the IS-IS interface information.

## MIB Objects

vRtrIisisIfLevelTable  
    vRtrIisisIfLevelISPriority

---

## show ip isis interface

Displays the IS-IS interface information.

**show ip isis interface** [*interface\_name*] [**detail**]

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

**detail**                                Indicates that the output is displayed in a detailed manner.

### Defaults

By default the interface information for all the interfaces is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Use the *interface\_name* parameter with this command to view information for a specific interface.

### Examples

```
-> show ip isis interface
=====
ISIS Interfaces
=====
Interface      Level          CircID      Oper-state    Admin-state    L1/L2-Metric
-----
system            L1L2            1            Up            Up            10/10
if2/1            L2               8            Up            Up            - /10
if2/2            L1               5            Up            Up            10/-
if2/3            L1               6            Up            Up            10/-
if2/4            L1               7            Up            Up            10/-
if2/5            L2               2            Up            Up            -/10
lag-1            L2               3            Up            Up            -/10
if2/8            L2               4            Up            Up            -/10
-----
Interfaces : 8
```

### *output definitions*

---

<b>Interface</b>	The name of the IS-IS interface.
<b>Level</b>	The level capability of the interface.
<b>CircID</b>	The circuit ID of the interface.
<b>Oper-state</b>	The operational state of the interface ( <b>up</b> or <b>down</b> ).
<b>Admin-state</b>	The administrative state of the interface ( <b>up</b> or <b>down</b> ).
<b>L1/L2 -Metric</b>	The metric value of the router for the corresponding capability level.
<b>Interfaces</b>	The total number of interfaces.

---

```

-> show ip isis interface detail
=====
ISIS Interface
=====
-----
Interface          : system          Level Capability   : L1L2
Oper State         : Up              Admin State       : Up
Auth Type          : None
Circuit Id         : 1              RetransmitInt     : 5
Type               : Broadcast      LSP Pacing Int   : 100
Mesh Group         : Inactive      CSNP Int          : 10
Level              : 1              Adjacencies       : 0
Desg IS            : abr_nyc
Auth Type          : None              Metric            : 10
Hello Timer        : 9              Hello Mult        : 3
Priority           : 64              Passive           : No
Level              : 2              Adjacencies       : 0
Desg IS            : abr_nyc
Auth Type          : None              Metric            : 10
Hello Timer        : 9              Hello Mult        : 3
Priority           : 64              Passive           : No
-----
Interface          : if2/1          Level Capability   : L2
Oper State         : Up              Admin State       : Up
Auth Type          : None
Circuit Id         : 8              RetransmitInt     : 5
Type               : Pt-to-Pt      LSP Pacing Int   : 100
Mesh Group         : Inactive      CSNP Int          : 10
Level              : Pt-to-Pt
Desg IS            : abr_nyc
Auth Type          : None              Metric            : 10
Hello Timer        : 9              Hello Mult        : 3
Priority           : 64              Passive           : No

```

### output definitions

<b>Interface</b>	The name of the IS-IS interface.
<b>Level Capability</b>	The level capability of the interface.
<b>Oper State</b>	The operational state of the interface ( <b>up</b> or <b>down</b> ).
<b>Admin State</b>	The administrative state of the interface ( <b>up</b> or <b>down</b> ).
<b>Auth Type</b>	Indicates the authentication type ( <b>simple</b> , <b>MD5</b> , or <b>none</b> ) of the interface.
<b>Circuit Id</b>	The circuit ID of the interface.
<b>RetransmitInt</b>	Specifies the minimal interval of time, in seconds between retransmission of an LSP on the point-to-point interface.
<b>Type</b>	The type of interface: <b>Broadcast</b> or <b>Pt-to-Pt</b> (point to point).
<b>LSP Pacing Int</b>	The LSP Pacing interval.
<b>Mesh Group</b>	The status of the mesh group ( <b>Active</b> or <b>Inactive</b> ).
<b>CSNP Int</b>	The CSNP interval.
<b>Level</b>	Indicates the IS-IS level of the neighbor ( <b>L1</b> , <b>L2</b> , or <b>L1L2</b> ).
<b>Adjacencies</b>	The number of adjacencies formed.

*output definitions (continued)*


---

<b>Desg IS</b>	The ID of the LAN Designated Intermediate System on this circuit at this level.
<b>Auth Type</b>	Indicates the authentication type ( <b>simple</b> , <b>MD5</b> , or <b>none</b> ) for the specified level.
<b>Metric</b>	The metric value of this circuit for a specific level.
<b>Hello Timer</b>	Indicates the Hello timer value.
<b>Hello Mult</b>	Indicates the Hello multiplier value.
<b>Priority</b>	The priority value of the interface.
<b>Passive</b>	Indicates whether the interface is configured as a passive interface ( <b>Yes</b> or <b>No</b> ).

---

**Release History**

Release 6.2.1; command was introduced.

**Related Commands**

[ip isis interface](#) Creates an IS-IS interface.

**MIB Objects**

```

isisCircTable
  isisCircLocalID
  isisCircAdminState
  isisCircType
  isisCircLevel
  isisCircPassiveCircui
  isisCircMeshGroup
isisCircLevelTable
  isisCircLevelISPriority
  isisCircLevelCircID
  isisCircLevelDesIS
  isisCircLevelHelloMultiplier
  isisCircLevelHelloTimer
  isisCircLevelCSNPInterval
vRtrIsisIfTable
  vRtrIsisIfAdminState
  vRtrIsisIfOperState
  vRtrIsisIfCsnpInterval
  vRtrIsisIfHelloAuthKey
  vRtrIsisIfHelloAuthType
  vRtrIsisIfLspPacingInterval
  vRtrIsisIfRetransmitInterval
vRtrIsisIfLevelTable
  vRtrIsisIfLevelHelloAuthKey
  vRtrIsisIfLevelHelloAuthType
  vRtrIsisIfLevelPassive
  vRtrIsisIfLevelNumAdjacencies
  vRtrIsisIfLevelISPriority
  vRtrIsisIfLevelHelloTimer

```



```
vRtrIisisLevelOperMetric  
vRtrIisisIfLevelAdminMetric
```

---



`vRtrIisisISAdjRestartSupressed`

---

## clear ip isis lsp-database

Clears and resets the IS-IS LSP database information.

**clear ip isis lsp-database** [**system-id** *sys-id*]

---

### Syntax Definitions

*sys-id*                                      The system ID of the router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

If the *sys-id* parameter is specified, only the entries specific to that system ID are removed from the database.

### Examples

```
-> clear ip isis lsp-database system-id 000a.1234.2345
```

### Release History

Release 6.2.1; command was introduced..

### Related Commands

[show ip isis database](#)                      Displays IS-IS LSP database information of the adjacent routers.

### MIB Objects

```
vRtrIsisLSPTable  
  vRtrIsisLSPId  
  vRtrIsisLSPSeq  
  vRtrIsisLSPChecksum  
  vRtrIsisLSPLifetimeRemain  
  vRtrIsisLSPVersion  
  vRtrIsisLSPpktType  
  vRtrIsisLSPpktVersion  
  vRtrIsisLSPMaxArea  
  vRtrIsisLSPSysIdLen  
  vRtrIsisLSPAttributes  
  vRtrIsisLSPUsedLen  
  vRtrIsisLSPAllocLen  
  vRtrIsisLSPBuff  
  vRtrIsisLSPZeroRLT
```

## clear ip isis spf-log

Clears and resets the IS-IS SPF log information.

**clear ip isis spf-log**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> clear ip isis spf-log
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis spf-log](#) Displays the IS-IS SPF log.

### MIB Objects

```
vRtrIsisSpfLogTable  
  vRtrIsisSpfRunTime  
  vRtrIsisSpfL1Nodes  
  vRtrIsisSpfL2Nodes  
  vRtrIsisSpfEventCount  
  vRtrIsisSpfLastTriggerLSPIId  
  vRtrIsisSpfTriggerReason
```

---

## clear ip isis statistics

Clears and resets the IS-IS statistics information.

**clear ip isis statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> clear ip isis statistics
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show ip isis statistics](#) Displays the IS-IS statistics information.

**MIB Objects**

```
vRtrIisisStatsTable  
  vRtrIisisSpfRuns  
  vRtrIisisLSPRegenerations  
  vRtrIisisInitiatedPurges  
  vRtrIisisLSPRecd  
  vRtrIisisLSPDrop  
  vRtrIisisLSPSent  
  vRtrIisisLSPRetrans  
  vRtrIisisIIHRecd  
  vRtrIisisIIHDrop  
  vRtrIisisIIHSent  
  vRtrIisisIIHRetrans  
  vRtrIisisCSNPRecd  
  vRtrIisisCSNPDrop  
  vRtrIisisCSNPSent  
  vRtrIisisCSNPRetrans  
  vRtrIisisPSNPRecd  
  vRtrIisisPSNPDrop  
  vRtrIisisPSNPSent  
  vRtrIisisPSNPRetrans  
  vRtrIisisUnknownRecd  
  vRtrIisisUnknownDrop  
  vRtrIisisUnknownSent  
  vRtrIisisUnknownRetrans  
  vRtrIisisCSPFRequests  
  vRtrIisisCSPFDroppedRequests  
  vRtrIisisCSPFPathsFound  
  vRtrIisisCSPFPathsNotFound
```

---





# 25 BGP Commands

This chapter describes the CLI commands used to configure the BGP (Border Gateway Protocol) and Multiprotocol extensions to BGP. BGP is a protocol for exchanging routing information between gateway hosts in a network of ASs (autonomous systems). BGP is the most common protocol used between gateway hosts on the Internet. The routing table exchanged contains a list of known routers, the addresses they can reach, and a preference metrics associated with the path to each router so that the best available route is chosen.

Multiprotocol Extensions to BGP-4 supports the exchange of IPv6 unicast prefixes, as well as the establishment of BGP peering sessions with BGP speakers identified by their IPv6 addresses.

The Alcatel-Lucent implementation of BGP-4 and Multiprotocol Extensions to BGP-4 complies with the following RFCs: 4271, 2439, 3392, 2385, 1997, 4456, 3065, 4273, 4760, 2545

---

**Note.** In the following document, the BGP terms “peer” and “neighbor” are used interchangeably to mean any BGP speaker known to the local router.

---

---

**Note.** BGP is supported on the OmniSwitch 6850 Series, and 9000E switches but not on the OmniSwitch 6855 switches.

---

MIB information for BGP is as follows:

*Filename:* AlcatelIND1Bgp.MIB  
*Module:* ALCATEL-IND1-BGP-MIB

*Filename:* IETF\_BGP4.MIB  
*Module:* BGP4-MIB

The following table summarizes the available commands:

<b>Global BGP Commands</b>	<pre> ip load bgp ip bgp status ip bgp unicast ip bgp autonomous-system ip bgp bestpath as-path ignore ip bgp cluster-id ip bgp default local-preference ip bgp fast-external-failover ip bgp always-compare-med ip bgp bestpath med missing-as-worst ip bgp client-to-client reflection ip bgp as-origin-interval ip bgp synchronization ip bgp confederation identifier ip bgp maximum-paths ip bgp log-neighbor-changes ip bgp dampening ip bgp dampening clear show ip bgp show ip bgp statistics show ip bgp dampening show ip bgp dampening-stats show ip bgp path show ip bgp routes </pre>
<b>Aggregate Configuration</b>	<pre> ip bgp aggregate-address ip bgp aggregate-address status ip bgp aggregate-address as-set ip bgp aggregate-address community ip bgp aggregate-address local-preference ip bgp aggregate-address metric ip bgp aggregate-address summary-only show ip bgp aggregate-address </pre>
<b>Network (local route) Configurations</b>	<pre> ip bgp network ip bgp network status ip bgp network community ip bgp network local-preference ip bgp network metric show ip bgp network </pre>

---

<b>Neighbor (Peer) Configuration</b>	<b>ip bgp neighbor</b>
	<b>ip bgp neighbor status</b>
	<b>ip bgp neighbor advertisement-interval</b>
	<b>ip bgp neighbor clear</b>
	<b>ip bgp neighbor route-reflector-client</b>
	<b>ip bgp neighbor default-originate</b>
	<b>ip bgp neighbor timers</b>
	<b>ip bgp neighbor conn-retry-interval</b>
	<b>ip bgp neighbor auto-restart</b>
	<b>ip bgp neighbor maximum-prefix</b>
	<b>ip bgp neighbor md5 key</b>
	<b>ip bgp neighbor ebgp-multihop</b>
	<b>ip bgp neighbor description</b>
	<b>ip bgp neighbor next-hop-self</b>
	<b>ip bgp neighbor passive</b>
	<b>ip bgp neighbor remote-as</b>
	<b>ip bgp neighbor remove-private-as</b>
	<b>ip bgp neighbor soft-reconfiguration</b>
	<b>ip bgp neighbor stats-clear</b>
	<b>ip bgp confederation neighbor</b>
	<b>ip bgp neighbor update-source</b>
	<b>ip bgp neighbor in-aspathlist</b>
	<b>ip bgp neighbor in-communitylist</b>
	<b>ip bgp neighbor in-prefixlist</b>
	<b>ip bgp neighbor in-prefix6list</b>
	<b>ip bgp neighbor out-prefix6list</b>
	<b>ip bgp neighbor out-aspathlist</b>
	<b>ip bgp neighbor out-communitylist</b>
	<b>ip bgp neighbor out-prefixlist</b>
	<b>ip bgp neighbor route-map</b>
	<b>ip bgp neighbor clear soft</b>
	<b>show ip bgp neighbors</b>
	<b>show ip bgp neighbors policy</b>
	<b>show ip bgp neighbors timer</b>
	<b>show ip bgp neighbors statistics</b>

---

---

<b>Policy Commands</b>	<b>ip bgp policy aspath-list</b> <b>ip bgp policy aspath-list action</b> <b>ip bgp policy aspath-list priority</b> <b>ip bgp policy community-list</b> <b>ip bgp policy community-list action</b> <b>ip bgp policy community-list match-type</b> <b>ip bgp policy community-list priority</b> <b>ip bgp policy prefix-list</b> <b>ip bgp policy prefix-list action</b> <b>ip bgp policy prefix-list ge</b> <b>ip bgp policy prefix-list le</b> <b>ip bgp policy prefix6-list</b> <b>ip bgp policy route-map</b> <b>ip bgp policy route-map action</b> <b>ip bgp policy route-map aspath-list</b> <b>ip bgp policy route-map asprepend</b> <b>ip bgp policy route-map community</b> <b>ip bgp policy route-map community-list</b> <b>ip bgp policy route-map community-mode</b> <b>ip bgp policy route-map lpref</b> <b>ip bgp policy route-map lpref-mode</b> <b>ip bgp policy route-map match-community</b> <b>ip bgp policy route-map match-mask</b> <b>ip bgp policy route-map match-prefix</b> <b>ip bgp policy route-map match-regexp</b> <b>ip bgp policy route-map med</b> <b>ip bgp policy route-map med-mode</b> <b>ip bgp policy route-map origin</b> <b>ip bgp policy route-map prefix-list</b> <b>ip bgp policy route-map weight</b> <b>ip bgp policy route-map community-strip</b> <b>show ip bgp policy aspath-list</b> <b>show ip bgp policy community-list</b> <b>show ip bgp policy prefix-list</b> <b>show ip bgp policy prefix6-list</b> <b>show ip bgp policy route-map</b>
<b>BGP Graceful Restart Commands</b>	<b>ip bgp graceful-restart</b> <b>ip bgp graceful-restart restart-interval</b>
<b>IPv6 Global BGP Commands</b>	<b>ipv6 bgp unicast</b> <b>ip bgp neighbor activate-ipv6</b> <b>ip bgp neighbor ipv6-nexthop</b> <b>show ipv6 bgp path</b> <b>show ipv6 bgp routes</b>
<b>IPv6 BGP Network Configuration Commands</b>	<b>ipv6 bgp network</b> <b>ipv6 bgp network community</b> <b>ipv6 bgp network local-preference</b> <b>ipv6 bgp network metric</b> <b>ipv6 bgp network status</b> <b>show ipv6 bgp network</b>

---

**IPv6 BGP Neighbor (Peer)  
Configuration Commands**

---

**ipv6 bgp neighbor**  
**ipv6 bgp neighbor clear soft**  
**ipv6 bgp neighbor soft-reconfiguration**  
**ipv6 bgp neighbor in-prefix6list**  
**ipv6 bgp neighbor out-prefix6list**  
**ipv6 bgp neighbor activate-ipv6**  
**ipv6 bgp neighbor ipv6-nexthop**  
**ipv6 bgp neighbor status**  
**ipv6 bgp neighbor remote-as**  
**ipv6 bgp neighbor timers**  
**ipv6 bgp neighbor maximum-prefix**  
**ipv6 bgp neighbor next-hop-self**  
**ipv6 bgp neighbor conn-retry-interval**  
**ipv6 bgp neighbor default-originate**  
**ipv6 bgp neighbor update-source**  
**ipv6 bgp neighbor ipv4-nexthop**  
**show ipv6 bgp neighbors**  
**show ipv6 bgp neighbors statistics**  
**show ipv6 bgp neighbors timers**  
**show ipv6 bgp neighbors policy**

---

## ip load bgp

Loads the BGP protocol software into running memory on the router. The image file containing BGP should already be resident in flash memory before issuing this command.

**ip load bgp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command requires that the BGP software be resident in flash memory in the active directory.
- Enter this command in the router's configuration file (boot.cfg) to ensure BGP software is running after a reboot.
- The command does not administratively enable BGP on the router; BGP will be disabled after issuing this command. You must issue the [ip bgp status](#) to start the BGP protocol.

### Examples

```
-> ip load bgp
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip bgp autonomous-system</a>	Configures the Autonomous system number for this BGP router.
<a href="#">ip bgp status</a>	Administratively enables or disables BGP.

### MIB Objects

alaDrcTmIPBgpStatus

---

## ip bgp status

Administratively enables or disables BGP. The BGP protocol will not be active until you enable it using this command.

**ip bgp status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables BGP.
<b>disable</b>	Disables BGP.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You must first load the BGP software into running memory using the [ip load bgp](#) command before initiating this command.
- Many BGP commands require that the protocol be disabled ([ip bgp status](#)) before issuing them.

### Examples

```
-> ip bgp status enable  
-> ip bgp status disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip load bgp](#) Loads the BGP software.

### MIB Objects

```
alaBgpGlobal  
  alaBgpProtoStatus
```

---

## ip bgp unicast

Enables or disables unicast IPv4 advertisements for the BGP routing process.

**ip bgp unicast**

**no ip bgp unicast**

---

### Syntax Definitions

N/A

### Defaults

By default, BGP IPv4 advertisements are enabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to turn off IPv4 unicast advertisements.
- BGP should be disabled before enabling or disabling IPv4 unicast advertisements.
- IPv4 unicast advertisements may be turned off on homogenous IPv6 networks that are not aware of IPv4 routing. In such cases, the command, **ip router router-id**, must be used to explicitly configure the 32-bit unique router identifier.

### Examples

```
-> ip bgp unicast  
-> no ip bgp unicast
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<a href="#">ipv6 bgp unicast</a>	Enables or disables unicast IPv6 updates for the BGP routing process.
<a href="#">show ip bgp</a>	Displays the current global settings for the local BGP speaker.
<a href="#">ip router router-id</a>	Configures the router ID for the router.

### MIB Objects

```
alaBgpGlobal  
  alaBgpMultiProtocolIpv4
```

---





## ip bgp bestpath as-path ignore

Indicates whether AS path comparison will be used in route selection. The AS path is the sequence of ASs through which a route has traveled. A shorter AS path is preferred over a longer AS path. The AS path is always advertised in BGP route updates. This command informs BGP to use the length of the AS path as a criteria for determining the best route.

**ip bgp bestpath as-path ignore**

**no ip bgp bestpath as-path ignore**

---

### Syntax Definitions

N/A

### Defaults

This command is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature after it has been enabled.
- AS path comparison does not consider the type of links connecting the ASs along the path. In some cases a longer path over very fast connections may be a better route than a shorter path over slower connections. For this reason the AS path should not be the only criteria used for route selection. BGP considers local preference before AS path when making path selections.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

### Examples

```
-> ip bgp bestpath as-path ignore  
-> no ip bgp bestpath as-path ignore
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp aggregate-address as-set** Specifies whether AS path aggregation is to be performed or not.

**ip bgp policy aspath-list** Creates or removes an AS path list.

**ip bgp default local-preference** Configures the default local preference (lpref) value to be used when advertising routes.

## MIB Objects

alaBgpGlobal

alaBgpAsPathCompare

---

## ip bgp cluster-id

Configures a BGP cluster ID when there are multiple, redundant, route reflectors in a cluster. This command is not necessary for configurations containing only one route reflector.

**ip bgp cluster-id** *ip\_address*

---

### Syntax Definitions

*ip\_address*                      32-bit IP address that is the Cluster ID of the router acting as a route reflector.

### Defaults

parameter	default
<i>ip_address</i>	0.0.0.0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- In a route-reflection configuration where there are multiple route-reflectors in a cluster, use this command to configure this cluster ID. Configuring multiple route-reflectors enhances redundancy and avoids a single point of failure. When there is only one reflector in a cluster, the router ID of the reflector is used as the cluster-ID.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.
- Using many redundant reflectors in a single cluster places demands on the memory required to store routes for all redundant reflectors' peers.

### Examples

```
-> ip bgp cluster-id 1.2.3.4
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp status](#)                      Enables and disables BGP.

[ip bgp client-to-client reflection](#) Enables route reflection and sets this speaker as the route reflector.

### MIB Objects

alaBgpGlobal  
alaBgpClusterId

---

## ip bgp default local-preference

Configures the default local preference (lpref) value to be used when advertising routes. A higher local preference value is preferred over a lower value. The local preference value is sent to all BGP peers in the local autonomous system; it is not advertised to external peers.

**ip bgp default local-preference** *value*

---

### Syntax Definitions

*value* The default local preference value for this router. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>value</i>	100

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the default value.
- Unless a route is specifically configured for a different local preference value it will default to value you specify in this command. This value is used for routes learned from external autonomous systems (the local preference value is not advertised in routes received from external peers) and for aggregates and networks that do not already contain local preference values.
- This value is specific to the router so it can compare its own local preference to those received in advertised paths. If other routers belong to the same AS, then they should use the same default local preference value.
- The BGP protocol must be disabled (using the **ip bgp status** command) before using this command.

### Examples

```
-> ip bgp default local-preference 200
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp aggregate-address local-preference** Sets the local preference for a BGP aggregate.

**ip bgp network local-preference** Sets the local preference for a BGP network.

## MIB Objects

alaBgpGlobal

alaBgpDefaultLocalPref

---

## ip bgp fast-external-failover

Enables fast external failover (FEFO). When enabled, FEFO resets a session when a link to a directly connected external peer is operationally down. The BGP speaker will fall back to Idle and then wait for a connection retry by the external peer that went down.

**ip bgp fast-external-failover**

**no ip bgp fast-external-failover**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable Fast External Failover.
- When enabled, this command allows BGP to take immediate action when a directly connected interface, on which an external BGP session is established, goes down. Normally BGP relies on TCP to manage peer connections. Fast External failover improves upon TCP by resetting connections as soon as they go down.
- The BGP protocol must be disabled (using the **ip bgp status** command) before using this command.

### Examples

```
-> ip bgp fast-external-failover  
-> no ip bgp fast-external-failover
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip bgp neighbor clear</a>	Restarts a BGP peer.
<a href="#">ip bgp neighbor auto-restart</a>	Enables or disables BGP peer automatic restart.
<a href="#">ip bgp neighbor timers</a>	Configures the time interval between KEEPALIVE messages sent by this peer and the tolerated hold time interval, in seconds, for messages to this peer from other peers.

## MIB Objects

alaBgpFastExternalFailOver

---



## ip bgp always-compare-med

Enables or disables Multi-Exit Discriminator (MED) comparison between peers in different autonomous systems. The MED value is considered when selecting the best path among alternatives; it indicates the weight for a particular exit point from the AS. A path with a lower MED value is preferred over a path with a higher MED value.

**ip bgp always-compare-med**

**no ip bgp always-compare-med**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable MED comparison for external peers.
- By default, BGP only compares MEDs from the same autonomous system when selecting routes. Enabling this command forces BGP to also compare MEDs values received from external peers, or other autonomous systems.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

### Examples

```
-> ip bgp always-compare-med  
-> no ip bgp always-compare-med
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp bestpath med missing-as-worst](#) Configures the MED parameter when it is missing in a BGP path.

### MIB Objects

```
alaBgpGlobal  
  alaBgpMedAlways
```

---

---

## ip bgp bestpath med missing-as-worst

Configures the MED parameter when it is missing in a BGP path.

**ip bgp bestpath med missing-as-worst**

**no ip bgp bestpath med missing-as-worst**

---

### Syntax Definitions

N/A

### Defaults

By default this command is disabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable missing MEDs as worst.
- This command is used to specify how a missing MED in an external BGP path is to be treated for route selection purposes. The default behavior is to treat missing MEDs as zero (best). This command allows you to treat missing MEDs as worst ( $2^{32}-1$ ) for compatibility reasons.
- The BGP protocol must be disabled (using the **ip bgp status** command) before using this command.

### Examples

```
-> ip bgp bestpath med missing-as-worst
-> no ip bgp bestpath med missing-as-worst
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp always-compare-med** Forces BGP to consider MED values from external routes.

### MIB Objects

alaBgpGlobal  
alaBgpMissingMed

---

## ip bgp client-to-client reflection

Enables or disables this BGP speaker (router) to be a route reflector. Route reflectors advertise routing information to internal BGP peers, referred to as *clients*. BGP requires all internal routers to know all routes in an AS. This requirement demands a fully meshed (each router has a direct connection to all other routers in the AS) topology. Route reflection loosens the fully meshed restriction by assigning certain BGP routers as route reflectors, which take on the responsibility of advertising routing information to local BGP peers.

**ip bgp client-to-client reflection**

**no ip bgp client-to-client reflection**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the speaker as a route reflector.
- In addition to defining this router as the route reflector, this command also enable route reflection for this cluster. After setting this command this reflector will begin using route reflection behavior when communicating to client and non-client peers.
- Once route reflectors are configured, you need to indicate the clients (those routers receiving routing updates from the reflectors) for each route reflector. Use the [ip bgp neighbor route-reflector-client](#) command to configure clients.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

### Examples

```
-> ip bgp client-to-client reflection
-> no ip bgp client-to-client reflection
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp status** Administratively disables BGP in this router.

**ip bgp neighbor route-reflector-client** Configures a BGP peer to be a client to the this route reflector.

## MIB Objects

alaBgpGlobal

alaBgpRouteReflection

---



## ip bgp synchronization

Enables or disables synchronization of BGP prefixes with AS-internal routing information. Enabling this command will force the BGP speaker to advertise prefixes only if the prefixes are reachable through AS-internal routing protocols (IGPs like RIP and OSPF).

**ip bgp synchronization**

**no ip bgp synchronization**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable IGP synchronization.
- A BGP router is not supposed to advertise routes learned through internal BGP updates unless those routes are also known by the primary internal routing protocol (e.g, RIP or OSPF). However, requiring all routers in an AS to know all external routes places a heavy burden on routers focusing mainly on Intra-AS routing. Therefore, disabling synchronization avoids this extra burden on internal routers. As long as all BGP routers in an AS are fully meshed (each has a direct connection to all other BGP routers in the AS) then the problem of unknown external router should not be a problem and synchronization can be disabled.
- By default, synchronization is disabled and the BGP speaker can advertise a route without waiting for the IGP to learn it. When the autonomous system is providing transit service, BGP should not propagate IGP paths until the IGP prefixes themselves are known to be reachable through IGP. If BGP advertises such routes before the IGP routers have learned the path, they will drop the packets causing a blackhole.
- The BGP protocol must be disabled (using the **ip bgp status** command) before using this command.

### Examples

```
-> ip bgp synchronization
-> no ip bgp synchronization
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show ip bgp](#)

Displays the current global settings for the local BGP speaker.

## MIB Objects

alaBgpGlobal

alaBgpIgpSynchStatus

---





## ip bgp maximum-paths

Enables or disables support for multiple equal paths. When multipath support is enabled and the path selection process determines that multiple paths are equal when the router-id is disregarded, then all equal paths are installed in the hardware forwarding table. When multipath support is disabled, only the best route entry is installed in the hardware forwarding table.

**ip bgp maximum-paths**

**no ip bgp maximum-paths**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable support for multiple equal cost paths.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

### Examples

```
-> ip bgp maximum-paths
-> no ip bgp maximum-paths
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip bgp](#) Displays the current global settings for the local BGP speaker.

### MIB Objects

```
alaBgpGlobal
  alaBgpMultiPath
```

---

## ip bgp log-neighbor-changes

Enables or disables the logging of peer state changes. If enabled, this logging tracks changes in the state of BGP peers from ESTABLISHED to IDLE and from IDLE to ESTABLISHED. Viewing peer state logging requires that certain debug parameters be set.

**ip bgp log-neighbor-changes**

**no ip bgp log-neighbor-changes**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

### Examples

```
-> ip bgp log-neighbor-changes
-> no ip bgp log-neighbor-changes
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp status](#) Disables BGP within the router.

### MIB Objects

```
alaBgpGlobal
  alaBgpPeerChanges
```

---

## ip bgp dampening

Enables or disables BGP route dampening or the suppression of unstable routes. Route dampening helps to control the advertisement of routes that are going up and then down at an abnormally high rate. Routes that are changing states (available then unavailable) are said to be *flapping*.

**ip bgp dampening** [**half-life** *half\_life* **reuse** *reuse* **suppress** *suppress* **max-suppress-time** *max\_suppress\_time*]

**no ip bgp dampening**

---

### Syntax Definitions

<i>half_life</i>	The half-life duration, in seconds. The valid range is 0–65535.
<i>reuse</i>	The number of route withdrawals set for the re-use value. The valid range is 1–9999.
<i>suppress</i>	The dampening cutoff value. The valid range is 1–9999.
<i>max_suppress_time</i>	The maximum number of seconds a route can be suppressed. The valid range is 0–65535.

### Defaults

parameter	value
<i>half_life</i>	300
<i>reuse</i>	200
<i>suppress</i>	300
<i>max_suppress_time</i>	1800

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable dampening.
- BGP dampening is disabled by default. When enabled, route dampening suppresses routes that are unstable, or “flapping,” and disrupting the network.
- BGP dampening of IPv6 route flaps is currently not supported.
- This command enables dampening and can also be used to change the default times for the dampening variables.
- Use the dampening variables to set penalties, suppression limits, and reuse values for flapping routes.

- The half-life value configures the half-life duration for a reachable route. After the time interval specified in this command, the penalty value for the route will be reduced by half. This command sets the duration in seconds during which the accumulated stability value is reduced by half if the route is considered reachable, whether suppressed or not. A larger value may be desirable for routes that are known for their instability. A larger value will also result in a longer suppression time if the route exceeds the flapping rate.
- The reuse value configures the number of route withdrawals necessary to begin readvertising a previously suppressed route. If the penalty value for a suppressed route fall below this value, then it will be advertised again. This command sets the reuse value, expressed as a number of route withdrawals. When the stability value for a route reaches or falls below this value, a previously suppressed route will be advertised again. The instability metric for a route is decreased by becoming more stable and by passing half-life time intervals
- The suppress value configures the cutoff value, or number of route withdrawals, at which a flapping route is suppressed and no longer advertised to BGP peers. This value is expressed as a number of route withdrawals. When the stability value for a route exceeds this cutoff value, the route advertisement is suppressed.
- The max-suppress-time value configures the maximum time (in seconds) a route can be suppressed. This time is also known as the maximum holdtime or the maximum instability value. Once this time is reached the route flap history for a route will be deleted and the route will be advertised again (assuming it is still reachable). This maximum holdtime as applied on an individual route basis. Each suppressed route will be held for the amount of time specified in this command unless the route is re-advertised by falling below the reuse value.
- Entering the command with no variables returns the variables back to their defaults.

## Examples

```
-> ip bgp dampening
-> ip bgp dampening half-life 20 reuse 800 suppress 60 max-suppress-time 40
-> no ip bgp dampening
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip bgp dampening clear</a>	Clears the dampening history data for all routes on the router, resetting route flap counters and unsuppressing any routes that had been suppressed due to route flapping violations.
<a href="#">show ip bgp dampening</a>	Displays the BGP route dampening settings.
<a href="#">show ip bgp dampening-stats</a>	Displays BGP dampening statistics.

## **MIB Objects**

alaBgpGlobal

- alaBgpDampening
- alaBgpDampMaxFlapHistory
- alaBgpDampHalfLifeReach
- alaBgpDampReuse
- alaBgpDampCutOff

---

## ip bgp dampening clear

Clears the dampening history data for all routes on the router, resetting route flap counters and unsuppressing any routes that had been suppressed due to route flapping violations.

**ip bgp dampening clear**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use this command to clear all of the currently stored information on routes for dampening purposes. When this command is entered, all route information in regards to dampening is cleared.
- BGP dampening of IPv6 route flaps is currently not supported.

### Examples

```
-> ip bgp dampening clear
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp dampening](#) Enables or disables route dampening.

### MIB Objects

```
alaBgpGlobal  
  alaBgpDampeningClear
```

---

## ip bgp aggregate-address

Creates and deletes a BGP aggregate route. Aggregate routes are used to reduce the size of routing tables by combining the attributes of several different routes and allowing a single aggregate route to be advertised to peers.

The base command (**ip bgp aggregate-address**) may be used with other keywords to set up aggregate address configuration. These keywords are listed here and described as separate commands later in this chapter. In addition, some keywords have a **no** form to remove the parameter or return it to its default.

Note that only one of the following optional keywords is specified with each use of the base command. Keywords are not combined together in a single command.

**ip bgp aggregate-address** *ip\_address ip\_mask*

[**status** {**enable** | **disable**}]

[**as-set**]

[**community** *string*]

[**local-preference** *value*]

[**metric** *metric*]

[**summary-only**]

**no ip bgp aggregate-address** *ip\_address ip\_mask*

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address to be used as the aggregate address.
<i>ip_mask</i>	32-bit subnet mask that determines how many bits of the IP address denote the network number.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an aggregate route.
- This command allows administrative operations on a BGP aggregate. You must still enable the aggregate route through the **ip bgp aggregate-address status** command.
- You cannot aggregate an address (for example, 100.10.0.0) if you do not have at least one more-specific route of the address (for example, 100.10.20.0) in the BGP routing table.

## Examples

```
-> ip bgp aggregate-address 172.22.2.0 255.255.255.0  
-> no ip bgp aggregate-address 172.22.2.0 255.255.255.0
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp aggregate-address  
summary-only](#)

Enables or disables aggregate summarization, which suppresses more-specific routes.

## MIB Objects

```
alaBgpAggrAddr  
alaBgpAggrSet  
alaBgpAggrCommunity  
alaBgpAggrLocalPref  
alaBgpAggrMetric  
alaBgpAggrSummarize  
alaBgpAggrMask
```

---



## ip bgp aggregate-address status

Enables or disables a BGP aggregate route.

```
ip bgp aggregate-address ip_address ip_mask status {enable | disable}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address for this aggregate route.
<i>ip_mask</i>	32-bit subnet mask that determines how many bits of the network address denote the network number.
<b>enable</b>	Enables this aggregate route.
<b>disable</b>	Disables this aggregate route.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configure all aggregate route parameters before enabling the aggregate with this command. Use the [ip bgp aggregate-address](#) command to configure individual aggregate parameters.
- The [show ip bgp path](#) command displays every aggregate currently defined.

### Examples

```
-> ip bgp aggregate-address 172.22.2.0 255.255.255.0 status enable
-> ip bgp aggregate-address 172.22.2.0 255.255.255.0 status disable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp aggregate-address**      Creates an aggregate route.  
**show ip bgp path**              Displays aggregate routes.

## MIB Objects

alaBgpAggrTable  
    alaBgpAggrAddr  
    alaBgpAggrMask

---

## ip bgp aggregate-address as-set

Specifies whether AS path aggregation is to be performed or not. AS path aggregation takes the AS path for all routes in this aggregate and creates a new AS path for the entire aggregate. This aggregated AS path includes all the ASs from the routes in the aggregate, but it does not repeat AS numbers if some routes in the aggregate include the same AS in their path.

**ip bgp aggregate-address** *ip\_address ip\_mask as-set*

**no ip bgp aggregate-address** *ip\_address ip\_mask as-set*

---

### Syntax Definitions

*ip\_address* 32-bit IP address.

*ip\_mask* 32-bit subnet mask that determines how many bits of the IP address denote the network number.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the **as-set** option.
- When AS path aggregation is disabled (the default), the AS path for the aggregate defaults to the AS number of the local BGP speaker (configured in the **ip bgp autonomous-system** command).
- If AS path aggregation is enabled, a flap in a more specific path's AS path will cause a flap in the aggregate as well.
- Do not use this command when aggregating many paths because of the numerous withdrawals and updates that must occur as path reachability information for the summarized routes changes.

### Examples

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 as-set
-> no ip bgp aggregate-address 172.22.2.115 255.255.255.0 as-set
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp aggregate-address** Creates and deletes a BGP aggregate route.

**MIB Objects**

alaBgpAggrTable  
  alaBgpAggrAddr  
  alaBgpAggrMask  
  alaBgpAggrSet

---

## ip bgp aggregate-address community

Defines a community for an aggregate route created by the **ip bgp aggregate-address** command. Communities are a way of grouping BGP peers that do not share an IP subnet or an AS number.

**ip bgp aggregate-address** *ip\_address ip\_mask community string*

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the aggregate route.
<i>ip_mask</i>	32-bit subnet mask that determines how many bits of the IP address denote the network number.
<i>string</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.

### Defaults

---

parameter	default
<i>string</i>	none

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

You can revert the aggregate community string to its default value by setting the community string to “**none**”. For example:

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 community none
```

### Examples

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 community no-export  
-> no ip bgp aggregate-address 172.22.2.115 255.255.255.0 community no-export
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp aggregate-address](#) Creates and deletes a BGP aggregate route.

**MIB Objects**

alaBgpAggrTable

    alaBgpAggrAddr

    alaBgpAggrMask

    alaBgpAggrCommunity

---

## ip bgp aggregate-address local-preference

Configures the local preference attribute value for this BGP aggregate. This value will override the default local preference value; it is used when announcing this aggregate to internal peers.

**ip bgp aggregate-address** *ip\_address ip\_mask local-preference value*

**no ip bgp aggregate-address** *ip\_address ip\_mask local-preference value*

---

### Syntax Definitions

<i>ip_address</i>	An IP address for the aggregate route.
<i>ip_mask</i>	A 32-bit subnet mask that determines how many bits of the IP address denote the network number.
<i>value</i>	The local preference attribute. The valid range is 0–4294967295

### Defaults

---

parameter	default
<i>value</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to set the local preference back to the default value.
- You can specify that this route use the default local preference value for the AS by specifying zero (0). In this case the local preference for this route will take the default local preference value set for this AS (defined in the **ip bgp default local-preference** command).

### Examples

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 local-preference 200
-> no ip bgp aggregate-address 172.22.2.115 255.255.255.0 local-preference 200
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp default local-preference** Sets the default local preference value for this AS.

**MIB Objects**

alaBgpAggrTable

  alaBgpAggrAddr

  alaBgpAggrMask

  alaBgpAggrLocalPref

---



## ip bgp aggregate-address metric

Configures the MED attribute value for a BGP aggregate. This value is used when announcing this aggregate to internal peers; it indicates the best exit point from the AS.

**ip bgp aggregate-address** *ip\_address ip\_mask metric value*

**no ip bgp aggregate-address** *ip\_address ip\_mask metric value*

---

### Syntax Definitions

*ip\_address* A 32-bit IP address.

*ip\_mask* A 32-bit subnet mask that determines how many bits of the IP address denote the network number.

*value* The MED attribute. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to reset the aggregate metric back to its default value.
- The default value of zero indicates that a MED will not be sent for this aggregate. When a MED value is missing for a route, BGP will determine a MED value based upon the settings specified in the **ip bgp bestpath med missing-as-worst** command.

### Examples

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 metric 0
-> no ip bgp aggregate-address 172.22.2.115 255.255.255.0 metric 0
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp bestpath med missing-as-worst** Configures the MED for paths that do not contain a MED value.

**ip bgp always-compare-med** Forces BGP to use the MED for comparison of external routes.

## MIB Objects

```
alaBgpAggrTable  
  alaBgpAggrAddr  
  alaBgpAggrMask  
  alaBgpAggrMetric
```

---

## ip bgp aggregate-address summary-only

Enables or disables aggregate summarization, which suppresses more-specific routes. Disabling aggregate summarization means that more-specific routes will be announced to BGP peers (internal and external peers).

**ip bgp aggregate-address** *ip\_address ip\_mask* **summary-only**

**no ip bgp aggregate-address** *ip\_address ip\_mask* **summary-only**

---

### Syntax Definitions

*ip\_address* IP address for the aggregate route.

*ip\_mask* 32-bit subnet mask that determines how many bits of the IP address denote the network number.

### Defaults

This command is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature.
- This command specifies whether more-specific routes should be announced or suppressed.
- By default, aggregate summarization is enabled, which means that only the aggregate entry (for example, 100.10.0.0) is advertised. Advertisements of more-specific routes (for example, 100.10.20.0) are suppressed.

### Examples

```
-> ip bgp aggregate-address 172.22.2.115 255.255.255.0 summary-only  
-> no ip bgp aggregate-address 172.22.2.115 255.255.255.0 summary-only
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp aggregate-address** Creates and deletes a BGP aggregate route.

**MIB Objects**

alaBgpAggrTable

  alaBgpAggrAddr

  alaBgpAggrMask

  alaBgpAggrSummarize

---

## ip bgp network

Creates or deletes a BGP network. A network must be known to the local BGP speaker; it also must originate from the local BGP speaker. The network may be directly connected, dynamically learned, or static.

In lieu of these options, the base command (**ip bgp network**) may be used with other keywords to set up network configuration. These keywords are listed here and described as separate commands later in this chapter. In addition, some keywords have a **no** form to remove the parameter or return it to its default.

**ip bgp network** *network\_address ip\_mask*

[**community** *string*]

[**local-preference** *value*]

[**metric** *metric*]

[**status** {**enable** | **disable**}]

**no ip bgp network** *network\_address ip\_mask*

---

### Syntax Definitions

*network\_address* 32-bit IP address.

*ip\_mask* 32-bit subnet mask that determines how many bits of the network address denote the network number.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a local network.
- Creating and enabling a network entry indicates to BGP that this network should originate from this router. The network specified must be known to the router, whether it is connected, static, or dynamically learned.
- You can create up to 200 network entries. The basic **show ip bgp path** command will display every network currently defined.
- This command allows administrative operations on a BGP network. You must still enable the network through the **ip bgp network status** command.

### Examples

```
-> ip bgp network 172.22.2.115 255.255.255.0
-> no ip bgp network 172.22.2.115 255.255.255.0
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp network status](#) Enables a BGP network.

## MIB Objects

```
alaBgpNetworkTable  
  alaBgpNetworkAddr  
  alaBgpNetworkMetric  
  alaBgpNetworkLocalPref  
  alaBgpNetworkCommunity  
  alaBgpNetworkMask
```

---

## ip bgp network status

Enables or disables a BGP network.

**ip bgp network** *network\_address ip\_mask* **status** {**enable** | **disable**}

---

### Syntax Definitions

<i>network_address</i>	32-bit IP address.
<i>ip_mask</i>	32-bit subnet mask that determines how many bits of the network address denote the network number.
<b>enable</b>	Enables this network.
<b>disable</b>	Disables this network.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configure all network parameters before enabling this BGP network with this command. Use the **ip bgp network** command to configure individual aggregate parameters.
- You can create up to 200 network entries. The **show ip bgp path** command displays every network currently defined.

### Examples

```
-> ip bgp network 172.22.2.115 255.255.255.0 status enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp network**

Create a BGP network.

**show ip bgp path**

Display currently defined BGP networks.

## MIB Objects

alaBgpNetworkTable

    alaBgpNetworkAddr

    alaBgpNetworkMask

---



## ip bgp network community

Defines a community for a route created by the **ip bgp network** command. Communities are a way of grouping BGP peers that do not share an IP subnet or an AS.

**ip bgp network** *network\_address ip\_mask community string*

---

### Syntax Definitions

<i>network_address</i>	32-bit IP address of the network.
<i>ip_mask</i>	32-bit subnet mask that determines how many bits of the network address denote the network number.
<i>string</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.

### Defaults

---

parameter	default
<i>string</i>	none

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

You can revert the network community string to its default value by setting the community string to “**none**”. For example:

```
-> ip bgp network 172.22.2.115 255.255.255.0 community none
```

### Examples

```
-> ip bgp network 172.22.2.115 255.255.255.0 community export
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp network](#) Creates or deletes a BGP network

### MIB Objects

alaBgpNetworkTable  
  alaBgpNetworkAddr  
  alaBgpNetworkMask  
  alaBgpNetworkCommunity

---

## ip bgp network local-preference

Defines the local preference value for a route generated by the **ip bgp network** command. This value will override the default local preference value; it is used when announcing this network to internal peers.

**ip bgp network** *network\_address ip\_mask local-preference value*

**no ip bgp network** *network\_address ip\_mask local-preference value*

---

### Syntax Definitions

<i>network_address</i>	A 32-bit IP address.
<i>ip_mask</i>	A 32-bit subnet mask that determines how many bits of the network address denote the network number.
<i>value</i>	The local preference attribute value. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to return the local preference of the specified network to its default setting.
- You can specify that this route use the default local preference value for the AS by specifying zero (0). In this case the local preference for this route will take the default local preference value set for this AS (defined in the **ip bgp default local-preference** command).

### Examples

```
-> ip bgp network 172.22.2.115 255.255.255.0 local-preference 600
-> no ip bgp network 172.22.2.115 255.255.255.0 local-preference 600
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- ip bgp network** Creates or deletes a BGP network.
- ip bgp default local-preference** Sets the default local preference for this AS.

## **MIB Objects**

alaBgpNetworkTable  
    alaBgpNetworkAddr  
    alaBgpNetworkMask  
    alaBgpNetworkLocalPref

---

## ip bgp network metric

Configures the Multi-Exit Discriminator (MED) attribute value for an network generated by the **ip bgp network** command. This value is used when announcing this network to internal peers; it indicates the best exit point from the AS.

**ip bgp network** *network\_address ip\_mask metric value*

**no ip bgp network** *network\_address ip\_mask metric value*

---

### Syntax Definitions

<i>network_address</i>	A 32-bit IP address.
<i>ip_mask</i>	A 32-bit subnet mask that determines how many bits of the network address denote the network number.
<i>value</i>	A MED attribute value. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to return the metric for this network to its default value.
- The default value of zero indicates that a MED will not be sent for this network. When a MED value is missing for a route, BGP will determine a MED value based upon the settings specified in the **ip bgp bestpath med missing-as-worst** command.

### Examples

```
-> ip bgp network 172.22.2.115 255.255.255.0 metric 100
-> no ip bgp network 172.22.2.115 255.255.255.0 metric 100
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>ip bgp network</b>	Creates or deletes a BGP network.
<b>ip bgp bestpath med missing-as-worst</b>	Specifies the MED value when it is missing.

## **MIB Objects**

alaBgpNetworkTable  
    alaBgpNetworkAddr  
    alaBgpNetworkMask  
    alaBgpNetworkMetric

---



## ip bgp neighbor status

Enables or disables a BGP peer.

**ip bgp neighbor** *ip\_address* status {enable | disable}

---

### Syntax Definitions

*ip\_address* 32-bit IP address of the new BGP peer.

**enable** Enables this peer.

**disable** Disables this peer.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You must first create a peer and assign it an IP address using the **ip bgp neighbor** command before enabling the peer.
- Configure all BGP peer related commands before enabling a peer using this command. Once you enable the peer it will begin sending BGP connection and route advertisement messages.

### Examples

```
-> ip bgp neighbor 172.22.2.115 status enable
-> ip bgp neighbor 172.22.2.115 status disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp neighbor** Creates a BGP peer.  
**show ip bgp neighbors** Displays peer parameters.

### MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr

---

---

## ip bgp neighbor advertisement-interval

Configures the time interval for updates between external BGP peers.

**ip bgp neighbor** *ip\_address* **advertisement-interval** *value*

---

### Syntax Definitions

*ip\_address* 32-bit IP address of the neighbor.

*value* An advertisement time interval in seconds. The valid range is 0–65535.

### Defaults

parameter	default
<i>value</i>	30

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Internal peers sharing the same AS as the local BGP speaker (configured in the [ip bgp autonomous-system](#) command) use the global route advertisement update interval. This command sets the interval this peer uses to send BGP UPDATE messages to external peers.

### Examples

```
-> ip bgp neighbor 172.22.2.115 255.255.255.0 advertisement-interval 60
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip bgp neighbors](#) Displays BGP peer main status.

### MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  bgpPeerMinRouteAdvertisementTinterval

---





## Related Commands

**ip bgp neighbor auto-restart** Automatically attempts to restart a BGP peer session after a session terminates.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerRestart

---





## ip bgp neighbor timers

Configures the KEEPALIVE message interval and hold time interval (in seconds) with regards to the specified peer.

**ip bgp neighbor** *ip\_address* **timers** *keepalive holdtime*

---

### Syntax Definitions

<i>ip_address</i>	A 32-bit IP address for the BGP peer.
<i>keepalive</i>	The interval (in seconds) between KEEPALIVE messages. The valid values are zero (0) or the range 1–21845.
<i>holdtime</i>	The hold time interval between updates to peers, in seconds. The valid range is 0, 3–65535.

### Defaults

parameter	default
<i>keepalive</i>	30
<i>holdtime</i>	90

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configures the time interval between KEEPALIVE messages sent by this peer. KEEPALIVE messages do not contain route updates or indicate a change in the status of the BGP peer; they serve only to tell the receiving BGP peer that the connection is still live and the peer is reachable.
- By default, the keep alive interval of 30 seconds is one-third the default hold-time interval of 90 seconds. The keep alive interval can never be more than one-third the value of the hold-time interval. When the hold interval is reached without receiving keep alive or other updates messages, the peer is considered dead.
- Setting the keep alive value to zero means no keep alive messages will be sent.
- Once a connection is established with a peer and a time period of the length specified in this command transpires with no messages from the remote peer, then the connection with that remote peer will be considered dead.
- Configures the tolerated hold time interval, in seconds, for messages to this peer from other peers. The hold timer is used during the connection setup process and in on-going connection maintenance with BGP peers. If this peer does not receive a KEEPALIVE, UPDATE, or NOTIFICATION message within this time period, then the BGP connection will be closed.
- By default, the hold-interval of 180 seconds is three times the default keep-alive interval of 60 seconds. The hold-interval can never be less than three times the keep-alive value.

- You must restart the peer (using the **ip bgp neighbor clear** command) after issuing this command before the new hold time interval takes effect.
- Both values must be set at the same time.
- Entering this command without the variables resets the variables to their default value.

### Examples

```
-> ip bgp neighbor 172.22.2.115 timers 80 240
-> ip bgp neighbor 172.22.2.115 timers
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### **ip bgp neighbor conn-retry-interval**

The interval, in seconds, between BGP retries to set up a connection via the transport protocol with another peer.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAddr
  bgpPeerHoldTimeConfigured
  bgpPeerKeepAliveConfigured
```

---

## ip bgp neighbor conn-retry-interval

The interval, in seconds, between BGP retries to set up a connection via the transport protocol with another peer. In the connect state, BGP tries to set up a connection with a remote peer. If the connection fails, then the connect retry interval is started. Once this interval elapses, BGP retries setting up the connection.

**ip bgp neighbor** *ip\_address* **conn-retry-interval** *seconds*

---

### Syntax Definitions

<i>ip_address</i>	A 32-bit IP address for the neighbor.
<i>seconds</i>	The time interval (in seconds) between retries. The valid range is 0–65535.

### Defaults

---

parameter	default
<i>seconds</i>	120

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The time interval is started when a connection to a peer is lost.
- Other BGP peers may automatically attempt to restart a connection with this peer if they have configured automatic peer session restart (using the **ip bgp neighbor auto-restart** command).
- You must restart the peer (using the **ip bgp neighbor clear** command) after issuing this command before the new connection retry interval takes effect.
- Entering this command without the *seconds* variable resets the variable to its default value.

### Examples

```
-> ip bgp neighbor 172.22.2.115 connect-interval 60
-> ip bgp neighbor 172.22.2.115 connect-interval
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- ip bgp neighbor auto-restart** Enable automatic session restart after a session termination.
- ip bgp neighbor clear** Restarts the peer.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  bgpPeerConnectRetryInterval

---



## ip bgp neighbor auto-restart

Enables or disables BGP peer automatic restart. When enabled, this peer will automatically attempt to restart a session with another peer after a session with that peer terminates. When disabled, this peer will not try to re-establish a session with another peer after the session terminates; in such a case, the other peer will have to restart the session for the two peers to resume communication.

**ip bgp neighbor *ip\_address* auto-restart**

---

### Syntax Definitions

*ip\_address*                                32-bit IP address for the neighbor.

### Defaults

This command is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable automatic peer restart.
- After a session with another peer terminates, the local BGP speaker will wait 60 seconds before attempting to restart the session. If the session does not start on the first attempt a second attempt will be made after another 120 seconds (60x2). On each unsuccessful session attempt, the previous delay between restarts is multiplied by 2, up to a maximum delay of 240 seconds. An exception to this rule occurs when the peer session terminates on receipt of a NOTIFY message with 'unsupported option' code or 'unsupported capability' code; in these cases the delay between restart attempts will begin at 1 second and multiply by 2 after each unsuccessful restart attempt (up to a maximum of 240 second delay).
- Disabling this option can be helpful in cases where other peers are prone to frequent flapping or sending many NOTIFY messages. By not restarting sessions with unstable neighbors, the local BGP speaker forces those unstable neighbors to re-initialize the connection.

### Examples

```
-> ip bgp neighbor 172.22.2.115 auto-restart  
-> no ip bgp neighbor 172.22.2.115 auto-restart
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<code>ip bgp neighbor</code>	Creates a BGP peer.
<code>ip bgp neighbor status</code>	Enables a BGP peer.

## MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerAutoRestart
```

---

## ip bgp neighbor maximum-prefix

Configures the maximum number of prefixes, or paths, the local router can receive from this peer in UPDATE messages.

**ip bgp neighbor** *ip\_address* **maximum-prefix** *maximum* [**warning-only**]

---

### Syntax Definitions

*ip\_address*                      A 32-bit IP address of the BGP peer.  
*maximum*                         The maximum number of prefixes. The valid range is 0–4294967295.

### Defaults

---

parameter	default
<i>threshold</i>	5000

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When the number of prefixes sent by this peer reaches this limit, the peer is restarted.
- You can use BGP logging to receive a warning when the number of prefixes received from this peer reaches 80 percent of the value you configure in this command.
- If the **warning-only** prefix is used, the operator will be warned when the peer exceeds 80 percent of the configured number of maximum prefixes.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 maximum-prefix 1000  
-> ip bgp neighbor 172.22.2.115 maximum-prefix 1000 warning only
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp neighbor clear**                      Restarts the BGP peer.

**MIB Objects**

alaBgpPeerTable

  alaBgpPeerAddr

  alaBgpPeerMaxPrefixWarnOnly

  alaBgpPeerMaxPrefix

---

## ip bgp neighbor md5 key

Sets an encrypted MD5 signature for TCP sessions with this peer in compliance with RFC 2385.

**ip bgp neighbor** *ip\_address* **md5 key** {*string* | **none**}

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	The MD5 public key. Maximum character length is 200.
<b>none</b>	Removes the MD5 public key.

### Defaults

---

parameter	default
<i>string</i>	no password

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Entering the keyword **none** in place of a key removes the password and disables authentication.
- Due to security concerns the actual password that you specify in this command is encrypted using a 3DES algorithm before it appears in a saved snapshot file. Also, if you were to view this command in a snapshot file, or **boot.cfg** file, it would appear in a different syntax. The syntax for this command used for snapshot files is as follows:

**ip bgp neighbor** *ip\_address* **md5 key-encrypt** *encrypted\_string*

However, you should not use this syntax to actually set an MD5 password; it will not work.

- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 md5 key openpeer5
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip bgp neighbor clear** Restarts the BGP peer.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerMD5Key

---



## Related Commands

- ip bgp neighbor** Creates or deletes a BGP peer.
- ip bgp neighbor next-hop-self** Sets the BGP peer to use next hop processing behavior.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerMultiHop

---



## ip bgp neighbor description

Configures the BGP peer name.

**ip bgp neighbor** *ip\_address* **description** *string*

---

### Syntax Definitions

*ip\_address*                                    32-bit IP address of the BGP peer.

*string*                                        Peer name (1 - 20 characters).

### Defaults

parameter	default
<i>string</i>	peer(ip_address)

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The peer name is a text identifier that, by default, follows the format “peer(x.x.x.x)” where x.x.x.x is the IP address of the BGP peer. For example, the default name of a peer at address 198.216.14.23 would be “peer(198.216.14.23)”.
- A peer name with embedded spaces must be enclosed in quotation marks.

### Examples

```
-> ip bgp neighbor 172.22.2.115 description "peer for building 3"
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp neighbor**                                Sets the IP address for the peer.

### MIB Objects

alaBgpPeerTable  
    alaBgpPeerAddr  
    alaBgpPeerName

---

## ip bgp neighbor next-hop-self

Sets the BGP peer to use next hop processing behavior. By default, the next-hop processing of BGP updates is disabled. Using this command to enable next-hop behavior may be useful in non-meshed networks where BGP peers do not have direct access to other peers.

**ip bgp neighbor *ip\_address* next-hop-self**

**no ip bgp neighbor *ip\_address* next-hop-self**

---

### Syntax Definitions

N/A

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable next hop processing behavior.
- In partially meshed networks a BGP peer may not have direct connections to other peers. When such a peer receives route updates from these distant peers (via other peers), it may treat the remote peer as if it were the next hop in the routing path. Packet forwarding will not work in such a case because no direct connection exists. This command allows this peer to deem itself the next hop on the routing path so that the two non-connected peers can route packets. This peer would have a direct connection to both peers that want to exchange packets.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 next-hop-self  
-> no ip bgp neighbor 172.22.2.115 next-hop-self
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp neighbor](#)

Creates or deletes a BGP peer.

## MIB Objects

alaBgpPeerTable

  alaBgpPeerAddr

  alaBgpPeerNextHopSelf

---

## ip bgp neighbor passive

Configures the local BGP speaker to wait for this peer to establish a connection. When enabled, the local BGP speaker will not initiate a peer session with this peer; in this sense, the BGP speaker is “passive.” When disabled, the local BGP speaker will attempt to set up a session with this peer.

**ip bgp neighbor** *ip\_address* **passive**

**no ip bgp neighbor** *ip\_address* **passive**

---

### Syntax Definitions

*ip\_address*                                      32-bit IP address of the BGP peer.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable passive peer behavior.
- By default BGP will initiate a session to a peer once the peer is configured, has an AS number, and is enabled. You can use this command to configure the local BGP speaker as passive and an outbound session will not be initiated to this peer. For such peers, BGP will always wait passively for the inbound session attempt.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 passive
-> no ip bgp neighbor 172.22.2.115 passive
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp neighbor](#)                                      Creates or deletes a BGP peer.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAddr
  alaBgpPeerPassive
```

---



## Related Commands

- ip bgp autonomous-system** Set the AS for the local BGP speaker.
- ip bgp neighbor** Create a BGP peer.
- ip bgp neighbor status enable** Enables a BGP peer.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerAS

---

## ip bgp neighbor remove-private-as

Enables or disables the stripping of private autonomous system numbers from the AS path of routes destined to this peer.

**ip bgp neighbor *ip\_address* remove-private-as**

**no ip bgp neighbor *ip\_address* remove-private-as**

---

### Syntax Definitions

*ip\_address*                                 32-bit IP address of the BGP peer.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable stripping of private AS numbers.
- By default all AS numbers in the AS path are passed to peers. Enabling this command strips any private AS numbers in the AS path before sending updates to this peer. AS numbers in the range 64512 to 65535 are considered private ASs; they intended for internal use within an organization (such as an enterprise network), but they are not intended for use on public networks (such as the Internet).
- This command has no effect if you are not using ASs in the range 64512 to 65535.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 remove-private-as  
-> no ip bgp neighbor 172.22.2.115 remove-private-as
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp neighbor remote-as](#)           Configures the AS number for this peer.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerRemovePrivateAs
```

## ip bgp neighbor soft-reconfiguration

Enables or disables BGP peer soft reconfiguration. Soft reconfiguration increases the stability of the peer by allowing you to reconfigure attributes that require peer resets without halting the TCP connection with other peers.

**ip bgp neighbor *ip\_address* soft-reconfiguration**

**no ip bgp neighbor *ip\_address* soft-reconfiguration**

---

### Syntax Definitions

*ip\_address*                                32-bit IP address of the BGP peer.

### Default

This command is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature.
- This feature stores routes and other configuration information in local memory. When you make configuration changes that require a peer reset, the routing cache is not cleared and connections with other peers are not interrupted.
- By default BGP stores all paths from peers, even those that are policy rejected, in anticipation of policy changes in the future. Storing these paths consumes memory. You can use this command to disable the storing of these paths, or soft reconfiguration. However, if soft reconfiguration is disabled and the inbound policy changes, the peer will have to be restarted using the [ip bgp neighbor in-prefix6list](#) command.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp neighbor 172.22.2.115 soft-reconfiguration  
-> no ip bgp neighbor 172.22.2.115 soft-reconfiguration
```

### Release History

Release 6.1; command was introduced.



## Related Commands

- `ip bgp neighbor clear` Restarts this BGP peer.
- `ip bgp neighbor in-prefix6list` Resets inbound policies to this peer.

## MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerSoftReconfig
```

---

---

## ip bgp neighbor stats-clear

Clears the statistics for a peer.

**ip bgp neighbor** *ip\_address* **stats-clear**

---

### Syntax Definitions

*ip\_address*                      32-bit IP address of the BGP peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command clears the statistical variables for a peer so they can accumulate from a known point.
- The cleared statistics include the total messages sent and received from this peer, the total UPDATE messages sent and received from this peer, the total NOTIFY messages sent and received from this peer, and the total peer state transition messages sent and received from this peer. These statistics can be displayed through [show ip bgp neighbors statistics](#).

### Examples

```
-> ip bgp neighbor 172.22.2.115 stats-clear
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip bgp neighbors statistics](#) Displays peer statistics.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerClearCounter
```

---

## ip bgp confederation neighbor

Configures this peer as a member of the same confederation as the local BGP speaker.

**ip bgp confederation neighbor** *ip\_address*

**no ip bgp confederation neighbor** *ip\_address*

---

### Syntax Definitions

*ip\_address*                                32-bit IP address of the peer.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature.
- You must first assign a confederation number to the local BGP speaker before assigning peers to the confederation. Use the **ip bgp confederation identifier** command to assign a confederation number to the local BGP speaker.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ip bgp confederation neighbor 172.22.2.115  
-> no ip bgp confederation neighbor 172.22.2.115
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp confederation identifier** Sets a confederation identification value for the local BGP speaker (this router).

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerConfedStatus
```

---

## ip bgp neighbor update-source

Configures the local address from which this peer will be contacted. This local address can be configured for internal and external BGP peers.

**ip bgp neighbor** *ip\_address* **update-source** [*interface\_name*]

---

### Syntax Definitions

*ip\_address*                      The 32-bit IP address for this peer.

*interface\_name*                 The name of the interface.

### Defaults

parameter	default
<i>interface_address</i>	0.0.0.0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This address does not override the router identification for this BGP peer (configured in the **ip bgp neighbor** command). It is the address through which this peer can be contacted within this router. The router identification for a peer, especially an external peer, may not exist in the local router, but that distant peer can still be contacted via this router. This command sets the local address through which this distant peer can be contacted.
- The default is restored by entering the command without a IP address.
- The BGP peer is restarted after issuing this command.
- The update-source is not related to the router-id, it specifies the interface to be used for the TCP connection endpoint. By default, the nearest interface is selected.

### Examples

```
-> ip bgp neighbor 172.22.5.115 update-source 172.22.2.117
-> ip bgp neighbor 172.22.5.115 update-source vlan-22
-> ip bgp neighbor 172.22.5.115 update-source
```

### Release History

Release 6.1; command was introduced.  
 Release 6.2.1; *interface\_address* parameter deprecated.

## Related Commands

**ip bgp neighbor**

Sets the router identification for a BGP peer.

## MIB Objects

alaBgpPeerTable

  alaBgpPeerAddr

  alaBgpPeerLocalAddr

  alaBgpPeerLocalIntfName

---

## ip bgp neighbor in-aspathlist

Assigns an inbound AS path list filter to a BGP peer.

```
ip bgp neighbor ip_address in-aspathlist {string / none}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	Inbound AS path list (0 to 70 characters). This name is case sensitive.
<b>none</b>	Removes this AS path list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The AS path list name (**InboundASpath** in the example below) is created using the [ip bgp policy aspath-list](#) command. Any inbound routes from the BGP peer must match this AS path filter before being accepted or passed to inbound policy.
- To deassign an input AS path filter list, use this command to assign a value of **none**.

### Examples

```
-> ip bgp neighbor 172.22.2.115 in-aspathlist InboundASpath
-> ip bgp neighbor 172.22.2.115 in-aspathlist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy aspath-list](#) Creates or removes an AS path list.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAspathListIn
```

---

## ip bgp neighbor in-communitylist

Assigns an inbound community list filter to a BGP peer.

```
ip bgp neighbor ip_address in-communitylist {string / none}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	Input community list (0 to 70 characters. This name is case sensitive).
<b>none</b>	Removes this community list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The community filter list name (**InboundCommList** in the example below) is created using the **ip bgp policy community-list** command. Any inbound routes from the BGP peer must match this community filter before being accepted or passed to inbound policy.
- To deassign an input community filter list, use this command to assign a value of “**none**.”

### Examples

```
-> ip bgp neighbor 172.22.2.115 in-communitylist InboundCommList  
-> ip bgp neighbor 172.22.2.115 in-communitylist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp policy community-list** Creates or deletes a community list.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerCommunityListIn
```

---

---

## ip bgp neighbor in-prefixlist

Assigns an inbound prefix filter list to a BGP peer.

```
ip bgp neighbor ip_address in-prefixlist {string / none}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address.
<i>string</i>	Input prefix filter list (0 to 70 characters). This name is case sensitive.
<b>none</b>	Removes the prefix list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The prefix list name (**InboundPrefix** in the example below) is created using the [ip bgp policy prefix-list](#) command. Any inbound routes from the BGP peer must match this prefix filter before being accepted or passed to inbound policy.
- To deassign an input prefix filter list, use this command to assign a value of “**none.**”

### Examples

```
-> ip bgp neighbor 172.22.2.115 in-prefixlist InboundPrefix
-> ip bgp neighbor 172.22.2.115 in-prefixlist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix-list](#) Creates or deletes a prefix match list.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerPrefixListIn
```

---



## ip bgp neighbor in-prefix6list

Configures an inbound BGP prefix6-list policy for an IPv4 BGP peer.

```
ip bgp neighbor peer_address in-prefix6list pfx_list_name
```

---

### Syntax Definitions

<i>peer_address</i>	The 32-bit IPv4 address of the BGP peer.
<i>pfx_list_name</i>	An output prefix list name ( 1 - 70 characters).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E , 9000E

### Usage Guidelines

- The prefix list name (**uniqLocal** in the example below) is created using the [ip bgp policy prefix6-list](#) command. Any outbound routes from the BGP peer must match this prefix filter before being advertised or passed to the outbound policy.
- BGP neighbor must be configured.

### Examples

```
-> ip bgp neighbor 10.0.0.1 in-prefix6list uniqLocal
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Creates or deletes a BGP prefix6-list policy for filtering IPv6 prefixes.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerPrefix6ListIn
```

---

---

## ip bgp neighbor out-prefix6list

Configures an outgoing BGP prefix6-list policy for an IPv4 BGP peer.

```
ip bgp neighbor peer_address out-prefix6list pfx_list_name
```

---

### Syntax Definitions

<i>peer_address</i>	The 32-bit IPv4 address of the BGP peer.
<i>pfx_list_name</i>	An Output prefix list name (1 - 70 characters).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The prefix list name (**uniqLocal** in the example below) is created using the **ip bgp policy prefix6-list** command. Any outbound routes from the BGP peer must match this prefix filter before being advertised or passed to outbound policy.
- BGP neighbor must be configured.

### Examples

```
-> ip bgp neighbor 10.0.0.1 out-prefix6list uniqLocal
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

**ip bgp policy prefix6-list** Creates or deletes a BGP prefix6-list policy for filtering IPv6 prefixes.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerPrefix6ListOut
```

---

## ip bgp neighbor out-aspathlist

Assigns an outbound AS path filter list to a BGP peer.

**ip bgp neighbor** *ip\_address* **out-aspathlist** {*string* / **none**}

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	Outbound AS path list (0 - 70 characters).
<b>none</b>	Removes the AS path list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The AS path list name (**OutboundASpath** in the example below) is created using the **ip bgp policy aspath-list** command. Any outbound routes from the BGP peer must match this AS path filter, or policy, before being advertised or passed to outbound policy.
- To deassign an output AS path filter list, use this command to assign a value of “**none**”.

### Examples

```
-> ip bgp neighbor 172.22.2.115 out-aspathlist OutboundASpath
-> ip bgp neighbor 172.22.2.115 out-aspathlist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp policy aspath-list** Creates or removes an AS path list.

### MIB Objects

alaBgpPeerTable  
    alaBgpPeerAspathListOut

---

---

## ip bgp neighbor out-communitylist

Assigns an outbound community filter list to a BGP peer.

```
ip bgp neighbor ip_address out-communitylist {string | none}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	Outbound community list (0 - 70 characters).
none	Removes the community list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The community filter list name (**OutboundCommlist** in the example below) is created using the **ip bgp policy community-list** command. Any outbound routes from the BGP peer must match this community filter before being advertised or passed to outbound policy.
- To deassign an output community filter list, use this command to assign a value of “**none**”.

### Examples

```
-> ip bgp neighbor 172.22.2.115 out-communitylist OutboundCommlist
-> ip bgp neighbor 172.22.2.115 out-communitylist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp policy community-list** Creates or deletes a community list.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerCommunityListOut
```

---

## ip bgp neighbor out-prefixlist

Assigns an outbound prefix filter list to a BGP peer.

```
ip bgp neighbor ip_address out-prefixlist {string / none}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the BGP peer.
<i>string</i>	Output prefix filter list (0 - 70 characters).
<b>none</b>	Removes the prefix list from the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The prefix list name (**OutboundPrefix** in the example below) is created using the [ip bgp policy prefix-list](#) command. Any outbound routes from the BGP peer must match this prefix filter before being advertised or passed to outbound policy.
- To deassign an output prefix filter list, use this command to assign a value of “**none**”.

### Examples

```
-> ip bgp neighbor 172.22.2.115 out-prefixlist OutboundPrefix  
-> ip bgp neighbor 172.22.2.115 out-prefixlist none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix-list](#) Creates or deletes a prefix match list.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerPrefixListOut
```

---

## ip bgp neighbor route-map

Assigns an inbound policy map to a BGP peer.

```
ip bgp neighbor ip_address route-map {string | none} {in | out}
```

```
no ip bgp neighbor ip_address route-map {in | out}
```

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address of the peer.
<i>string</i>	Inbound policy map name (0 to 70 characters). This name is case sensitive.
<b>none</b>	Deletes the route map if entered rather than a text string.
<b>in</b>	Designates this route map policy as an inbound policy.
<b>out</b>	Designates this route map policy as an outbound policy.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to deassign an inbound map.
- The policy route map name (**peeringPointAMap** in the example below) is created using the **ip bgp policy prefix6-list** command. Any inbound routes from the BGP peer must match this route map filter before being accepted or passed to inbound policy.
- It is also possible to deassign a route map by entering **none** in place of a route map name.

### Examples

```
-> ip bgp neighbor 172.22.2.115 route-map InboundRoute in
-> ip bgp neighbor 172.22.2.115 route-map OutboundRoute out
-> ip bgp neighbor 172.22.2.115 route-map none in
-> no ip bgp neighbor 172.22.2.115 route-map in
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp policy prefix6-list](#)      Creates or deletes a policy route map.

## MIB Objects

alaBgpPeerTable  
    alaBgpPeerRouteMapOut  
    alaBgpPeerRouteMapIn

---

---

## ip bgp neighbor clear soft

Invokes an inbound or outbound policy reconfiguration for a BGP peer.

**ip bgp neighbor** *ip\_address* **clear soft** {**in** | **out**}

---

### Syntax Definitions

<i>ip_address</i>	32-bit IP address for the BGP peer.
<b>in</b>	Applies reconfiguration to the inbound policies.
<b>out</b>	Applies reconfiguration to the outbound policies.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command reconfigures (or reapplies) all inbound or outbound policies to existing routes without restarting the peer session.
- This command is useful if policies have been changed.

### Examples

```
-> ip bgp neighbor 172.22.2.115 clear soft in
-> ip bgp neighbor 172.22.2.115 clear soft out
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp neighbor soft-reconfiguration](#) Enables or disables BGP peer soft reconfiguration.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerReconfigureInBound
  alaBgpPeerReconfigureOutBound
```

---



## ip bgp policy aspath-list

Creates or removes an AS path list.

**ip bgp policy aspath-list** *name* “*regular\_expression*”

**no ip bgp policy aspath-list** *name* “*regular\_expression*”

---

### Syntax Definitions

*name* AS path name, e.g., InboundAspath, ranging from 0 to 70 characters, or a value of none. The AS path name is case sensitive.

*regular\_expression* Regular expression, e.g., “^100 200\$” where 100 (followed by a space) represents the beginning of the list and 200 represents the end. The regular expression must be enclosed by quotation marks.

### Defaults

No IP BGP peer policy AS path-list exists.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an AS path list.
- To create an AS path list, use the **ip bgp policy aspath-list** command.
- A regular expression consists of a character string presented in the form of a pattern, e.g., ^100 200\$. Valid regular expression characters (metacharacters) are shown in the table below. See also “Configuring BGP” in your Advanced Routing Guide for more information on using regular expressions in BGP commands.

---

Symbol	Description
^	Matches the beginning of the AS path list.
123	Matches the AS number 123.
.	Matches any single AS number.
?	Matches zero or one occurrence of the previous token, which must be an AS number, a dot, an alternation or a range.
+	Matches one or more occurrences of the previous token, which must be an AS number, a dot, an alternation or a range.
*	Matches zero or more occurrences of the previous token, which must be an AS number, a dot, an alternation or a range.
(	Begins an alternation sequence of AS numbers. It matches any AS number listed in the alternation sequence.

---

Symbol	Description
	Separates AS numbers in an alternation sequence.
)	Ends an alternation sequence of AS numbers
[	Begins a range pair consisting of two AS numbers separated by a dash. It matches any AS number within that inclusive range.
-	Separates the endpoints of a range.
]	Ends a range pair.
\$	Matches the end of the AS path list.
,_	Commas, underscores and spaces are ignored.

- When using a regular expression in the CLI, the regular expression must be enclosed in quotation marks.
- This command creates AS path lists that can be applied to a peer's inbound and outbound routes using the **ip bgp neighbor in-aspathlist** and **ip bgp neighbor in-prefix6list** commands. The AS path list filters routes based on one or more regular expressions, as shown in the example below. If the route matches the AS path list filter, then the *permit* or *deny* action (i.e., policy) associated with the regular expression applies.
- If a BGP AS path list is configured to deny routes from a particular string of regular expression, then by default all of the routes coming from any AS would be denied. You must configure the policy instance in the same policy to allow other routes to come in, to be permitted from other ASs.
- General or more specific AS path list information can be displayed by varying the use of the **show ip bgp** command.

## Examples

```
-> ip bgp policy aspath-list InboundAspath "^100 200$"
-> ip bgp policy aspath-list OutboundAspath "^300 400$"
-> no ip bgp policy aspath-list InboundAspath "^100 200$"
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp neighbor in-aspathlist</b>	Assigns an inbound AS path list filter to a BGP peer.
<b>ip bgp neighbor in-prefix6list</b>	Assigns an outbound AS path list filter to a BGP peer.
<b>ip bgp policy aspath-list action</b>	Configures a policy action (either permit or deny a route from passing) to be taken for an AS path list when a match is found.
<b>ip bgp policy aspath-list priority</b>	Configures priority for processing regular expressions in an AS path list.

## MIB Objects

alaBgpAspathMatchListTable  
  alaBgpAspathMatchListRowStatus

---

## ip bgp policy aspath-list action

Configures a policy action (either permit or deny a route from passing) to be taken for an AS path list when a match is found. Matching criteria are specified in the regular expression.

**ip bgp policy aspath-list** *name* "*regular\_expression*" **action** {**permit** | **deny**}

---

### Syntax Definitions

<i>name</i>	AS path name, e.g., InboundAspath, ranging from 0 to 70 characters, or a value of none. The AS path name is case sensitive.
<i>regular_expression</i>	Regular expression, e.g., "^100 200\$" where 100 (followed by a space) represents the beginning of the list and 200 represents the end. The regular expression must be enclosed by quotation marks.
<b>permit</b>	Allows matching routes to pass.
<b>deny</b>	Stops matching routes from passing.

### Defaults

parameter	default
<b>permit</b>   <b>deny</b>	permit

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- A regular expression consists of a character string presented in the form of a pattern, e.g., ^100 200\$. Refer to [ip bgp policy aspath-list](#) on page 25-97 for a table of valid regular expression characters (metacharacters). See also "Configuring BGP" in your Advanced Routing Guide for more information on using regular expressions in BGP commands.
- This command allows or stops AS path lists from being applied to a peer's inbound and outbound routes configured via the [ip bgp neighbor in-aspathlist](#) and [ip bgp neighbor in-prefix6list](#) commands. The AS path list filters routes based on one or more regular expressions, as shown in the example below. If the route matches the AS path list filter, then the *permit* or *deny* action (i.e., policy) associated with the regular expression applies.
- General or more specific AS path list information can be displayed by varying the use of the [show ip bgp](#) command.

### Examples

```
-> ip bgp policy aspath-list InboundAspath "^100 200$" action permit
-> ip bgp policy aspath-list OutboundAspath "^300 400$" action deny
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp neighbor in-aspathlist</b>	Assigns an inbound AS path list filter to a BGP peer.
<b>ip bgp neighbor in-prefix6list</b>	Assigns an outbound AS path list filter to a BGP peer.
<b>ip bgp policy aspath-list</b>	Creates or removes an AS path list.
<b>ip bgp policy aspath-list priority</b>	Configures priority for processing regular expressions in an AS path list.

## MIB Objects

```
alaBgpAspathMatchListTable  
    alaBgpAspathMatchListAction
```

---

## ip bgp policy aspath-list priority

Configures the priority for processing regular expressions in an AS path list.

**ip bgp policy aspath-list** *name* "*regular\_expression*" **priority** *value*

---

### Syntax Definitions

<i>name</i>	The AS path name, e.g., InboundAspath, ranging from 0 to 70 characters, or a value of none. The AS path name is case sensitive.
<i>regular_expression</i>	A regular expression, e.g., "^100 200\$" where 100 (followed by a space) represents the beginning of the list and 200 represents the end. The regular expression must be enclosed by quotation marks.
<i>value</i>	A priority value, e.g., 1, assigned to the policy action. Valid priority range is from 1 - 255.

### Defaults

parameter	default
<i>value</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- A regular expression consists of a character string presented in the form of a pattern, e.g., ^100 200\$. Refer to [ip bgp policy aspath-list](#) on page 25-97 for a table of valid regular expression characters (metacharacters). See also "Configuring BGP" in your Advanced Routing Guide for more information on using regular expressions in BGP commands.
- This command specifies the priority of an AS path list filter being applied to a peer's inbound and outbound routes configured via the [ip bgp neighbor in-aspathlist](#) and [ip bgp neighbor in-prefix6list](#) commands. The AS path list filters routes based on one or more regular expressions, as shown in the example below. If the route matches the AS path list filter, then the *permit* or *deny* action (i.e., policy) associated with the regular expression applies, but only in the order designated by the priority value.
- The higher the priority value specified in the command, the later the matching is processed. For example, regular expressions with a priority of 1 (the default) are processed before an expression assigned a priority of 3. When regular expressions have an equal priority, the processing order is indeterminate.
- General or more specific AS path list information can be displayed by varying the use of the [show ip bgp](#) command.

### Examples

```
-> ip bgp policy aspath-list InboundAspath "^100 200$" priority 1
-> ip bgp policy aspath-list OutboundAspath "^300 400$" priority 5
```

## Release History

Release 6.1; command was introduced.

## Related Commands

- ip bgp neighbor in-aspathlist** Assigns an inbound AS path list filter to a BGP peer.
- ip bgp neighbor in-prefix6list** Assigns an outbound AS path list filter to a BGP peer.
- ip bgp policy aspath-list** Creates or removes an AS path list.
- ip bgp policy aspath-list action** Configures a policy action (either permit or deny a route from passing) to be taken for an AS path list when a match is found.

## MIB Objects

alaBgpAspathMatchListTable  
  alaBgpAspathMatchListPriority

---

## ip bgp policy community-list

Creates or deletes a community list.

**ip bgp policy community-list** *name* {**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*}

**no ip bgp policy community-list** *name* {**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*}

---

### Syntax Definitions

<i>name</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.
<b>none</b>	Removes the community restrictions on the community section of the route map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes in this community are not advertised to any peer.
<b>no-export-subconfed</b>	Routes in this community are not advertised to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.

### Defaults

No IP BGP peer policy community-list exists.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a community-list.
- This command creates community lists that can be applied to a peer's inbound and outbound routes using the **ip bgp neighbor in-communitylist** and **ip bgp neighbor out-communitylist** commands. The community list filters routes based on one or more community match list strings, as shown in the example below. If the route matches the community list filter, according to the matching type *exact* or *occur*, then the *permit* or *deny* policy action associated with the match list string applies.
- General or more specific community list information can be displayed by varying the use of the **show ip bgp** command.

### Examples

```
-> ip bgp policy community-list CommListAIn 40:40
-> ip bgp policy community-list CommListAOut 400:20
-> ip bgp policy community-list none
-> no ip bgp policy community-list CommListAIn 400:20
```



## Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp neighbor in-communitylist</b>	Assigns an inbound AS community list filter to a BGP peer.
<b>ip bgp neighbor out-communitylist</b>	Assigns an outbound AS community list filter to a BGP peer.
<b>ip bgp policy community-list action</b>	Configures a policy action (either permit or deny a route from passing) to be taken for an AS community list filter when a match is found.
<b>ip bgp policy community-list match-type</b>	Configures type of matching to be performed with a community string list.
<b>ip bgp policy community-list priority</b>	Configures priority for processing multiple items in a community list filter.

## MIB Objects

alaBgpCommunityMatchListTable  
alaBgpCommunityMatchListRowStatus

---

## ip bgp policy community-list action

Configures the action to be taken for a community list when a match is found.

**ip bgp policy community-list** *name* {**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*}  
**action** {**permit** | **deny**}

---

### Syntax Definitions

<i>name</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.
<b>none</b>	Removes the community restrictions on the community section of the route map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes in this community are not advertised to any peer.
<b>no-export-subconfed</b>	Routes in this community are not advertised to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.
<b>permit</b>	Allows matching routes to pass.
<b>deny</b>	Stops matching routes from passing.

### Defaults

parameter	default
<b>permit   deny</b>	<b>permit</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, this command allows routes that match the criteria specified in the community list to pass.

### Examples

```
-> ip bgp policy community-list commListAIn 600:1 action permit
-> ip bgp policy community-list commListAIn 600:1 action deny
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp neighbor in-communitylist</b>	Assigns an inbound AS community list filter to a BGP peer.
<b>ip bgp neighbor out-communitylist</b>	Assigns an outbound AS community list filter to a BGP peer.
<b>ip bgp policy community-list match-type</b>	Configures type of matching to be performed with a community string list.
<b>ip bgp policy community-list priority</b>	Configures priority for processing multiple items in a community list filter.

## MIB Objects

alaBgpCommunityMatchListTable  
alaBgpCommunityMatchListAction

---

## ip bgp policy community-list match-type

Configures the type of matching to be performed with a community string list.

**ip bgp policy community-list** *name* {**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*}  
**match-type** {**exact** | **occur**}

---

### Syntax Definitions

<i>name</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.
<b>none</b>	Removes the community restrictions on the community section of the route map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes in this community are not advertised to any peer.
<b>no-export-subconfed</b>	Routes in this community are not advertised to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.
<b>exact</b>	Checks for an exact match of the community string and the community attribute.
<b>occur</b>	Checks for an occurrence of the community string anywhere in the community attribute.

### Defaults

parameter	default
<b>exact</b>   <b>occur</b>	exact

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, this command only allows routes to pass if the community string exactly matches the community attribute of the route.

### Examples

```
-> ip bgp policy community-list commListC 600:1 match-type exact
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp neighbor in-communitylist</b>	Assigns an inbound AS community list filter to a BGP peer.
<b>ip bgp neighbor out-communitylist</b>	Assigns an outbound AS community list filter to a BGP peer.
<b>ip bgp policy community-list action</b>	Configures a policy action (either permit or deny a route from passing) to be taken for an AS community list filter when a match is found.
<b>ip bgp policy community-list priority</b>	Configures priority for processing multiple items in a community list filter.

## MIB Objects

alaBgpCommunityMatchListTable  
alaBgpCommunityMatchListType

---

## ip bgp policy community-list priority

Configures the priority for processing multiple items in a community list filter.

**ip bgp policy community-list** *name* {**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*}  
**priority** *value*

---

### Syntax Definitions

<i>name</i>	Community name, e.g., CommListAIn, ranging from 0 to 70 characters, or a value of none. The Community name is case sensitive.
<b>none</b>	Removes the community restrictions on the community section of the route map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes in this community are not advertised to any peer.
<b>no-export-subconfed</b>	Routes in this community are not advertised to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.
<i>value</i>	Priority value in the range 0 - 255.

### Defaults

parameter	default
<i>value</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The higher the priority value specified in the command, the later the matching is processed. For example, items with a priority of 1 (the default) are processed before items assigned a priority of 3. When items have an equal priority, the processing order is indeterminate.

### Examples

```
-> ip bgp policy community-list commListB 500:1 priority 3
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>ip bgp policy community-list</b>	Creates or deletes a community list.
<b>ip bgp policy community-list action</b>	Configures a policy action (either permit or deny a route from passing) to be taken for an AS community list filter when a match is found.
<b>ip bgp policy community-list match-type</b>	Configures type of matching to be performed with community string list.

## MIB Objects

```
alaBgpCommunityMatchListTable  
  alaBgpCommunityMatchListPriority
```

---

## ip bgp policy prefix-list

Creates or deletes a prefix match list.

**ip bgp policy prefix-list** *name ip\_address ip\_mask*

**no ip bgp policy prefix-list** *name ip\_address ip\_mask*

---

### Syntax Definitions

<i>name</i>	Prefix list name.
<i>ip_address</i>	IP address for the prefix list.
<i>ip_mask</i>	Mask for the prefix list.

### Defaults

No IP BGP policy prefix-list exists.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command creates prefix lists that can be applied to a peer's inbound and outbound routes using the **ip bgp neighbor in-prefixlist** and **ip bgp neighbor out-prefixlist** commands. The prefix list filters routes based on one or more prefixes, as shown in the example below. If the route matches the prefix list filter, according to the **ge** (lower) and **le** (upper) limits defined, then the **permit** or **deny** action associated with the prefix applies.
- General or more specific prefix list information can be displayed by varying the use of the **show ip bgp** command.

### Examples

```
-> ip bgp policy prefix-list prefixListA 12.0.0.0 255.0.0.0
```

### Release History

Release 6.1; command was introduced.



### Related Commands

- ip bgp policy prefix-list action** Configures action to be taken for a prefix list when a match is found.
- ip bgp policy prefix-list ge** Configures lower limit on length of prefix to be matched.
- ip bgp policy prefix-list le** Configures upper limit on length of prefix to be matched.

### MIB Objects

alaBgpPrefixMatchListTable  
  alaBgpPrefixMatchListRowStatus

---

## ip bgp policy prefix-list action

Configures the action to be taken for a prefix list when a match is found.

```
ip bgp policy prefix-list name ip_address ip_mask action {permit | deny}
```

---

### Syntax Definitions

<i>name</i>	Prefix list name.
<i>ip_address</i>	IP address of the prefix list.
<i>ip_mask</i>	Mask for the prefix list.
<b>permit</b>	Allows matching routes to pass.
<b>deny</b>	Stops matching routes from passing.

### Defaults

parameter	default
permit   deny	permit

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Configures the action to be taken for a prefix list when a match is found.

### Examples

```
-> ip bgp policy prefix-list prefixListA 12.0.0.0 255.0.0.0 action deny
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip bgp policy prefix-list</a>	Creates or deletes a prefix match list.
<a href="#">ip bgp policy prefix-list ge</a>	Configures lower limit on length of prefix to be matched.
<a href="#">ip bgp policy prefix-list le</a>	Configures upper limit on length of prefix to be matched.

### MIB Objects

```
alaBgpPrefixMatchListTable
  alaBgpPrefixMatchListAction
```

---

## ip bgp policy prefix-list ge

Configures the lower limit on the length of the prefix to be matched.

**ip bgp policy prefix-list** *name ip\_address ip\_mask ge value*

---

### Syntax Definitions

<i>name</i>	Prefix list name.
<i>ip_address</i>	IP address of the prefix list.
<i>ip_mask</i>	Mask of the prefix list.
<i>value</i>	The lower limit value in the range 0 to 32.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>value</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of zero indicates there is no lower limit on the length of the prefix to be matched.
- This command is used in conjunction with the **ip bgp policy prefix-list le** command to set the prefix matching range. The two commands can be combined, as show in the Example section below.
- The **ge** (lower limit) value must be greater than or equal to the prefix length (8 in the example below) and less than or equal to the **le** (upper limit) value.

### Examples

```
-> ip bgp policy prefix-list prefixListA 14.0.0.0 255.0.0.0 ge 8 le 16
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| <b>ip bgp policy prefix-list</b>        | Creates or deletes a prefix match list.                                |
| <b>ip bgp policy prefix-list action</b> | Configures action to be taken for a prefix list when a match is found. |
| <b>ip bgp policy prefix-list le</b>     | Configures upper limit on length of prefix to be matched.              |

## MIB Objects

```
alaBgpPrefixMatchListTable  
  alaBgpPrefixMatchListGE
```

---

## ip bgp policy prefix-list le

Configures the upper limit on the length of the prefix to be matched.

**ip bgp policy prefix-list** *name ip\_address ip\_mask le value*

---

### Syntax Definitions

<i>name</i>	Prefix list name.
<i>ip_address</i>	Prefix list IP address for the prefix list.
<i>ip_mask</i>	Prefix list mask for the prefix list.
<i>value</i>	The upper limit value in the range of 0 to 32.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>value</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of zero indicates there is no upper limit on the length of the prefix to be matched. This command is used in conjunction with **ip bgp policy prefix-list ge** to set the prefix matching range. The two commands can be combined, as show in the Example section below.
- The **ge** (lower limit) value must be greater than or equal to the prefix length (8 in the example below) and less than or equal to the **le** (upper limit) value.

### Examples

```
-> ip bgp policy prefix-list prefixListA 14.0.0.0 255.0.0.0 ge 8 le 16
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                                         |                                                                        |
|-----------------------------------------|------------------------------------------------------------------------|
| <b>ip bgp policy prefix-list</b>        | Creates or deletes a prefix match list.                                |
| <b>ip bgp policy prefix-list action</b> | Configures action to be taken for a prefix list when a match is found. |
| <b>ip bgp policy prefix-list ge</b>     | Configures lower limit on length of prefix to be matched.              |

## MIB Objects

```
alaBgpPrefixMatchListTable  
  alaBgpPrefixMatchListLE
```

---

## ip bgp policy prefix6-list

Configures a BGP prefix6-list policy for filtering IPv6 prefixes. This policy can be applied to filter unique local IPv6 addresses.

```
ip bgp policy prefix6-list pxf_list_name prefix6/pxf_length [action{permit|deny}]  
[status{enable|disable}] [ge{masklength}] [le{masklength}]
```

```
no ip bgp policy prefix6-list pxf_list_name prefix6/pxf_length [action{permit|deny}]  
[status{enable|disable}] [ge{masklength}] [le{masklength}]
```

---

### Syntax Definitions

<i>pxf_list_name</i>	Prefix list name.
<i>prefix6</i>	Prefix list IPv6 address for the prefix list.
<i>pxf_length</i>	Prefix length. Prefix length should be in the range of 0 to 128.
<b>permit</b>   <b>deny</b>	Action to be taken which can be either permit or deny.
<b>enable</b>   <b>disable</b>	Row Status can be either enabled or disabled.
<i>masklength</i>	Minimum length of the prefix to be matched. It should be in the range of 0 - 32.
<i>masklength</i>	Maximum length of the prefix to be matched. It should be in the range of 0 - 32.

### Defaults

NA

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature.
- BGP must be configured on the system.
- The **ge** (lower limit) value must be greater than or equal to the prefix length and less than or equal to the **le** (upper limit) value.

### Examples

```
-> ip bgp policy prefix6-list uniqLocal FC00::/48  
-> ip bgp policy prefix6-list uniqLocal FC00::/48 action permit  
-> ip bgp policy prefix6-list uniqLocal FC00::/48 status enable  
-> no ip bgp policy prefix6-list uniqLocal FC00::/48
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

**show ip bgp policy prefix6-list** Displays configured prefix6-list policies on the system.

**show ipv6 bgp neighbors policy** Displays incoming and outgoing prefix6 list policy indentifiers configured for BGP IPv6 peer.

## MIB Objects

```
alaBgpPrefix6MatchListTable  
  alaBgpPrefix6MatchListId  
  alaBgpPrefix6MatchListAddr  
  alaBgpPrefix6MatchListAddrLength  
  alaBgpPrefix6MatchListAction  
  alaBgpPrefix6MatchListRowStatus  
  alaBgpPrefix6MatchListGE  
  alaBgpPrefix6MatchListLE
```

---



## ip bgp policy route-map

Creates or deletes a policy route map.

**ip bgp policy route-map** *name sequence\_number*

---

### Syntax Definitions

<i>name</i>	Route map name. Case-sensitive.
<i>sequence_number</i>	Route map sequence number in the range of 1 to 255. The sequence number allows for multiple instances of the same route map name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command creates policy route maps. Each route map can be configured using the following match commands to specify the match criteria by which routes are allowed to pass. Match criteria is examined in the order the commands are listed below.
  1. **ip bgp policy route-map aspath-list**
  2. **ip bgp policy route-map prefix-list**
  3. **ip bgp policy route-map community-list**
  4. **ip bgp policy route-map match-regexp**
  5. **ip bgp policy route-map match-prefix**
  6. **ip bgp policy route-map match-mask**
  7. **ip bgp policy route-map match-community**
- Each route map can also be configured using the following set commands to sequentially specify the actions to be taken when a match is found.
  - **ip bgp policy route-map community**
  - **ip bgp policy route-map community-mode**
  - **ip bgp policy route-map lpref**
  - **ip bgp policy route-map lpref-mode**
  - **ip bgp policy route-map med**
  - **ip bgp policy route-map med-mode**
  - **ip bgp policy route-map origin**

- [ip bgp policy route-map weight](#)
- Route maps can be referenced as a filtering mechanism for displaying paths using the [show ip bgp path](#) command. They are also referenced in filtering inbound and outbound routes for BGP peers using the [ip bgp neighbor route-map](#) commands.

### Examples

```
-> ip bgp policy route-map routemap1 1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy route-map action](#) Configures action to be taken for a route when a match is found.

### MIB Objects

```
alaBgpRouteMapTable  
  alaBgpRouteMapRowStatus
```

---

## ip bgp policy route-map action

Configures the action to be taken for a route when a match is found.

**ip bgp policy route-map** *name sequence\_number action {permit | deny}*

---

### Syntax Definitions

<i>name</i>	A route map name.
<i>sequence_number</i>	A route map sequence number. The valid range is 1–255.
<b>permit</b>	Allows matching routes to pass.
<b>deny</b>	Stops matching routes from passing. In addition, no further instances (sequence numbers) of the route map are examined.

### Defaultst

---

parameter	default
permit   deny	permit

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, this command allows routes that match the criteria specified in the route map to pass. If no matching routes are found, any additional instances (sequence numbers) of the route map name are examined. When all instances have been examined with no match, the route is dropped.

### Examples

```
-> ip bgp policy route-map routemap1 1 action deny
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Creates or deletes a policy route map.

### MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapAction

---

## ip bgp policy route-map aspath-list

Assigns an AS path matching list to the route map.

**ip bgp policy route-map** *name sequence\_number aspath-list as\_name*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>as_name</i>	The AS path list name or “none”.

### Defaults

parameter	default
<i>as_name</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- By default, no AS path list is assigned to a route map.
- This default behavior can be reset by changing the value of the AS path list name to “**none**”.
- The **ip bgp policy aspath-list** and **ip bgp policy aspath-list action** commands are used to create and set permit/deny actions for an AS path list.

### Examples

```
-> ip bgp policy route-map routemap1 1 aspath-list aspathlist1
-> ip bgp policy route-map routemap1 1 aspath-list none
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ip bgp policy prefix6-list** Creates or deletes a policy route map.

### MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapAsPathMatchListId

---

## ip bgp policy route-map asprepend

Configures the AS path prepend action to be taken when a match is found.

**ip bgp policy route-map** *name* *sequence\_number* **asprepend** *path*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>path</i>	The AS path to prepend or “none”. Note that multiple AS path entries must be enclosed in quotes (e.g., “500 600 700”).

### Defaults

---

parameter	default
<i>path</i>	none

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, no AS path is prepended. This command allows AS path numbers to be prepended (added to the beginning of the AS path list) to the AS path attribute of a matching route. The default behavior can be reset by changing the value to “none”.

### Examples

```
-> ip bgp policy route-map routemap1 1 asprepend "700 800 900"
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Creates or deletes a policy route map.

### MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapAsPrepend

---

## ip bgp policy route-map community

Configures the action to be taken on the community attribute when a match is found.

**ip bgp policy route-map** *name sequence\_number* **community** [**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*]

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<b>none</b>	Removes the community restrictions on the community section of the route map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes in this community are not advertised to any peer.
<b>no-export-subconfed</b>	Routes in this community are not advertised to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.

### Defaults

parameter	default
<i>string</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- By default, no action is taken on a community attribute when a match on a route is found.
- The default behavior can be reset by setting the value to “**none**”.
- The **ip bgp policy community-list** and **ip bgp policy community-list action** commands are used to create and set permit/deny actions for a community path list. This command is used in conjunction with **ip bgp policy route-map community-mode**.

### Examples

```
-> ip bgp policy route-map routemap1 1 community 400:1 500:1
-> ip bgp policy route-map routemap1 1 community 400:1 500:1 community-mode replace
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp policy prefix6-list](#)

Creates or deletes a policy route map.

[ip bgp policy route-map  
community-mode](#)

Configures the action to be taken for a community string when a match is found.

## MIB Objects

alaBgpRouteMapTable

alaBgpRouteMapCommunity

---

---

## ip bgp policy route-map community-list

Assigns a community matching list to the route map.

**ip bgp policy route-map** *name* *sequence\_number* **community-list** *name*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>name</i>	The community list name, or “none”.

### Defaults

parameter	default
<i>name</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, no community list is assigned to the route map. The default behavior can be reset by changing the value to “**none**”.

### Examples

```
-> ip bgp policy route-map routemap1 1 community-list listB
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Creates or deletes a policy route map.

### MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapCommunityMatchListId

---



## ip bgp policy route-map community-mode

Configures the action to be taken for a community string when a match is found.

**ip bgp policy route-map** *name sequence\_number* **community-mode** {**add** | **replace**}

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<b>add</b>	Adds the community string specified in the command <b>ip bgp policy route-map community</b> .
<b>replace</b>	Replaces the community string specified in the command <b>ip bgp policy route-map community</b> .

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>add   replace</b>	<b>add</b>

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command is used in conjunction with **ip bgp policy route-map community**. The example on the next line shows the combined usage.

### Examples

```
-> ip bgp policy route-map routemap1 1 community-mode replace
-> ip bgp policy route-map routemap1 1 community 400:1 500:1 community-mode replace
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp policy prefix6-list](#)

Creates or deletes a policy route map.

[ip bgp policy route-map community](#)

Configures the action to be taken on the community attribute when a match is found.

## MIB Objects

alaBgpRouteMapTable

alaBgpRouteMapSetCommunityMode

---

## ip bgp policy route-map lpref

Configures the local preference value for the route map.

**ip bgp policy route-map** *name sequence\_number lpref value*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>value</i>	The local preference value. The valid range is 0–4294967295

### Defaults

---

parameter	default
<i>value</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used in conjunction with [ip bgp policy route-map lpref-mode](#). The example on the next line shows the combined usage.
- In this example, the local preference value will be incremented for a matching route by 555.

### Examples

```
-> ip bgp policy route-map routemap1 1 lpref 555
-> ip bgp policy route-map routemap1 1 lpref 555 lpref-mode inc
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip bgp policy prefix6-list</a>	Creates or deletes a policy route map.
<a href="#">ip bgp policy route-map lpref-mode</a>	Configures the action to be taken when setting local preference attribute for a local matching route.

### MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapLocalPref

---

## ip bgp policy route-map lpref-mode

Configures the action to be taken when setting local preference attribute for a local matching route.

**ip bgp policy route-map** *name sequence\_number* **lpref-mode** {**none** | **inc** | **dec** | **rep**}

---

### Syntax Definitions

<b>name</b>	The route map name.
<b>sequence_number</b>	The route map sequence number. The valid range is 1–255.
<b>none</b>	Do not set the local preference attribute.
<b>inc</b>	Increment the local preference attribute in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command. No action is taken if no local preference attribute is found in the matching route.
<b>dec</b>	Decrement the local preference attribute in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command. No action is taken if no local preference attribute is found in the matching route.
<b>rep</b>	Replace the local preference attribute in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command even if no local preference attribute is found in the matching route.

### Defaults

parameter	default
<b>none</b>   <b>inc</b>   <b>dec</b>   <b>rep</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is used in conjunction with **ip bgp policy route-map lpref**. The example below shows the combined usage.
- In this example, the local preference value is incremented for a matching route by 555.

### Examples

```
-> ip bgp policy route-map routemap1 1 lpref-mode none
-> ip bgp policy route-map routemap1 1 lpref 555 lpref-mode inc
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                                      |                                                                      |
|--------------------------------------|----------------------------------------------------------------------|
| <b>ip bgp policy prefix6-list</b>    | Creates or deletes a policy route map.                               |
| <b>ip bgp policy route-map lpref</b> | Configures the local preference value for the route map.             |
| <b>ip bgp policy route-map med</b>   | Configures the Multi-Exit Discriminator (MED) value for a route map. |

## MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapLocalPrefMode

---

## ip bgp policy route-map match-community

Configures a matching community primitive for the route map.

**ip bgp policy route-map** *name sequence\_number match-community* [**none** | **no-export** | **no-advertise** | **no-export-subconfed** | *num:num*]

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<b>none</b>	Removes the community match from the route-map.
<b>no-export</b>	Routes in this community are advertised within the AS but not beyond the local AS.
<b>no-advertise</b>	Routes matching the community restricting advertisement to any peer.
<b>no-export-subconfed</b>	Routes matching the community restricting advertisement to any external BGP peer.
<i>num:num</i>	The community number, given in the form of the AS number and the community number, separated by a colon, as defined in RFC 1997.

### Defaults

parameter	default
<i>community_string</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command allows a matching community string primitive to be placed directly in the route map. By default, no community string is specified. The default behavior can be reset by changing the value to “none”.

### Examples

```
-> ip bgp policy route-map routemap1 1 match-community 400:1 500 700:1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip bgp policy prefix6-list](#)      Creates or deletes a policy route map.

## MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapMatchCommunity

---

## ip bgp policy route-map match-mask

Configures a matching mask primitive in the route map.

**ip bgp policy route-map** *name* *sequence\_number* **match-mask** *ip\_address*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>ip_address</i>	The 32-bit IP address of the matching mask or “none”.

### Defaults

parameter	default
<i>ip_address</i>	0.0.0.0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows a matching mask primitive to be placed directly in the route map. By default, no mask primitive is specified. The default behavior can be reset by changing the value to “none”.
- The example on the next line shows usage combined with the [ip bgp policy route-map match-prefix](#) command.

### Examples

```
-> ip bgp policy route-map routemap1 1 match-mask 255.255.0.0
-> ip bgp policy route-map routemap1 1 match-prefix 17.0.0.0 match-mask 255.255.0.0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip bgp policy prefix6-list](#) Creates or deletes a policy route map.
- [ip bgp policy route-map match-prefix](#) Configures a matching prefix primitive in the route map.

### MIB Objects

alaBgpRouteMapTable  
 alaBgpRouteMapMatchMask

---



## ip bgp policy route-map match-prefix

Configures a matching prefix primitive in the route map.

**ip bgp policy route-map** *name* *sequence\_number* **match-prefix** *ip\_address*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>ip_address</i>	The 32-bit IP address of the matching prefix.

### Defaults

parameter	default
<i>ip_address</i>	0.0.0.0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows a matching prefix primitive to be placed directly in the route map. By default, no prefix primitive is specified. The default behavior can be reset by changing the value to “**none**”.
- The example on the next line shows usage combined with the [ip bgp policy route-map match-mask](#) command.

### Examples

```
-> ip bgp policy route-map routemap1 1 match-prefix 17.0.0.0
-> ip bgp policy route-map routemap1 1 match-prefix 17.0.0.0 match-mask 255.255.0.0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy route-map match-mask](#) Configures a matching prefix primitive in the route map.

[ip bgp policy prefix6-list](#) Configures an AS path matching regular expression primitive in the route map.

### MIB Objects

alaBgpRouteMapTable  
 alaBgpRouteMapMatchPrefix

---

## ip bgp policy route-map match-regexp

Configures an AS path matching regular expression primitive in the route map.

**ip bgp policy route-map** *name sequence\_number match-regexp* “*regular\_expression*”

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>regular_expression</i>	Regular expression or “none”. The regular expression must be enclosed by quotation marks.

### Defaults

parameter	default
<i>regular_expression</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command allows a regular expression matching directive to be placed directly in the route map. By default, no matching regular expression is specified. Regular expressions are defined in [ip bgp policy aspath-list](#) on page 25-97.
- When using regular expressions in the CLI, the regular expression must be enclosed by quotation marks.
- The default behavior can be reset by changing the value to “**none**”.
- See the related *Advanced Routing Configuration Guide* for more information on the use of regular expressions in BGP commands.

### Examples

```
-> ip bgp policy route-map routemap1 1 match-regexp "500 .* 400$"
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [ip bgp policy prefix6-list](#)

Configures an AS path matching regular expression primitive in the route map.

## MIB Objects

alaBgpRouteMapTable

alaBgpRouteMapMatchAsRegExp

---

## ip bgp policy route-map med

Configures the Multi-Exit Discriminator (MED) value for a route map.

**ip bgp policy route-map** *name sequence\_number med value*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>value</i>	The MED value. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command is used in conjunction with [ip bgp policy route-map med-mode](#) command. The first example below shows the combined usage. In the second example, the MED value is incremented for a matching route by 5.

### Examples

```
-> ip bgp policy route-map routemap1 1 med 555
-> ip bgp policy route-map routemap1 1 med 555 med-mode inc
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip bgp policy route-map med-mode</a>	Configures Multi-Exit Discriminator (MED) value for a route map.
<a href="#">ip bgp policy prefix6-list</a>	Configures an AS path matching regular expression primitive in the route map.

### MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapMed

---

## ip bgp policy route-map med-mode

Configures the action to be taken when setting the Multi-Exit Discriminator (MED) attribute for a matching route.

**ip bgp policy route-map** *name sequence\_number med-mode* {**none** | **inc** | **dec** | **rep**}

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<b>none</b>	Do not set the MED.
<b>inc</b>	Increment the MED in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command. No action is taken if no MED is found in the matching route.
<b>dec</b>	Decrement the MED in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command. No action is taken if no MED is found in the matching route.
<b>rep</b>	Replace the MED in the matching route by the value specified in the <b>ip bgp policy route-map med</b> command even if no MED is found in the matching route.

### Defaults

parameter	default
<b>none</b>   <b>inc</b>   <b>dec</b>   <b>rep</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command is used in conjunction with **ip bgp policy route-map med**. The first example below shows the combined usage. In the second example, the MED value is incremented for a matching route by 5.

### Examples

```
-> ip bgp policy route-map routemap1 1 med-mode inc
-> ip bgp policy route-map routemap1 1 med 5 med-mode inc
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- ip bgp policy route-map med** Configures action to take when setting Multi-Exit Discriminator (MED) attribute for a matching route.
- ip bgp policy prefix6-list** Configures an AS path matching regular expression primitive in the route map.

## MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapMedMode

---

## ip bgp policy route-map origin

Configures the action to be taken on the origin attribute when a match is found.

**ip bgp policy route-map** *name sequence\_number* **origin** {**igp** | **egp** | **incomplete** | **none**}

---

### Syntax Definitions

<i>name</i>	Route map name.
<i>sequence_number</i>	Route map sequence number. Valid range 1–255.
<b>igp</b>	Sets the origin attribute to remote internal BGP (IGP).
<b>egp</b>	Sets the origin attribute to local external BGP (EGP).
<b>incomplete</b>	Sets the origin attribute to incomplete, meaning the origin is unknown.
<b>none</b>	Sets the origin attribute to “none”.

### Defaults

---

parameter	default
<b>igp</b>   <b>egp</b>   <b>incomplete</b>   <b>none</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

By default, no action is taken on the origin attribute when a match is found. The default behavior can be reset by changing the value to “**none**”.

### Examples

```
-> ip bgp policy route-map routemap1 1 origin egp
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- ip bgp policy route-map origin** Configures action to take on origin attribute when a match is found.
- ip bgp policy prefix6-list** Configures an AS path matching regular expression primitive in the route map.

## MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapOrigin

---



## ip bgp policy route-map prefix-list

Assigns a prefix matching list to the route map.

**ip bgp policy route-map** *name* *sequence\_number* **prefix-list** *prefix\_name*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>prefix_name</i>	The prefix list name or “none”.

### Defaults

parameter	default
<i>prefix_name</i>	none

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- By default, no prefix list is assigned to the route map. The default behavior can be reset by changing the value to “**none**”.
- The [ip bgp policy prefix-list](#), [ip bgp policy prefix-list action](#), [ip bgp policy prefix-list ge](#), and [ip bgp policy prefix-list le](#) commands are used to create and set permit/deny actions for a prefix path list.

### Examples

```
-> ip bgp policy route-map routemap1 1 prefix-list listC
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- |                                         |                                                                               |
|-----------------------------------------|-------------------------------------------------------------------------------|
| <b>ip bgp policy prefix-list</b>        | Assigns a prefix matching list to the route map.                              |
| <b>ip bgp policy prefix-list action</b> | Configures action to be taken for a prefix list when a match is found.        |
| <b>ip bgp policy prefix6-list</b>       | Configures an AS path matching regular expression primitive in the route map. |

## MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapPrefixMatchListId

---

## ip bgp policy route-map weight

Configures a BGP weight value to be assigned to inbound routes when a match is found.

**ip bgp policy route-map** *name sequence\_number weight value*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>value</i>	The weight value. The valid range is 0–65535.

### Defaults

---

parameter	default
<i>value</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command sets the weight value for routes that pass the route map match criteria. It is only applicable for the inbound policy. The default value of zero means that the weight is not changed by the route map.

### Examples

```
-> ip bgp policy route-map routemap1 1 weight 500
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Configures an AS path matching regular expression primitive in the route map.

### MIB Objects

alaBgpRouteMapTable  
  alaBgpRouteMapWeight

---

---

## ip bgp policy route-map community-strip

Configures the value to strip from the community attribute of the routes matched by this route map instance (sequence number).

**ip bgp policy route-map** *name* *sequence\_number* **community-strip** *community\_list*

---

### Syntax Definitions

<i>name</i>	The route map name.
<i>sequence_number</i>	The route map sequence number. The valid range is 1–255.
<i>community_list</i>	The community list name.

### Defaults

No IP BGP policy route-map community list exists.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Configures the value to strip from the community attribute of the routes matched by this route map instance (sequence number).

### Examples

```
-> ip bgp policy route-map routemap1 1 community_strip communitylist
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Configures an AS path matching regular expression primitive in the route map.

### MIB Objects

alaBgpRouteMapTable  
alaBgpRouteMapCommunityStrip

---

## show ip bgp

Displays the current global settings for the local BGP speaker.

**show ip bgp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 9000E

### Usage Guidelines

Most of the parameters in this display can be altered through BGP global commands. See the output definitions below for references to the CLI commands used to configure individual parameters.

### Examples

```
-> show ip bgp
Admin Status                = disabled,
Operational Status         = down,
Autonomous system Number   = 1,
BGP Router Id              = 128.0.1.4,
Confederation Id           = 0,
IGP Synchronization Status = disabled,
Minimum AS origin interval (seconds) = 15,
Default Local Preference   = 100,
Route Reflection           = disabled,
Cluster Id                 = 0.0.0.0,
Missing MED Status         = Best,
Aspath Comparison          = enabled,
Always Compare MED         = disabled,
Fast External Fail Over    = disabled,
Log Neighbor Changes       = disabled,
Multi path                 = disabled,
Graceful Restart           = enabled,
Graceful Restart Status    = Not Restarting,
Configured Graceful Restart Interval = 90s,
IPv4 Unicast               = enabled,
IPv6 Unicast               = disabled
```

### *output definitions*

---

<b>Admin Status</b>	Indicates whether the BGP protocol has been enabled or disabled through the <b>ip bgp status</b> command.
<b>Operational Status</b>	Indicates if the local BGP speaker is actively participating in BGP messages, update, routing advertisements.

*output definitions (continued)*


---

<b>Autonomous system Number</b>	The AS assigned to the local BGP speaker through the <b>ip bgp autonomous-system</b> command.
<b>BGP Router Id</b>	The IP address for the local BGP speaker.
<b>Confederation Id</b>	Shows the confederation number assigned to the local BGP speaker. If the BGP speaker does not belong to a confederation, then this value will be zero (0). Confederation numbers are assigned through the <b>ip bgp confederation identifier</b> command.
<b>IGP Synchronization Status</b>	Indicates whether BGP is synchronizing its routing tables with those on non-BGP routers handling IGP traffic (such as a RIP or OSPF router). This value is configured through the <b>ip bgp synchronization</b> command.
<b>Minimum AS origin interval</b>	The frequency, in seconds, at which routes local to the autonomous system are advertised. This value is configured through the <b>ip bgp as-origin-interval</b> command.
<b>Default Local Preference</b>	The local preference that will be assigned to routes that do not already contain a local preference value. This default value is configured through the <b>ip bgp default local-preference</b> command.
<b>Route Reflection</b>	Indicates whether the local BGP speaker is acting as a route reflector for its AS. This value is configured through the <b>ip bgp client-to-client reflection</b> command.
<b>Cluster Id</b>	The IP address for cluster in route reflector configurations using multiple, redundant route reflectors. A value of 0.0.0.0 indicates that a cluster is not set up. This value is configured through the <b>ip bgp cluster-id</b> command.
<b>Missing MED Status</b>	Indicates the MED value that will be assigned to paths that do not contain MED values. Missing MED values will either be assigned to the worst possible value ( $2^{32}-1$ ) or the best possible value (0). This value is set using the <b>ip bgp bestpath med missing-as-worst</b> command. By default, missing MED values are treated as <b>best</b> .
<b>Aspath Comparison</b>	Indicates whether the AS path will be in used in determining the best route. This value is configured through the <b>ip bgp bestpath as-path ignore</b> command.
<b>Always Compare MED</b>	Indicates whether multi-exit discriminator (MED) values are being compared only for internal peers or also for external peers. This value is configured through the <b>ip bgp always-compare-med</b> command.
<b>Fast External Fail Over</b>	Indicates whether Fast External Failover has been enabled or disabled. When enabled a BGP sessions will be reset immediately after a connection to a directly connected external peer goes down. This value is configured through the <b>ip bgp fast-external-failover</b> command.
<b>Log Neighbor Changes</b>	Indicates whether logging of peer state changes is enabled or disabled. This value is configured through the <b>ip bgp log-neighbor-changes</b> command.
<b>Multi path</b>	Indicates whether support for multiple equal cost paths is enabled or disabled. This value is configured through the <b>ip bgp maximum-paths</b> command.
<b>Graceful Restart</b>	Indicates whether graceful restart is enabled or disabled.

*output definitions (continued)*

---

<b>Graceful Restart Status</b>	Indicates the graceful restart state. This feature is not supported in Multiprotocol BGP.
<b>Configured Graceful Restart Interval</b>	Indicates the timer for achieving a graceful restart.
<b>IPv4 Unicast</b>	Indicates whether IPv4 unicast is enabled or disabled.
<b>IPv6 Unicast</b>	Indicates whether IPv6 unicast is enabled or disabled.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; fields added.

**Related Commands**

<a href="#">ipv6 bgp unicast</a>	Enables or disables unicast IPv4 updates for the BGP routing process.
<a href="#">ipv6 bgp unicast</a>	Enables or disables unicast IPv6 updates for the BGP routing process.
<a href="#">show ip bgp statistics</a>	Displays BGP global statistics.

**MIB Objects**

```
alabgpMIBGlobalsGroup
  alaBgpProtoStatus
  alaBgpAutonomousSystemNumber
  alaBgpIgpSynchStatus
  alaBgpProtoOperState
  alaBgpNumActiveRoutes
  alaBgpNumEstabExternalPeers
  alaBgpNumEstabInternalPeers
  alaBgpClusterId
  alaBgpDefaultLocalPref
  alaBgpFastExternalFailOver
  alaBgpMedAlways
  alaBgpMissingMed
  alaBgpRouterId
  alaBgpRouteReflection
  alaBgpAsOriginInterval
  alaNumIgpSyncWaitPaths
  alaBgpManualTag
  alaBgpPromiscuousneighbors
  alaBgpConfedId
  alaBgpMultiPath
  alaBgpMaxPeers
  alaBgpPeersChanges
```

---

## show ip bgp statistics

Displays BGP global statistics.

**show ip bgp statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command show various BGP statistics for the router, such as number of neighbors, active prefixes, number of paths, etc.

### Examples

```
-> show ip bgp statistics
# of Active Prefixes Known           = 0,
# of EBGP Neighbors in Established State = 0,
# of IBGP Neighbors in Established State = 0,
# of Feasible Paths                  = 0,
# of Dampened Paths                  = 0,
# of Unsynchronized Paths            = 0,
# of Policy unfeasible paths         = 0,
Total Number of Paths                = 0
```

### *output definitions*

---

<b># of Active Prefixes Known</b>	The number of prefixes, or route paths, currently known to the local BGP speaker, that are currently up and active.
<b># of EBGP Neighbors in Established State</b>	The number of peers outside the AS of the local BGP speaker that the local BGP speaker can route to.
<b># of IBGP Neighbors in Established State</b>	The number of peers in the same AS as the local BGP speaker that the local BGP speaker can route to.
<b># of Feasible Paths</b>	The number of route paths that are not active due to one of the following reasons: the route is dampened, the route is not permitted based on BGP policies, or the route is waiting to be synchronized with the IGP protocol.
<b># of Dampened Paths</b>	The number of route paths that are not active because they have violated dampening parameters.
<b># of Unsynchronized Paths</b>	The number of route paths that are not active because they are waiting to be synchronized with the IGP routing protocol.



*output definitions (continued)*

---

<b># of Unfeasible Paths</b>	The number of route paths that are not active because they are not permitted based on a configured BGP policy.
<b>Total Number of Paths</b>	The total number of paths known to the speaker, active or not.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show ip bgp](#) Displays the current global settings for the local BGP speaker.

**MIB Objects**

alaBgpStatsTable

---

## show ip bgp dampening

Displays the BGP route dampening settings.

```
show ip bgp dampening
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command shows the setting for dampening on the router, assuming it is enabled.

### Examples

```
-> show ip bgp dampening
Admin Status           = disabled,
Half life value (seconds) = 300,
Reuse value           = 200
Suppress value        = 300,
Max suppress time (seconds) = 1800,
```

#### *output definitions*

---

<b>Admin Status</b>	Indicates whether route dampening is enabled or disabled. This value is configured through the <b>ip bgp dampening</b> command.
<b>Half life value</b>	The half-life interval, in seconds, after which the penalty value for a reachable route will be reduced by half. This value is configured through the <b>ip bgp dampening</b> command.
<b>Reuse value</b>	The value that the route flapping metric must reach before this route is re-advertised. This value is configured through the <b>ip bgp dampening</b> command.
<b>Suppress value</b>	The number of route withdrawals necessary to begin readvertising a previously suppressed route. This value is configured through the <b>ip bgp dampening</b> command.
<b>Max Suppress time</b>	The maximum time (in seconds) that a route will be suppressed. This value is configured through the <b>ip bgp dampening</b> command.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [ip bgp dampening](#)

Enables or disables BGP route dampening or the suppression of unstable routes.

## MIB Objects

```
alaBgpDampTable
  alaBgpDampEntry
  alaBgpDampCeil
  alaBgpDampCutOff
  alaBgpDampMaxFlapHistory
  alaBgpDampReuse
  alaBgpDampening
  alaBgpDampeningClear
```

---

## show ip bgp dampening-stats

Displays BGP dampening statistics.

```
show ip bgp dampening-stats [ip_address ip_mask] [peer_address]
```

---

### Syntax Definitions

<i>ip_address</i>	A 32-bit IP address.
<i>ip_mask</i>	A 32-bit subnet mask number that determines how many bits of the IP address parameter denote the network number.
<i>peer_address</i>	A 32-bit IP address of peer (neighbor).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays various statistics on routes that have flapped, and are thus subject to the settings of the dampening feature.

### Examples

```
-> show ip bgp dampening-stats
```

Network	Mask	From	Flaps	Duration	FOM
155.132.44.73	255.255.255.255	192.40.4.121	8	00h:00m:35s	175

#### *output definitions*

---

<b>Network</b>	The IP address for the local BGP speaker that is responsible for route dampening in this router.
<b>Mask</b>	The mask for the local BGP speaker that is responsible for route dampening in this router.
<b>From</b>	The IP address for the route that is flapping.
<b>Flaps</b>	The number of times this route has moved from an UP state to a DOWN state or from a DOWN state to an UP state. If the route goes down and then comes back up, then this statistics would count 2 flaps.

*output definitions (continued)*

---

<b>Duration</b>	The time since the first route flap occurred. In the above example, this route has flapped 8 times in a 35 second period.
<b>FOM</b>	The Figure Of Merit, or instability metric, for this route. This value increases with each unreachable event. If it reaches the cutoff value (configured in <a href="#">ip bgp dampening</a> ), then this route will no longer be advertised.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip bgp dampening](#) Enables and disables route dampening.

---

## show ip bgp path

Displays BGP paths.

### show ip bgp path

```
[ip_addr ip_address ip_mask]
[peer_addr peer_address]
[aspath-list aspathlist_name]
[community-list community_list_name]
[prefix-list prefix_name]
[route-map routemap_name]
[cidr-only]
[community community_number]
[neighbor_rcv rcv_peer_address]
[neighbor_adv adv_peer_addr]
[regexp "regular_expression"]
[best]
```

---

### Syntax Definitions

<i>ip_address</i>	A 32-bit IP address of the path.
<i>ip_mask</i>	A 32-bit subnet mask of the path.
<i>peer_address</i>	A 32-bit IP address of the path on which to filter.
<i>aspathlist_name</i>	AS path on which to filter.
<i>community_list_name</i>	Community name on which to filter.
<i>prefix_name</i>	Prefix on which to filter.
<i>routemap_name</i>	Route map on which to filter.
<b>cidr-only</b>	Filter out everything except CIDR routes.
<i>community_number</i>	Community number on which to filter.
<i>rcv_peer_address</i>	Filter all except paths received from this path.
<i>adv_peer_addr</i>	Filter all except paths sent to this path.
<i>regular_expression</i>	Regular expression on which to filter. Regular expressions must be enclosed by quotes. For example, "\$100".
<b>best</b>	Show only the best path.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

The basic command displays every path currently in the table. Since the number of paths may run into the thousands, this command provides a number of parameters for displaying a specific path or matching entries for a portion of a path or peer address.

## Examples

```
-> show ip bgp path
```

Legends: Sta = Path state

> = best, F = feasible, S = Stale

P = policy changing, U = un-synchronized

D = dampened, N = none

Nbr = Neighbor

(O) = Path Origin (? = incomplete, i = igp, e = egp)

degPref = degree of preference

Sta	Network	Mask	Nbr address	Next Hop	(O)	degPref
>	192.40.4.0	255.255.255.0	192.40.4.29	192.40.4.29	i100	
>	192.40.6.0	255.255.255.248	192.40.4.29	192.40.4.29	i100	
>	192.40.6.8	255.255.255.248	192.40.4.29	192.40.4.29	i100	
U	110.100.10.0	255.255.255.0	2001:100:3:4::1	110.100.10.20	? 100	
U	110.100.11.0	255.255.255.0	2001:100:3:4::1	110.100.10.20	? 100	
U	110.100.12.0	255.255.255.0	2001:100:3:4::1	110.100.10.20	? 100	
U	110.100.13.0	255.255.255.0	2001:100:3:4::1	110.100.10.20	? 100	
U	110.100.14.0	255.255.255.0	2001:100:3:4::1	110.100.10.20	? 100	

### output definitions

<b>Sta</b>	Status flag. “>” Best Path: Indicates this is the best route to the destination. “F” Feasible: The alternate path available when the best path goes down. “S” Stale: Indicates the peer that advertised this route's next hop is in the process of graceful restart. “P” Policy Changing: Indicates that a policy being applied may change the route. “U” Unsyncronized: Making a path unfeasible forcefully when a nexthop is not reachable or if the local bgp network is deleted." “D” Dampened: Indicates that this route is being dampened to prevent flapping. “N” None: No path available.
<b>Network</b>	The IP address for this route path. This is the destination of the route.
<b>Mask</b>	The mask for this route path.
<b>Nbr address</b>	The IP or IPv6 address of the BGP peer that is advertising this path.
<b>Next Hop</b>	The next hop along the route path.
<b>(O)</b>	The origin attribute of this route path. A question mark (?) indicates incomplete, and <b>i</b> indicates IGP, and an <b>e</b> indicates EGP.
<b>degPref</b>	The local preference value assigned to this route path.

```
-> show ip bgp path ip-addr 192.40.6.72 255.255.255.248
BGP Path parameters
```

```

Path address = 192.40.6.72
Path mask    = 255.255.255.248
Path protocol = ebgp
Path peer    = 192.40.4.29
  Path nextHop      = 192.40.4.29,
  Path origin       = igp,
  Path local preference = -1,
  Path state        = active,
  Path weight       = 0,
  Path preference degree = 100,
  Path autonomous systems = [nAs=2] : 3 2 ,
  Path MED          = -1,
  Path atomic       = no,
  Path AS aggregator = <none>,
  Path IPaddr aggregator = <none>,
  Path community    = <none>,
  Path unknown attribute = <none>

```

### *output definitions*

<b>Path address</b>	The IP address for route path.
<b>Path mask</b>	The mask for this route path.
<b>Path protocol</b>	The protocol from which this route path was learned. Possible values for this field are as follows: <b>local</b> , <b>static</b> , <b>directhost</b> , <b>rip</b> , <b>ospf</b> , <b>isis</b> , <b>ibgp</b> , <b>ebgp</b> , and <b>other</b> .
<b>Path peer</b>	The IP address of the peer that is advertising this route path.
<b>Path nextHop</b>	The next hop along the route path.
<b>Path origin</b>	The BGP origin attribute. Possible values will be <b>igp</b> , <b>egp</b> , <b>incomplete</b> , and <b>none</b> . The origin attribute is considered during the route decision process.
<b>Path local preference</b>	The local preference value for this route as received in an UPDATE message. A negative value (for example, the <b>-1</b> in the above display) indicates that the local preference value is missing for this route path.
<b>Path state</b>	Path state indicates the state of the path. The possible states are <b>best</b> , <b>feasible</b> , <b>policy-wait</b> , <b>un-synchronized</b> , <b>dampened</b> , or <b>none</b> . When path state is <b>none</b> , it indicates that there are no paths to this prefix and the route is being purged from the system.
<b>Path weight</b>	The path weight as assigned through inbound and outbound policies.
<b>Path preference degree</b>	The local preference assigned to this route through an inbound or outbound policy, or, if the local preference value is missing, the default local preference (which is assigned through the <b>ip bgp default local-preference</b> ).
<b>Path autonomous systems</b>	The AS path for this route. These numbers show the ASs through which the route has traversed with the most recent AS listed first. In the above example, this route began its path in AS 2 and then traveled through AS 3.
<b>Path MED</b>	The multi-exit discriminator (MED) value for this route path. A negative value (for example, the <b>-1</b> in the above display) indicates that the MED value is missing for this route path.



*output definitions (continued)*

---

<b>Path atomic</b>	Indicates whether the ATOMIC-AGGREGATE attribute has been set for this route. When set (this field would read <b>yes</b> ), this attribute indicates that an aggregate has caused a loss of information for this route (a less specific route was chosen over a more specific route included in the aggregate).
<b>Path AS aggregator</b>	Part of the AGGREGATOR attribute. This field indicates the AS for the BGP speaker that created the aggregate. A value of <b>&lt;none&gt;</b> indicates this is not an aggregate route.
<b>Path IPaddr aggregator</b>	Part of the AGGREGATOR attribute. This field indicates the IP address for the BGP speaker that created the aggregate. A value of <b>&lt;none&gt;</b> indicates that this is not an aggregate route.
<b>Path community</b>	Indicates the community to which this route path belongs, if applicable. A value of <b>&lt;none&gt;</b> indicates that this route does not belong to a community.
<b>Path unknown attribute</b>	Indicates BGP attributes found in UPDATE messages which the router does not support. For example, multi-protocol attributes are currently not supported by the router, but it is possible for these attributes to appear in a BGP route.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show ip bgp routes](#) Displays BGP route details.

**MIB Objects**

alaBgpPathTable  
alaBgpPathEntry

---

## show ip bgp routes

Displays BGP route details.

**show ip bgp routes** [*network\_address ip\_mask*]

---

### Syntax Definitions

*network\_address* A 32-bit IP address.

*ip\_mask* A 32-bit subnet mask number that determines how many bits of the IP address parameter denote the network number

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays all the routes in the routing table with details.

### Examples

-> show ip bgp routes

Legends: ECL = EBGp change list, ICC = IBGP client change list

ICL = IBGP change list, LCL = local change list

AGG = Aggregation, AGC = Aggregation contribution

AGL = Aggregation list, GDL = Deletion list

AGW = Aggregation waiting, AGH = Aggregation hidden

DMP = Dampening, ACT = Active route

Address	Mask	ECL	ICC	ICL	LCL	AGG	AGC	AGL	AGW	AGH	GDL	DMP	ACT
192.40.4.0	255.255.255.0	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.0	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.8	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.72	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.80	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.104	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.112	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes
192.40.6.144	255.255.255.248	No	No	No	No	No	No	No	No	No	No	No	Yes

### output definitions

---

<b>Address</b>	The route destination network address.
<b>Mask</b>	The route destination network mask.
<b>ECL</b>	External BGP change list. When Yes, this route will be advertised as soon as the route advertisement timer expires.
<b>ICC</b>	Internal BGP client change list. When Yes, this route will be advertised to internal non-clients.

*output definitions (continued)*

---

<b>ICL</b>	Internal BGP change list. When Yes, this route has changes that need to be advertised.
<b>LCL</b>	Local change list. When Yes, this route is local.
<b>AGG</b>	Aggregation. When Yes, this route is an aggregate route.
<b>AGC</b>	Aggregation contribution. When Yes, this route is part of an aggregate route.
<b>AGL</b>	Aggregation list. When Yes, this route is placed on an aggregate list.
<b>AGW</b>	Aggregation waiting. When Yes, this route is waiting for an aggregate contributor.
<b>AGH</b>	Aggregation hidden. When Yes, this route is hidden as part of an aggregate route.
<b>GDL</b>	Deletion list. When Yes, this route will be deleted.
<b>DMP</b>	Dampening. Indicate whether this route has been dampened. If 'Yes', then this route has been dampened and a dampening history exists.
<b>ACT</b>	Active route. When Yes, the route is active.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show ip bgp path](#) Displays BGP paths.

**MIB Objects**

alaBgpRouteTable  
alaBgpRouteEntry

---

## show ip bgp aggregate-address

Displays aggregate route status.

**show ip bgp aggregate-address** [*ip\_address ip mask*]

---

### Syntax Definitions

<i>ip_address</i>	The 32-bit IP address of the aggregate address.
<i>ip_mask</i>	The 32-bit subnet mask number that determines how many bits of the IP address parameter denote the network number.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays a specific aggregate address, or all aggregate addresses on the router.

### Examples

```
-> show ip bgp aggregate-address
Network          Mask                Summarize As-Set   Admin state Oper state
-----+-----+-----+-----+-----+-----+
155.132.44.73   255.255.255.255 disabled  disabled disabled  not_active
192.40.6.0       255.255.255.255 disabled  disabled disabled  not_active
```

```
-> show ip bgp aggregate-address 192.40.6.0 255.255.255.255
Aggregate address      = 192.40.6.0,
Aggregate mask         = 255.255.255.255,
Aggregate admin state  = disabled,
Aggregate oper state   = not_active,
Aggregate as-set       = disabled,
Aggregate summarize    = disabled,
Aggregate metric       = 0,
Aggregate local preference = 0,
Aggregate community string = 0:500 400:1 300:2
```

#### *output definitions*

---

<b>Network or Aggregate address</b>	The IP address for this aggregate route. This value is configured through the <a href="#">ip bgp aggregate-address</a> command.
<b>Mask or Aggregate mask</b>	The mask for this aggregate route. This value is configured through the <a href="#">ip bgp aggregate-address</a> command.
<b>Summarize or Aggregate summarize</b>	Indicates whether aggregate summarization is enabled or disabled for this aggregate route. This value is configured through the <a href="#">ip bgp aggregate-address summary-only</a> command.

*output definitions (continued)*

---

<b>As-Set or Aggregate as-set</b>	Indicates whether AS path aggregate is enabled or disabled. This value is configured through the <b>ip bgp aggregate-address as-set</b> command.
<b>Admin State or Aggregate admin state</b>	Indicates whether this aggregate route is administratively enabled or disabled. This value is configured through the <b>ip bgp aggregate-address status</b> command.
<b>Oper State or Aggregate oper state</b>	Indicates whether this aggregate route is operational and participating in BGP message exchanges.
<b>Aggregate metric</b>	The multi-exit discriminator (MED) value configured for this aggregate route. This value is configured through the <b>ip bgp aggregate-address metric</b> command.
<b>Aggregate local preference</b>	The local preference value for this aggregate route. This value is configured through the <b>ip bgp aggregate-address local-preference</b> command.
<b>Aggregate community string</b>	The community string value for this aggregate route. This value is configured through the <b>ip bgp aggregate-address community</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp aggregate-address** Creates and deletes a BGP aggregate route.

**MIB Objects**

```
alabgpMIBAggrGroup
  alaBgpAggrSet
  alaBgpAggrLocalPref
  alaBgpAggrMetric
  alaBgpAggrSummarize
  alaBgpAggrCommunity
```

---

## show ip bgp network

Displays currently defined network configurations.

**show ip bgp network** [*network\_address ip\_mask*]

---

### Syntax Definitions

*network\_address* A 32-bit IP address.

*ip\_mask* A 32-bit subnet mask number that determines how many bits of the IP address parameter denote the network number

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays all the configured networks, or a single network.

### Examples

```
-> show ip bgp network
Network      Mask                Admin state Oper state
-----+-----+-----+-----
155.132.1.2  255.255.255.255 disabled  not_active
155.132.1.3  255.255.255.255 disabled  not_active
```

```
-> show ip bgp network 155.132.1.2 255.255.255.255
Network address      = 155.132.1.2,
Network mask         = 255.255.255.255,
Network admin state  = disabled,
Network oper state   = not_active,
Network metric       = 0,
Network local preference = 0,
Network community string = 0:500 400:1 300:2
```

### output definitions

---

<b>Network</b> or <b>Network address</b>	The IP address configured for this local BGP network. This value is configured through the <b>ip bgp network</b> command.
<b>Mask</b> or <b>Network mask</b>	The mask configured for this local BGP network. This value is configured through the <b>ip bgp network</b> command.
<b>Admin state</b> or <b>Network admin state</b>	Indicates whether this local BGP network is administratively enabled or disabled. This value is configured through the <b>ip bgp network status</b> command.

*output definitions (continued)*

---

<b>Oper state or Network oper state</b>	Indicates whether this BGP local network is operationally active or inactive.
<b>Network metric</b>	The multi-exit discriminator (MED) value configured for this local BGP network. This value is configured through the <b>ip bgp network metric</b> command.
<b>Network local preference</b>	The local preference value for this local BGP network. This value is configured through the <b>ip bgp network local-preference</b> command.
<b>Network community string</b>	The community string value for this local BGP network. This value is configured through the <b>ip bgp network community</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp network** Configures a local BGP network.

**MIB Objects**

alabgpMIBNetworkGroup  
alaBgpNetworkEntry

---

## show ip bgp neighbors

Displays the configured IPv4 BGP peers.

**show ip bgp neighbors** [*ip\_address*]

---

### Syntax Definitions

*ip\_address*                      A 32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

There are two output options for this command. If you specify `show ip bgp peer` without a peer IP address, then you see summary information for all peers known to the local BGP speaker. If you enter a specific peer IP address with the command, then you see detailed parameter information for that peer only.

### Examples

```
-> show ip bgp neighbors
```

```
Legends:Nbr = Neighbor
```

```
      As = Autonomous System
```

Nbr	address	As	Admin state	Oper state	BgpId	Up/Down
192.40.4.29		3	enabled	estab	192.40.4.29	00h:14m:48s
192.40.4.121		5	disabled	idle	0.0.0.0	00h:00m:00s

### output definitions

---

<b>Nbr address</b>	The IP address for this BGP peer. Assign this address through the <b>ip bgp neighbor</b> command.
<b>As</b>	The autonomous system to which this peer belongs. A peer's AS number is assigned through the <b>ip bgp neighbor remote-as</b> command.
<b>Admin state</b>	Indicates whether this peer has been enabled or disabled through the <b>ip bgp neighbor status</b> command.
<b>Oper state</b>	The current BGP state for this peer. Possible states are <b>idle</b> , <b>connect</b> , <b>active</b> , <b>opensent</b> , <b>openconfirm</b> , and <b>established</b> .
<b>BgpId</b>	The unique BGP identifier of the peer. This value is configured through the <b>ip bgp neighbor update-source</b> command.
<b>Up/Down</b>	The time since this peer has transitioned to its current UP or DOWN state. If the peer is currently Established, then this is the time that the peer has been UP. If the peer is currently Idle, then this is the time the peer has been DOWN.

---



```

-> show ip bgp neighbors 0.0.0.1
Neighbor address                = 0.0.0.1,
Neighbor autonomous system      = 1,
Neighbor Admin state            = enabled,
Neighbor Oper state             = connect,
Neighbor passive status         = disabled,
Neighbor name                    = peer(0.0.0.1),
Neighbor local address          = vlan-215,
Neighbor EBGP multiHop          = enabled,
Neighbor next hop self          = disabled,
Neighbor Route Refresh          = enabled,
Neighbor Ipv4 unicast           = enabled,
Neighbor Ipv4 multicast         = disabled,
Neighbor type                    = internal,
Neighbor auto-restart           = enabled,
Neighbor route-reflector-client = disabled,
Neighbor confederation status   = disabled,
Neighbor remove private AS      = disabled,
Neighbor default originate      = disabled,
Neighbor maximum prefixes       = 5000,
Neighbor max prefixes warning   = enabled,
# of prefixes received          = 0,
Neighbor MD5 key                 = <none>,
Neighbor local port              = 0,
Neighbor TCP window size        = 32768
Graceful Restart State          = None,
Advertised Restart Interval     = 0s,
Forwarding State during restart = NotPreserved,
Activate IPv6 unicast           = enabled,
Configured IPv6 NextHop Address = ::,
Neighbor Ipv6 unicast           = advertised

```

### *output definitions*

<b>Neighbor address</b>	The IP address for this BGP peer. Assign this address through the <b>ip bgp neighbor</b> command.
<b>Neighbor autonomous system</b>	The autonomous system to which this peer belongs. A peer's AS number is assigned through the <b>ip bgp neighbor remote-as</b> command.
<b>Neighbor Admin state</b>	Indicates whether this peer has been enabled or disabled through the <b>ip bgp neighbor status</b> command.
<b>Neighbor Oper state</b>	The current BGP state for this peer. Possible states are <b>idle</b> , <b>connect</b> , <b>active</b> , <b>opensent</b> , <b>openconfirm</b> , and <b>established</b> .
<b>Neighbor passive status</b>	Indicates whether the local BGP speaker is "passive" (i.e., waiting for this peer to initiate a session). This value is configured through the <b>ip bgp neighbor passive</b> command.
<b>Neighbor name</b>	The name assigned to this peer through the <b>ip bgp neighbor description</b> command.
<b>Neighbor local address</b>	The interface assigned to this peer. This value is configured through the <b>ip bgp neighbor update-source</b> command.
<b>Neighbor EBGP multihop</b>	Indicates whether BGP multi-hop support is enabled or disabled. This supports allows external BGP peers to communicate with each other even when they are not directly connected. This value is configured through the <b>ip bgp neighbor ebgp-multihop</b> command.

*output definitions (continued)*

<b>Neighbor next hop self</b>	Indicates whether this peer is using next hop processing. This value is configured through the <b>ip bgp neighbor next-hop-self</b> command.
<b>Neighbor Route Refresh</b>	Indicates whether this peer supports Route Refresh capability as defined in RFC 2918. This capability is an alternative to soft-reconfiguration that can save CPU and memory resources. It allows peers to dynamically request the re-advertisement of BGP routing tables. Since this router supports route refresh all BGP peers are automatically enabled for this capability.
<b>Neighbor Ipv4 unicast</b>	Indicates whether this peer is multi-protocol IP version 4 unicast capable. This router is IPv4 unicasts capable so all peers will be enabled for this capability.
<b>Neighbor Ipv4 multicast</b>	Indicates whether this peer is multi-protocol IP version 4 multicast capable. This router is not IPv4 multicasts capable so all peers will be disabled for this capability.
<b>Neighbor type</b>	Indicates whether this peer is internal or external to the router.
<b>Neighbor auto-restart</b>	Indicates whether peer auto-restart is enabled or disabled. This value is configured through the <b>ip bgp neighbor auto-restart</b> command.
<b>Neighbor route-reflector-client</b>	Indicates whether this peer is a client to the local route reflector, if configured. This value is configured through the <b>ip bgp neighbor route-reflector-client</b> command.
<b>Neighbor confederation status</b>	Indicates whether this peer is a member of a BGP confederation. This value is configured through the <b>ip bgp confederation neighbor</b> command.
<b>Neighbor remove private AS</b>	Indicates whether the stripping of private AS numbers (64512 to 65535) from AS paths is enabled or disabled. This value is configured through the <b>ip bgp neighbor remove-private-as</b> command.
<b>Neighbor default originate</b>	Indicates whether peer default origination is enabled or disabled. When enabled, the local BGP speaker advertises itself as a default to the peer. This value is configured through the <b>ip bgp neighbor default-originate</b> command.
<b>Neighbor maximum prefixes</b>	The maximum number of prefixes the local router can receive in UPDATE from this peer. This value is configured through the <b>ip bgp neighbor maximum-prefix</b> command.
<b>Neighbor max prefixes warning</b>	Indicates whether a warning will be issued when this peer exceeds 80 percent of the maximum prefix value. This value is configured through the <b>ip bgp neighbor update-source</b> command.
<b># of prefixes received</b>	Displays the total number of prefixes received by this neighbor.
<b>Neighbor MD5 key [32- 47]</b>	When present, shows an encrypted version of the MD5 password. When not present, and MD5 password has not been configured. This value is configured through the <b>ip bgp neighbor md5 key</b> command.
<b>Neighbor local port</b>	The TCP port used for the session with this peer.
<b>Neighbor TCP window size</b>	The size of the TCP window for this BGP session. This value will always be 32768 as that is the maximum size of a BGP message.
<b>Graceful Restart State</b>	Indicates the graceful restart state. This feature is not supported in Multiprotocol BGP.
<b>Advertised Restart Interval</b>	Indicates the restart interval in seconds.

*output definitions (continued)*


---

<b>Forwarding State during restart</b>	Indicates whether the peer has preserved the forwarding state during the graceful restart.
<b>Activate IPv6 unicast</b>	Indicates if the IPv6 unicast updates are enabled or not. Options include <b>enabled</b> or <b>disabled</b> .
<b>Configured IPv6 NextHop Address</b>	Specifies the IPv6 nexthop address. This is specified using the <b>ipv6 bgp neighbor ipv6-nexthop</b> command.
<b>Neighbor Ipv6 unicast</b>	Indicates whether Multiprotocol IPv6 Unicast capability is enabled or disabled between the peers.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; fields added.

**Related Commands**

**ip bgp neighbor** Creates or deletes a BGP peer.

**MIB Objects**

```

alabgpMIBPeerGroup
  alaBgpPeerAddr
  alaBgpPeerAS
  alaBgpPeerPassive
  alaBgpPeerName
  alaBgpPeerMultiHop
  alaBgpPeerMaxPrefix
  alaBgpPeerMaxPrefixWarnOnly
  alaBgpPeerNextHopSelf
  alaBgpPeerSoftReconfig
  alaBgpPeerInSoftReset
  alaBgpPeerIpv4Unicast
  alaBgpPeerIpv4Multicast
  alaBgpPeerRcvdRtRefreshMsgs
  alaBgpPeerSentRtRefreshMsgs
  alaBgpPeerRouteMapOut
  alaBgpPeerRouteMapIn
  alaBgpPeerLocalAddr
  alaBgpPeerLastDownReason
  alaBgpPeerLastDownTime
  alaBgpPeerLastReadTime
  alaBgpPeerRcvdNotifyMsgs
  alaBgpPeerSentNotifyMsgs
  alaBgpPeerLastSentNotifyReason
  alaBgpPeerLastRecvNotifyReason
  alaBgpPeerRcvdPrefixes
  alaBgpPeerDownTransitions
  alaBgpPeerType
  alaBgpPeerAutoReStart
  alaBgpPeerClientStatus
  alaBgpPeerConfedStatus
  alaBgpPeerRemovePrivateAs
  alaBgpPeerClearCounter

```

alaBgpPeerTTL  
alaBgpPeerAspathListOut  
alaBgpPeerAspathListIn  
alaBgpPeerPrefixListOut  
alaBgpPeerPrefixListIn  
alaBgpPeerCommunityListOut  
alaBgpPeerCommunityListIn  
alaBgpPeerRestart  
alaBgpPeerDefaultOriginate  
alaBgpPeerReconfigureInBound  
alaBgpPeerReconfigureOutBound  
alaBgpPeerMD5Key  
alaBgpPeerMD5KeyEncrypt  
alaBgpPeerRowStatus  
alaBgpPeerUpTransitions  
alaBgpPeerLocalIntfName

---

## show ip bgp neighbors policy

Displays the incoming and outgoing prefix6 list policy identifiers configured for the specified BGP IPv4 peer.

**show ip bgp neighbors policy *ipv4\_address***

---

### Syntax Definitions

*ipv4\_address*                      A 32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays all of the configured policies for the router, or the policies configured for a specific BGP IPv4 peer.

### Examples

```
-> show ip bgp neighbors policy
Neighbor address = 0.0.0.0,
  Neighbor autonomous system      = 1,
  Neighbor output policy map name  = <none>,
  Neighbor input policy map name   = <none>,
  Neighbor output aspath-list name = <none>,
  Neighbor input aspath-list name  = <none>,
  Neighbor output prefix-list name = <none>,
  Neighbor input prefix-list name  = <none>,
  Neighbor output community-list name = <none>,
  Neighbor input community-list name = <none>,
  Neighbor soft reconfiguration    = enabled
  Neighbor output prefix6-list name = uniqueLocal
  Neighbor input prefix6-list name = uniqueLocal
Neighbor address = 0.0.0.1,
  Neighbor autonomous system      = 1,
  Neighbor output policy map name  = <none>,
  Neighbor input policy map name   = <none>,
  Neighbor output aspath-list name = <none>,
  Neighbor input aspath-list name  = <none>,
  Neighbor output prefix-list name = <none>,
  Neighbor input prefix-list name  = <none>,
  Neighbor output community-list name = <none>,
  Neighbor input community-list name = <none>,
  Neighbor soft reconfiguration    = enabled
  Neighbor output prefix6-list name = UniqueLocal
  Neighbor input prefix6-list name = UniqueLocal
```

*output definitions*


---

<b>Neighbor autonomous system</b>	The AS to which the peer is assigned. This can be assigned by using the <b>ip bgp neighbor remote-as</b> command.
<b>Neighbor output policy map name</b>	The outbound route map policy for the peer. This can be assigned by using the <b>ip bgp neighbor route-map</b> command.
<b>Neighbor input policy map name</b>	The inbound route map policy for the peer. This can be assigned by using the <b>ip bgp neighbor route-map</b> command.
<b>Neighbor output aspath-list name</b>	The outbound AS path list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-prefix6list</b> command.
<b>Neighbor input aspath-list name</b>	The inbound AS path list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-aspathlist</b> command.
<b>Neighbor output prefix-list name</b>	The outbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-prefixlist</b> command.
<b>Neighbor input prefix-list name</b>	The inbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-prefixlist</b> command.
<b>Neighbor output community-list name</b>	The outbound community list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-communitylist</b> command.
<b>Neighbor input community-list name</b>	The inbound community list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-communitylist</b> command.
<b>Neighbor soft reconfiguration</b>	Lists whether soft reconfigurations are enabled or disabled for this peer. This is configured using the <b>ip bgp neighbor soft-reconfiguration</b> command.
<b>Neighbor output prefix6-list name</b>	The outbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-prefixlist</b> command.
<b>Neighbor input prefix6-list name</b>	The inbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-prefixlist</b> command.

---

**Release History**

Release 6.1; command was introduced.

Release 6.3.4; **soft reconfiguration**, **output prefix6-list**, **input prefix6-list** parameters added.

**Related Commands**

**show ip bgp neighbors** Displays BGP peer main status.

**MIB Objects**

```
alabgpPeerTable
  alaBgpPeer6Addr
  alaBgpPeerPrefix6ListIn
  alaBgpPeerPrefix6ListOut
```

---

## show ip bgp neighbors timer

Displays BGP peer timer statistics.

**show ip bgp neighbors timer** [*ip\_address*]

---

### Syntax Definitions

*ip\_address*                      A 32-bit IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays the timer values for all peer associated with this speaker, or for a specific peer.

### Examples

```
-> show ip bgp neighbors timer
Legends: Nbr      = Neighbor
          As       = Autonomous System
          RtAdv    = Route Advertisement
          Kalive   = Keep Alive (actual)
          Ka(C)    = Configured Keep Alive
```

Nbr	address	As	Hold	Hold(C)	RtAdv	Retry	Kalive	Ka(C)
192.40.4.29		3	90	90	30	120	30	30
192.40.4.121		5	0	90	30	120	0	30

### output definitions

---

<b>Nbr address</b>	The IP address for this BGP peer. Assign this address through the <b>ip bgp neighbor</b> command.
<b>As</b>	The autonomous system to which this peer belongs. A peer's AS number is assigned through the <b>ip bgp neighbor remote-as</b> command.
<b>Hold</b>	The current count for the holdtime value.
<b>Hold(C)</b>	The holdtime value configured through the <b>ip bgp neighbor timers</b> command.
<b>RtAdv</b>	The route advertisement interval, in seconds, for updates between external BGP peers. This value is configured through the <b>ip bgp neighbor advertisement-interval</b> command.
<b>Retry</b>	The interval, in seconds, between retries by this peer to set up a connection via TCP with another peer. This value is configured through the <b>ip bgp neighbor timers</b> command.

*output definitions (continued)*

---

<b>Kalive</b>	The current count, in seconds, between keepalive messages. Keepalive messages do not contain route or status updates; they serve only to tell other peers that the connection is still live and this peer is reachable.
<b>Ka(C)</b>	The keepalive interval as configured through the <b>ip bgp neighbor timers</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show ip bgp neighbors** Displays BGP peer main status.

---



## show ip bgp neighbors statistics

Displays BGP peer message statistics.

**show ip bgp neighbors statistics** [*ip\_address*]

---

### Syntax Definitions

*ip\_address*                      A 32-bit IP address of the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays message statistics for all peers associated with this speaker, or with a specific peer.

### Examples

```
-> show ip bgp neighbors statistics
```

```
Legends: RMSGS = number of received messages, SMSGS = number of sent messages
          RUPDS = number of Update messages received,
          SUPDS = number of Update messages sent,
          RNOFY = number of Notify messages received,
          SNOFY = number of Notify messages sent
          RPFXS = number of prefixes received
          UPTNS = number of UP transitions
          DNTNS = number of DOWN transitions
```

Nbr	address	As	RMSGS	SMSGS	RUPDS	SUPDS	RNOFY	SNOFY	RPFXS	UPTNS	DNTNS
192.40.4.29		3	110	123	5	0	0	1	8	2	2
192.40.4.121		5	0	0	0	0	0	0	0	0	0

### output definitions

---

<b>Nbr address</b>	The IP address for this peer. This value is configured through the <b>ip bgp neighbor</b> command.
<b>As</b>	The autonomous system to which this peer belongs. This value is configured through the <b>ip bgp neighbor remote-as</b> command.
<b>RMSGS</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
<b>SMSGS</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent by this peer.

*output definitions (continued)*


---

<b>RUPDS</b>	The number of route UPDATE messages received by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b>SUPDS</b>	The number of route UPDATE messages sent by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b>RNOFY</b>	The number of NOTIFY messages received by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
<b>SNOFY</b>	The number of NOTIFY messages sent by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
<b>RPFXS</b>	The number of unique route prefixes received by this peer.
<b>UPTNS</b>	The number of times this peer has come up, operationally.
<b>DNTNS</b>	Number of times this peer has gone down, operationally.

---

```

-> show ip bgp neighbors statistics 0.0.0.1
Neighbor address                = 0.0.0.1,
# of UP transitions              = 0,
Time of last UP transition      = 00h:00m:00s,
# of DOWN transitions           = 0,
Time of last DOWN transition    = 00h:00m:00s,
Last DOWN reason                = none,
# of msgs rcvd                 = 0,
# of Update msgs rcvd          = 0,
# of prefixes rcvd             = 0,
# of Route Refresh msgs rcvd   = 0,
# of Notification msgs rcvd    = 0,
Last rcvd Notification reason   = none [none]
Time last msg was rcvd         = 00h:00m:00s,
# of msgs sent                  = 0,
# of Update msgs sent           = 0,
# of Route Refresh msgs sent   = 0,
# of Notification msgs sent     = 0,
Last sent Notification reason   = none [none]
Time last msg was sent         = 00h:00m:00s,

```

*output definitions*


---

<b>Neighbor address</b>	The IP address for this peer. This value is configured through the <b>ip bgp neighbor</b> command.
<b># of UP transitions</b>	The number of times this peer has come up, operationally.
<b>Time of last UP transition</b>	The duration that this peer has been up.
<b># of DOWN transitions</b>	Number of times this peer has gone down, operationally.
<b>Time of last DOWN transition</b>	The duration since this peer last went down.

*output definitions (continued)*

---

<b>Last DOWN reason</b>	Provides a message as the last reason why a peer went down. The possible reasons for going down are:  user_request - user initiated conn_timeout - connection timer expired hold_timeout - hold timer expired bad_msg - received a bad message from neighbor fsm_blink - BGP FSM error peer_closed - neighbor closed connection peer_notify - neighbor sent fatal notification tcp_error - Fatal TCP error none - None
<b># of msgs rcvd</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received from this peer.
<b># of Update msgs rcvd</b>	The number of route UPDATE messages received from this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b># of prefixes rcvd</b>	The number of unique route prefixes received by this peer.
<b># of Route Refresh msgs rcvd</b>	The number of route refresh requests this peer has received. Route refresh requests all routes learned by a peer.
<b># of Notification msgs rcvd</b>	The number of NOTIFY messages received from this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.

*output definitions (continued)*


---

<b>Last rcvd Notification reason</b>	<p>NOTIFY messages include errors codes. These error codes are listed in this field. They apply to the last NOTIFY message received from this peer. The notification reasons are listed in two parts separated by a dash (-). The following are possible notification reasons:</p> <p>message header error - synchronization loss  message header error - bad length  message header error - bad type  open message error - unsupported version  open message error - bad peer autonomous system  open message error - bad peer bgp id  open message error - unsupported option  open message error - authentication failure  open message error - unacceptable hold time  open message error - unsupported capability  update message error - malformed attribute  update message error - unknown attribute  update message error - missing wellknown attribute  update message error - attribute flags error  update message error - attribute length error  update message error - invalid origin  update message error - as loop  update message error - invalid nexthop  update message error - optional attribute error  update message error - invalid network  update message error - malformed aspath  cease - maximum number of prefixes reached  cease - administrative shutdown  cease - peer de-configured  cease- administrative reset  cease- connection rejected  cease - other configuration change  cease - connection collision resolution  cease - out of resources  hold time out - none  fsm error - none  none - none</p>
<b>Time last msg was rcvd</b>	The duration since a message was received from this peer.
<b># of msgsd sent</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent to this peer.
<b># of Update msgsd sent</b>	The number of route UPDATE messages sent to this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b># of Route Refresh msgsd sent</b>	The number of route refresh requests this peer has sent. Route refresh requests request all routes learned be a peer.
<b># of Notification msgsd sent</b>	The number of NOTIFY messages sent to this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.

*output definitions (continued)*

---

<b>Last sent Notification reason</b>	NOTIFY messages include errors codes. These error codes are listed in this field. They apply to the last NOTIFY message sent by this peer. The notification reasons are listed in two parts separated by a dash (-). See the list of possible notification reasons under the description for the <b>Peer last received notification reason</b> field above.
<b>Time last msg was sent</b>	The duration since a message was sent to this peer.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip bgp neighbor](#) Creates or deletes a BGP peer.

---

## show ip bgp policy aspath-list

Displays AS path list parameters.

```
show ip bgp policy aspath-list [name] ["regular_expression"]
```

---

### Syntax Definitions

<i>name</i>	An AS path name.
<i>regular_expression</i>	A regular expression. The regular expression must be enclosed by quotation marks.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command displays a list of all of the AS path policies for the router, or a single policy selected by the list name or regular expression.
- Regular expressions are defined in the [ip bgp policy aspath-list](#) command on page 25-97.
- When using regular expressions in the CLI, the regular expression must be enclosed by quotation marks.

### Examples

```
-> show ip bgp policy aspath-list
Aspath List Name      Aspath regular expression
-----+-----
aspl1                  (500 | 400) ? 300$
aspl2                  (500 | 400)
```

```
-> show ip bgp policy aspath-list aspl1
Aspath List name = aspl1
Aspath Regexp    = (500 | 400) ? 300$
  Admin state    = disabled,
  Priority        = 1,
  Action         = deny,
  Primary index  = 0,
```

#### output definitions

---

<b>Aspath List name</b>	The name of the AS path list. This is defined using the <a href="#">ip bgp policy aspath-list</a> command.
<b>Aspath regular expression</b>	The regular expression that defines the AS path list. This is defined using the <a href="#">ip bgp policy aspath-list</a> command.

*output definitions (continued)*

---

<b>Admin state</b>	The administration state of the AS path policy. It is either enable or disable.
<b>Priority</b>	The AS path list priority. This is defined using the <b>ip bgp policy aspath-list priority</b> command.
<b>Action</b>	The AS path list action, either permit or deny. This is defined using the <b>ip bgp policy aspath-list action</b> command.
<b>Primary index</b>	The instance identifier for the AS path list. This value is not configurable.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp policy aspath-list**            Creates or removes an AS path list.

**MIB Objects**

```
alabgpMIBAspathListGroup
  alaBgpAspathMatchListId
  alaBgpAspathMatchListRegExp
  alaBgpAspathMatchListPriority
  alaBgpAspathMatchListAction
  alaBgpAspathMatchListRowStatus
```

---

## show ip bgp policy community-list

Displays community list parameters.

```
show ip bgp policy community-list [name] [string]
```

---

### Syntax Definitions

<i>name</i>	Community name.
<i>string</i>	Community match list string

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays a list of the community policies for the speaker, or a specific policy defined by its name or community match string.

### Examples

```
-> show ip bgp policy community-list
Community list name      Community string
-----+-----
adfasdf                  0:0
```

```
-> show ip bgp policy community-list coml1
Community List name = coml1
Community string   = 600:1
  Admin state      = disabled,
  Match type       = exact,
  Priority          = 1,
  Action           = deny,
  Primary index    = 0
```

### output definitions

---

<b>Community List name</b>	The community list name. This is defined using the <a href="#">ip bgp policy community-list</a> command.
<b>Community string</b>	The community list definition. This is defined using the <a href="#">ip bgp policy community-list</a> command.
<b>Admin state</b>	The administration state of the community list policy, either enabled or disabled.
<b>Match type</b>	The match type of the community list. This is defined using the <a href="#">ip bgp policy community-list match-type</a> command.



*output definitions (continued)*

---

<b>Priority</b>	The community list priority. This is defined using the <b>ip bgp policy community-list priority</b> command.
<b>Action</b>	The community list action. This is defined using the <b>ip bgp policy community-list action</b> command.
<b>Primary index</b>	The instance identifier for the community list. This value is not configurable.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp policy community-list** Creates or deletes a community list.

**MIB Objects**

```
alabgpMIBCommunityListGroup  
  alaBgpCommunityMatchListId  
  alaBgpCommunityMatchListString  
  alaBgpCommunityMatchListPriority  
  alaBgpCommunityMatchListType  
  alaBgpCommunityMatchListAction  
  alaBgpCommunityMatchListRowStatus
```

---

## show ip bgp policy prefix-list

Displays prefix list parameters.

```
show ip bgp policy prefix-list [name] [ip_address ip_mask]
```

---

### Syntax Definitions

<i>name</i>	A prefix list name.
<i>ip_address</i>	A prefix list IP address.
<i>ip_mask</i>	An IP address mask.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays the list of prefix-list policies configured for the speaker, or a specific list determined by the list name or IP address and mask.

### Examples

```
-> show ip bgp policy prefix-list
Prefix List name      Prefix address  Prefix mask
-----+-----+-----
pfxl1                 155.132.33.0   255.255.255.0
pfxl2                 155.148.32.0   255.255.255.0
```

```
-> show ip bgp policy prefix-list pfxl1
Prefix List name = pfxl1
Address          = 155.132.33.0
Mask            = 255.255.255.0
  Admin state    = disabled,
  Match Mask >= (GE) = 0,
  Match Mask <= (LE) = 0,
  Action        = deny
```

#### *output definitions*

---

<b>Prefix List name</b>	The name of the prefix list. This is defined using the <b>ip bgp policy prefix-list</b> command.
<b>Address</b>	The IP address of the prefix list. This is defined using the <b>ip bgp policy prefix-list</b> command.
<b>Mask</b>	The mask of the prefix list. This is defined using the <b>ip bgp policy prefix-list</b> command.
<b>Admin state</b>	The administrative state of the prefix list, either enabled or disabled.

*output definitions (continued)*

---

<b>Match Mask &gt;= (GE)</b>	The GE match mask of the prefix list. This is defined using the <b>ip bgp policy prefix-list ge</b> command.
<b>Match Mask &lt;= (LE)</b>	The LE match mask of the prefix list. This is defined using the <b>ip bgp policy prefix-list le</b> command.
<b>Action</b>	The action of the prefix list. This is defined using the <b>ip bgp policy prefix-list action</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp policy prefix-list**           Creates or deletes a prefix match list.

**MIB Objects**

```
alabgpMIBPrefixListGroup
  alaBgpPrefixMatchListId
  alaBgpPrefixMatchListAddr
  alaBgpPrefixMatchListMask
  alaBgpPrefixMatchListGE
  alaBgpPrefixMatchListLE
  alaBgpPrefixMatchListAction
  alaBgpPrefixMatchListRowStatus
```

---

## show ip bgp policy prefix6-list

Displays the configured prefix6-list policies on the system.

```
show ip bgp policy prefix6-list [pfx_list_name[{{prefix6/prefix_length}}]]
```

---

### Syntax Definitions

<i>pfx_list_name</i>	A prefix list name.
<i>prefix6</i>	A prefix list IPv6 address.
<i>prefix_length</i>	The number of bits that are significant in the IPv6 address (mask). The valid range is 3-128.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays the list of prefix-list policies configured for the speaker, or a specific list determined by the list name or IPv6 address and IPv6 mask.

### Examples

```
-> show ip bgp policy prefix6-list
```

```
Prefix6 List name      Prefix6 address/Prefix length
-----+-----
p11                    fc00::/7
```

```
-> show ip bgp policy prefix6-list p11
```

```
Prefix6 List name = p11
Prefix            = fc00::
Prefix Length     = 7
  Admin state     = disabled,
  Match MaskLength >= (GE) = 0,
  Match MaskLength <= (LE) = 0,
  Action          = deny
```

#### *output definitions*

---

<b>Prefix6 List name</b>	The name of the prefix6-list. This is defined using the <b>ip bgp policy prefix6-list</b> command.
<b>Prefix6 Address</b>	The IPv6 address of the prefix6-list. This is defined using the <b>ip bgp policy prefix6-list</b> command.
<b>Prefix Length</b>	The mask of the prefix6-list. This is defined using the <b>ip bgp policy prefix6-list</b> command.

*output definitions (continued)*

---

<b>Admin state</b>	The administrative state of the prefix list, either enabled or disabled.
<b>Match Mask &gt;= (GE)</b>	The GE match mask of the prefix list. This is defined using the <b>ip bgp policy prefix-list ge</b> command.
<b>Match Mask &lt;= (LE)</b>	The LE match mask of the prefix list. This is defined using the <b>ip bgp policy prefix-list le</b> command.
<b>Action</b>	The action of the prefix list. This is defined using the <b>ip bgp policy prefix-list action</b> command.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

**ip bgp policy prefix6-list**      Creates or deletes a BGP prefix6-list policy for filtering IPv6 prefix.

**MIB Objects**

```
alaBgpPrefix6MatchListTable
  alaBgpPrefix6MatchListId
  alaBgpPrefix6MatchListAddr
  alaBgpPrefix6MatchListAddrLength
  alaBgpPrefix6MatchListRowStatus
  alaBgpPrefix6MatchListGE
  alaBgpPrefix6MatchListLE
  alaBgpPrefix6MatchListAction
```

---

## show ip bgp policy route-map

Displays policy route map parameters.

```
show ip bgp policy route-map [name] [sequence_number]
```

---

### Syntax Definitions

*name*                                      Route map name.

*sequence\_number*                        A sequence number. The valid range is 1–255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The route map is displayed as a summary table by entering only the route map name, or as a detailed list by specifying the sequence number.

### Examples

```
-> show ip bgp policy route-map
RouteMap name                      Instance
-----+-----
rmap1                                1
rmap1                                2
rmap2                                1

-> show ip bgp policy route-map rmap1
RouteMap name                      = rmap1
RouteMap instance = 1
  Admin state                        = disabled,
  Local pref (mode/value)           = <none> / 0,
  Route map action                   = permit,
  Origin                              = <none>,
  MED (mode/value)                  = <none> / 0,
  Weight                              = 0,
  Aspath-List name                   = aspl1,
  Aspath prepend                     = <none>,
  Aspath match primitive             = 500 .* 400$,
  Prefix-List name                   = <none>,
  Prefix match primitive             = 0.0.0.0 0.0.0.0,
  Community-List name                = com12,
  Community match primitive          = <none>,
  Community string [mode]            = [Additive]
```

*output definitions*


---

<b>RouteMap name</b>	The name of the route map policy. This is determined using the <b>ip bgp policy prefix6-list</b> command.
<b>RouteMap instance</b>	The instance of the route map policy. This is determined using the <b>ip bgp policy prefix6-list</b> command.
<b>Admin state</b>	The administrative state of the route map policy, either enabled or disabled.
<b>Local pref (mode/value)</b>	The local preference of the route map policy. This is determined using the <b>ip bgp policy route-map lpref</b> command.
<b>Route map action</b>	The action of the route map policy. This is determined using the <b>ip bgp policy route-map action</b> command.
<b>Origin</b>	The origin of the route map policy. This is determined using the <b>ip bgp policy route-map origin</b> command.
<b>MED (mode/value)</b>	The MED of the route map policy. This is determined using the <b>ip bgp policy route-map med</b> command.
<b>Weight</b>	The weight of the route map policy. This is determined using the <b>ip bgp policy route-map weight</b> command.
<b>Aspath-List name</b>	The name of the AS path list attached to this route map. This is set using the <b>show ip bgp policy aspath-list</b> command.
<b>Aspath prepend</b>	The value to prepend to the AS_PATH attribute of the routes matched by this RouteMap instance (Empty quotes indicates no AS_PATH prepending is to be done).
<b>Aspath match primitive</b>	The regular expression used to match AS Path for this route map.
<b>Prefix-List name</b>	The name of the prefix list attached to this route map. This is set using the <b>show ip bgp policy prefix-list</b> command.
<b>Prefix match primitive</b>	The prefix to match for this route map.
<b>Community-List name</b>	The name of the community list attached to this route map. This is set using the <b>show ip bgp policy community-list</b> command.
<b>Community match primitive</b>	The community string to match for this route map.
<b>Community string [mode]</b>	The name of the community mode attached to this route map. This is set using the <b>ip bgp policy route-map community-mode</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**ip bgp policy prefix6-list** Creates or deletes a policy route map.

---

## MIB Objects

```
alabgpMIBRouteMapGroup
  alaBgpRouteMapName
  alaBgpRouteMapInst
  alaBgpRouteMapAsPathMatchListId
  alaBgpRouteMapPrefixMatchListId
  alaBgpRouteMapCommunityMatchListId
  alaBgpRouteMapOrigin
  alaBgpRouteMapLocalPref
  alaBgpRouteMapLocalPrefMode
  alaBgpRouteMapMed
  alaBgpRouteMapMedMode
  alaBgpRouteMapAsPrepend
  alaBgpRouteMapSetCommunityMode
  alaBgpRouteMapCommunity
  alaBgpRouteMapMatchAsRegExp
  alaBgpRouteMapMatchPrefix
  alaBgpRouteMapMatchMask
  alaBgpRouteMapMatchCommunity
  alaBgpRouteMapWeight
  alaBgpRouteMapAction
  alaBgpRouteMapRowStatus
```

---



## ip bgp graceful-restart

Configures support for the graceful restart feature on a BGP router.

**ip bgp graceful-restart**

**no ip bgp graceful-restart**

---

### Syntax Definitions

N/A

### Defaults

Graceful restart is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable support for the graceful restart feature on a BGP router. It has only unplanned graceful restart.
- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on a chassis with a single CMM or on an in a standalone switch.
- On an OmniSwitch stackable switch graceful restart is supported only on active ports (i.e., interfaces) that are on the secondary or idle modules in a stack during a takeover. It is not supported on ports on a primary element in a stack.
- Note that graceful restart does not support IPv6 prefixes at this time.

### Examples

```
-> ip bgp graceful restart  
-> no ip bgp graceful restart
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[show ip bgp](#) Displays the current global settings for the local BGP speaker.

### MIB Objects

```
alaBgpGlobal  
  alaBgpGracefulRestart  
  alaBgpRestartInterval
```

---



## ipv6 bgp unicast

Enables or disables unicast IPv6 advertisements for the BGP routing process.

**ipv6 bgp unicast**

**no ipv6 bgp unicast**

---

### Syntax Definitions

N/A

### Defaults

By default, IPv6 BGP advertisements are disabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to turn off IPv6 unicast advertisements.
- BGP should be disabled before enabling or disabling IPv6 unicast advertisements.

### Examples

```
-> ipv6 bgp unicast  
-> no ipv6 bgp unicast
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<a href="#">ipv6 bgp unicast</a>	Enables or disables unicast IPv4 updates for the BGP routing process.
<a href="#">show ip bgp</a>	Displays the current global settings for the local BGP speaker.

### MIB Objects

```
alaBgpGlobal  
  alaBgpMultiProtocolIpv6
```

---

---

## ip bgp neighbor activate-ipv6

Enables or disables the exchange of IPv6 unicast routes between BGP peer routers identified by their IPv4 addresses.

**ip bgp neighbor** *ip\_address* **activate-ipv6**

**no ip bgp neighbor** *ip\_address* **activate-ipv6**

---

### Syntax Definitions

*ip\_address*                      The 32-bit IPv4 address of the neighbor.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to disable the exchange of IPv6 unicast routes between BGP peer routers identified by their IPv4 addresses.

### Examples

```
-> ip bgp neighbor 1.0.0.1 activate-ipv6
-> no ip bgp neighbor 1.0.0.1 activate-ipv6
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ip bgp neighbors](#)                      Displays BGP peer main status.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAddr
  alaBgpPeerIpv6Unicast
```

---

## ip bgp neighbor ipv6-nexthop

Configures the IPv6 next hop addresses for the IPv6 prefixes advertised between BGP peers. These BGP peers are identified by their IPv4 addresses.

**ip bgp neighbor** *ip\_address* **ipv6-nexthop** *ipv6\_address*

---

### Syntax Definitions

<i>ip_address</i>	The 32-bit IPv4 address of the neighbor.
<i>ipv6_address</i>	A 128-bit global IPv6 address to be used as the next hop for IPv6 routes being advertised to this BGP speaker.

### Defaults

By default, the IPv6 next hop value is set to all zeros.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To reset the IPv6 next hop value, enter an all-zero address.
- For internal BGP (IBGP) peers, the IPv6 next hop is used only if the peer **next-hop-self** option is configured.
- For external BGP (EBGP) peers, the IPv6 next hop is used for all the advertised IPv6 routes.

### Examples

```
-> ip bgp neighbor 1.0.0.1 ipv6-nexthop 2001:100:3:4::1
-> ip bgp neighbor 1.0.0.1 ipv6-nexthop ::
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

**show ipv6 bgp neighbors** Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAddr
  alaBgpPeerIpv6NextHop
```

---

## show ipv6 bgp path

Displays the known IPv6 BGP paths for all the routes or a specific route.

**show ipv6 bgp path** [**ipv6-addr** *ipv6\_address/prefix\_length*]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).

### Defaults

By default, IPv6 BGP paths for all the routes will be displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipv6\_address/prefix\_length* parameter to display the IPv6 BGP paths for a specified route.

### Examples

```
-> show ipv6 bgp path
Legends: Sta      = Path state
         >        = best, F = feasible, S = stale
         U        = un-synchronized
         Nbr      = Neighbor
         (O)      = Path Origin (? = incomplete, i = igp, e = egp)
         degPref  = degree of preference
```

Sta	Prefix	Nbr Address	(O)	degPref
>	2020:100:200:1::/64	2001:100:3:4::1	i	100
>	2020:100:200:2::/64	2001:100:3:4::1	i	100
>	2020:100:200:3::/64	2001:100:3:4::1	i	100
>	2020:100:200:4::/64	2001:100:3:4::1	i	100
>	2020:100:200:5::/64	2001:100:3:4::1	i	100
>	2525:2525:1::/48	100.3.4.1	i	100
>	2525:2525:2::/48	100.3.4.1	i	100
>	2525:2525:3::/48	100.3.4.1	i	100
>	2525:2525:4::/48	100.3.4.1	i	100
>	2525:2525:5::/48	100.3.4.1	i	100

*output definitions*


---

<b>Sta</b>	Status flag. “>” Best Path: Indicates this is the best route to the destination. “F” Feasible: The alternate path available when the best path goes down. “S” Stale: Indicates the peer that advertised this route's next hop is in the process of graceful restart. “P” Policy Changing: Indicates that a policy being applied may change the route. “U” Unsynchronized: Making a path unfeasible forcefully when a nexthop is not reachable or if the local bgp network is deleted." “D” Dampened: Indicates that this route is being dampened to prevent flapping. “N” None: No path available.
<b>Prefix</b>	The destination address of the IPv6 route in the hexadecimal format.
<b>Nbr Address</b>	The IP or IPv6 address of the BGP peer that advertises this path.
<b>(0)</b>	The origin attribute of this route path. A question mark (?) indicates incomplete, and <b>i</b> indicates IGP, and an <b>e</b> indicates EGP.
<b>degPref</b>	The local preference value assigned to this route path.

---

```
-> show ipv6 bgp path ipv6-addr 2020:100:200:1::/64
BGP Path parameters
Path address    = 2020:100:200:1::
Path Length    = 64
Path protocol  = ibgp
Path neighbor   = peer(2001:100:3:4::1)
  Path nextHop   = 2001:100:3:4::1,
  Path origin    = igp,
  Path local preference = 100,
  Path state     = active,
  Path weight    = 0,
  Path preference degree = 100,
  Path autonomous systems = [nAs=0] : <none>,
  Path MED      = <none>,
  Path atomic   = no,
  Path AS aggregator = <none>,
  Path IPaddr aggregator = <none>,
  Path community = <none>,
  Path Originator Id = <none>,
  Path Cluster List = <none>,
  Path unknown attribute = <none>
```

*output definitions*


---

<b>Path address</b>	The IPv6 address for route path.
<b>Path Length</b>	The prefix length of the IPv6 path.

*output definitions (continued)*

<b>Path protocol</b>	The protocol from which this route path was learned. Possible values for this field are as follows: <b>local</b> , <b>static</b> , <b>directhost</b> , <b>rip</b> , <b>ospf</b> , <b>isis</b> , <b>ibgp</b> , <b>ebgp</b> , and <b>other</b> .
<b>Path neighbor</b>	The IPv6 address of the BGP peer.
<b>Path nextHop</b>	The next hop along the route path.
<b>Path origin</b>	The BGP origin attribute. Possible values will be <b>igp</b> , <b>egp</b> , <b>incomplete</b> , and <b>none</b> . The origin attribute is considered during the route decision process.
<b>Path local preference</b>	The local preference value for this route as received in an UPDATE message. A negative value (for example, the <b>-1</b> in the above display) indicates that the local preference value is missing for this route path.
<b>Path state</b>	Indicates the state of the path. The possible states are <b>best</b> , <b>feasible</b> , <b>policy-wait</b> , <b>un-synchronized</b> , <b>dampened</b> , or <b>none</b> . When path state is <b>none</b> , it indicates that there are no paths to this prefix and the route is being purged from the system.
<b>Path weight</b>	The path weight as assigned through inbound and outbound policies.
<b>Path preference degree</b>	The local preference assigned to this route through an inbound or outbound policy, or, if the local preference value is missing, the default local preference (which is assigned through the <b>ip bgp default local-preference</b> ).
<b>Path autonomous systems</b>	The AS path for this route. These numbers show the ASs through which the route has traversed with the most recent AS listed first. In the above example, this route began its path in AS 2 and then traveled through AS 3.
<b>Path MED</b>	The multi-exit discriminator (MED) value for this route path. A negative value (for example, the <b>-1</b> in the above display) indicates that the MED value is missing for this route path.
<b>Path atomic</b>	Indicates whether the ATOMIC-AGGREGATE attribute has been set for this route. When set (this field would read <b>yes</b> ), this attribute indicates that an aggregate has caused a loss of information for this route (a less specific route was chosen over a more specific route included in the aggregate).
<b>Path AS aggregator</b>	Part of the AGGREGATOR attribute. This field indicates the AS for the BGP speaker that created the aggregate. A value of <b>&lt;none&gt;</b> indicates this is not an aggregate route.
<b>Path IPaddr aggregator</b>	Part of the AGGREGATOR attribute. This field indicates the IP address for the BGP speaker that created the aggregate. A value of <b>&lt;none&gt;</b> indicates that this is not an aggregate route.
<b>Path community</b>	Indicates the community to which this route path belongs, if applicable. A value of <b>&lt;none&gt;</b> indicates that this route does not belong to a community.
<b>Path Originator Id</b>	The Router Id of the BGP4 speaker that performed route reflection



*output definitions (continued)*

---

<b>Path Cluster List</b>	Sequence of Cluster Id values representing the reflection path that the route has passed, if this is a reflected route in the local AS.
<b>Path unknown attribute</b>	Indicates BGP attributes found in UPDATE messages which the router does not support. For example, multi-protocol attributes are not supported by the router in this release, but it is possible for these attributes to appear in a BGP route.

---

**Release History**

Release 6.1.5; command was introduced.

**Related Commands**

[show ipv6 bgp routes](#) Displays the known IPv6 BGP routes.

**MIB Objects**

alaBgpPath6Table  
  alaBgpPath6Addr  
  alaBgpPath6MaskLen  
  alaBgpPath6PeerBgpId  
  alaBgpPath6SrcProto  
  alaBgpPath6Weight  
  alaBgpPath6Pref  
  alaBgpPath6State  
  alaBgpPath6Origin  
  alaBgpPath6NextHop  
  alaBgpPath6As  
  alaBgpPath6LocalPref  
  alaBgpPath6Med  
  alaBgpPath6Atomic  
  alaBgpPath6AggregatorAs  
  alaBgpPath6AggregatorAddr  
  alaBgpPath6Community  
  alaBgpPath6OriginatorId  
  alaBgpPath6ClusterList  
  alaBgpPath6PeerName  
  alaBgpPath6UnknownAttr

---

## show ipv6 bgp routes

Displays the known IPv6 BGP routes.

**show ipv6 bgp routes**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show ipv6 bgp routes

Legends: ECL = EBGP change list, ICC = IBGP client change list  
 ICL = IBGP change list, LCL = local change list  
 AGG = Aggregation, AGC = Aggregation contribution  
 AGL = Aggregation list, GDL = Deletion list  
 AGW = Aggregation waiting, AGH = Aggregation hidden  
 DMP = Dampening, ACT = Active route

Prefix	ECL	ICC	ICL	LCL	AGG	AGC	AGL	AGW	AGH	GDL	DMP	ACT
2020:100:200:1::/64	No	No	No	No	No	No	No	No	No	No	No	Yes
2020:100:200:2::/64	No	No	No	No	No	No	No	No	No	No	No	Yes
2020:100:200:3::/64	No	No	No	No	No	No	No	No	No	No	No	Yes
2020:100:200:4::/64	No	No	No	No	No	No	No	No	No	No	No	Yes
2020:100:200:5::/64	No	No	No	No	No	No	No	No	No	No	No	Yes
2525:2525:1::/48	No	No	No	No	No	No	No	No	No	No	No	Yes
2525:2525:2::/48	No	No	No	No	No	No	No	No	No	No	No	Yes
2525:2525:3::/48	No	No	No	No	No	No	No	No	No	No	No	Yes
2525:2525:4::/48	No	No	No	No	No	No	No	No	No	No	No	Yes
2525:2525:5::/48	No	No	No	No	No	No	No	No	No	No	No	Yes

### *output definitions*

---

<b>Prefix</b>	The destination address of the IPv6 route in the hexadecimal format.
<b>ECL</b>	External BGP change list. When Yes, this route will be advertised as soon as the route advertisement timer expires.
<b>ICC</b>	Internal BGP client change list. When Yes, this route will be advertised to internal non-clients.

*output definitions (continued)*


---

<b>ICL</b>	Internal BGP change list. When Yes, this route has changes that need to be advertised.
<b>LCL</b>	Local change list. When Yes, this route is local.
<b>AGG</b>	Aggregation. When Yes, this route is an aggregate route.
<b>AGC</b>	Aggregation contribution. When Yes, this route is part of an aggregate route.
<b>AGL</b>	Aggregation list. When Yes, this route is placed on an aggregate list.
<b>AGW</b>	Aggregation waiting. When Yes, this route is waiting for an aggregate contributor.
<b>AGH</b>	Aggregation hidden. When Yes, this route is hidden as part of an aggregate route.
<b>GDL</b>	Deletion list. When Yes, this route will be deleted.
<b>DMP</b>	Dampening. Indicate whether this route has been dampened. If 'Yes', then this route has been dampened and a dampening history exists.
<b>ACT</b>	Active route. When Yes, the route is active.

---

**Release History**

Release 6.1.5; command was introduced.

**Related Commands**

**show ipv6 bgp path** Displays the known IPv6 BGP paths for all the routes or a specific route.

**MIB Objects**

```

alaBgpRoute6Table
  alaBgpRoute6Addr
  alaBgpRoute6MaskLen
  alaBgpRoute6State
  alaBgpRoute6IsHidden
  alaBgpRoute6IsAggregate
  alaBgpRoute6IsAggregateContributor
  alaBgpRoute6IsAggregateList
  alaBgpRoute6IsAggregateWait
  alaBgpRoute6IsOnEbgpChgList
  alaBgpRoute6IsOnIbgpClientChgList
  alaBgpRoute6IsOnIbgpChgList
  alaBgpRoute6IsOnLocalChgList
  alaBgpRoute6IsOnDeleteList
  alaBgpRoute6IsDampened

```

---

## ipv6 bgp network

Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers.

**ipv6 bgp network** *ipv6\_address/prefix\_length*

**no ipv6 bgp network** *ipv6\_address/prefix\_length*

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to turn off the advertisement of locally reachable IPv6 networks.

### Examples

```
-> ipv6 bgp network 2001::1/64
-> no ipv6 bgp network 2001::1/64
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<a href="#">ipv6 bgp network status</a>	Enables or disables a BGP network.
<a href="#">show ipv6 bgp network</a>	Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network

### MIB Objects

```
alaBgpNetwork6Table
  alaBgpNetwork6Addr
  alaBgpNetwork6MaskLen
```

---

## ipv6 bgp network community

Defines a community for a route created by the **ipv6 bgp network** command. Communities are a way of grouping BGP peers that do not share an IPv6 subnet or an AS.

```
ipv6 bgp network ipv6_address/prefix_length [community {none | num | num:num}]
```

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).
<b>none</b>	Removes a prefix from a community.
<i>num</i>	The community attribute number.
<i>num:num</i>	Community attribute in the AA : NN format. AA indicates the autonomous system and NN indicates the community number.

### Defaults

By default, a route is not assigned to a community.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The IPv6 BGP route created with the **ipv6 bgp network** command should exist before the **community** attribute is defined.

### Examples

```
-> ipv6 bgp network 2004::2/64 community 23:20
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<b>ipv6 bgp network</b>	Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers.
<b>show ipv6 bgp network</b>	Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network

## **MIB Objects**

```
alaBgpNetwork6Table  
  alaBgpNetwork6Addr  
  alaBgpNetwork6MaskLen  
  alaBgpNetwork6Community
```

---

## ipv6 bgp network local-preference

Defines the local preference value for a route generated by the **ipv6 bgp network** command. This value will override the default local preference value; it is used when announcing this network to internal peers.

**ipv6 bgp network** *ipv6\_address/prefix\_length* [**local-preference** *num*]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).
<i>num</i>	The local preference attribute value. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>num</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The IPv6 BGP route created with the **ipv6 bgp network** command should exist before the **local-preference** attribute is defined.

### Examples

```
-> ipv6 bgp network 2004::1/24 local-preference 6
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<b>ipv6 bgp network</b>	Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers
<b>show ipv6 bgp network</b>	Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network



## **MIB Objects**

```
alaBgpNetwork6Table  
  alaBgpNetwork6Addr  
  alaBgpNetwork6MaskLen  
  alaBgpNetwork6LocalPref
```

---

## ipv6 bgp network metric

Configures the Multi-Exit Discriminator (MED) attribute value for an network generated by the **ipv6 bgp network** command. This value is sent from routers of one AS to another to indicate the path that the remote AS can use to send data to the local AS.

**ipv6 bgp network** *ipv6\_address/prefix\_length* [**metric num**]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).
<i>num</i>	The MED attribute value. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>num</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The IPv6 BGP route created with the **ipv6 bgp network** command should exist before the **metric** attribute is defined for the same route.

### Examples

```
-> ipv6 bgp network 2001::1/64 metric 20
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

<b>ipv6 bgp network</b>	Advertises a locally reachable IPv6 address as a IPv6 BGP network to other BGP peers.
<b>show ipv6 bgp network</b>	Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network

## **MIB Objects**

```
alaBgpNetwork6Table  
  alaBgpNetwork6Addr  
  alaBgpNetwork6MaskLen  
  alaBgpNetwork6Metric
```

---

---

## ipv6 bgp network status

Enables or disables a BGP network. The BGP status must be manually enabled after configuring all the BGP neighbor and network parameters.

**ipv6 bgp network** *ipv6\_address/prefix\_length* [status {enable | disable}]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).
<b>enable</b>	Enables the BGP network.
<b>disable</b>	Disables the BGP network.

### Defaults

By default, the BGP network is disabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The IPv6 BGP route created with the **ipv6 bgp network** command should exist before the **status** attribute is defined.

### Examples

```
-> ipv6 bgp network 2001::1/64 status enable
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

**show ipv6 bgp network** Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network.

### MIB Objects

```
alaBgpNetwork6Table  
  alaBgpNetwork6Addr  
  alaBgpNetwork6MaskLen  
  alaBgpNetwork6RowStatus
```

---

## show ipv6 bgp network

Displays the status of all the IPv6 BGP networks or a specific IPv6 BGP network.

**show ipv6 bgp network** [*ipv6\_address/prefix\_length*]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address.
<i>/prefix_length</i>	The number of bits that are significant in the IPv6 address (mask) (3..128).

### Defaults

By default, all IPv6 BGP networks and their status will be displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipv6\_address/prefix\_length* parameter to display the status of a specific IPv6 BGP network.

### Examples

```
show ipv6 bgp network
  Network                               Admin state Oper state
-----+-----+-----
2525:500:600::/64                       enabled      active
```

```
show ipv6 bgp network 2525:500:600::/64
Network address           = 2525:500:600::/64,
Network admin state       = enabled,
Network oper state        = active,
Network metric             = 0,
Network local preference = 0,
Network community string = <none>
```

#### *output definitions*

<b>Network</b> or <b>Network address</b>	The IPv6 address configured for this local BGP network. This value is configured through the <b>ipv6 bgp network</b> command.
<b>Admin state</b> or <b>Network admin state</b>	Indicates whether this local BGP network is administratively enabled or disabled. This value is configured through the <b>ipv6 bgp network status</b> command.
<b>Oper state</b> or <b>Network oper state</b>	Indicates whether this BGP local network is operationally active or inactive.

---

*output definitions (continued)*

---

<b>Network metric</b>	The multi-exit discriminator (MED) value configured for this local BGP network. This value is configured through the <b>ipv6 bgp network metric</b> command.
<b>Network local preference</b>	The local preference value for this local BGP network. This value is configured through the <b>ipv6 bgp network local-preference</b> command.
<b>Network community string</b>	The community string value for this local BGP network. This value is configured through the <b>ipv6 bgp network community</b> command.

---

## Release History

Release 6.1.5; command was introduced.

## Related Commands

**ipv6 bgp network** .Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers.

## MIB Objects

```
alaBgpNetwork6Table
  alaBgpNetwork6Addr
  alaBgpNetwork6MaskLen
  alaBgpNetwork6State
  alaBgpNetwork6Metric
  alaBgpNetwork6LocalPref
  alaBgpNetwork6Community
  alaBgpNetwork6RowStatus
```

---

## ipv6 bgp neighbor

Creates or deletes a BGP peer relationship using IPv6 addresses.

**ipv6 bgp neighbor** *ipv6\_address*

**no ipv6 bgp neighbor** *ipv6\_address*

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address of the new BGP peer.

### Defaults

By default, no BGP peers are configured in the BGP network.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a BGP peer.
- To establish a BGP session, the BGP peer should be reachable.
- You must manually enable a BGP peer after creating it. A BGP peer is enabled using the **ipv6 bgp neighbor status** command.
- Once created, a BGP peer must be assigned an autonomous system number using the **ipv6 bgp neighbor remote-as** command.
- Use **update-source** keyword to configure the IPv6 interface when link-local address is used as neighbor address.

### Examples

```
-> ipv6 bgp neighbor 2001::1  
-> no ipv6 bgp neighbor 2001::1
```

### Release History

Release 6.1.5; command was introduced.

## Related Commands

- ipv6 bgp neighbor status** Enables or disables the BGP peer status.
- ipv6 bgp neighbor remote-as** Assigns an AS number to the BGP peer.

## MIB Objects

alaBgpPeer6Table  
  alaBgpPeer6Addr

---



## ipv6 bgp neighbor clear soft

Invokes an inbound or outbound policy reconfiguration for an IPv6 BGP peer.

```
ipv6 bgp neighbor peer6_address clear soft {in | out}
```

---

### Syntax Definitions

<i>peer6_address</i>	The 128-bit IPv6 address of the BGP peer.
<b>in</b>	Restarts inbound policy evaluation of the peer.
<b>out</b>	Restarts outbound policy evaluation of the peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command reconfigures (or reapplies) all inbound or outbound policies to existing routes without restarting the IPv6 peer session.
- This command is useful if policies have been changed.
- BGP neighbour must be configured.

### Examples

```
-> ipv6 bgp neighbor 2001::1 clear soft in  
-> ipv6 bgp neighbor 2001::1 clear soft out
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[ipv6 bgp neighbor soft-reconfiguration](#) Enables or disables IPv6 BGP peer soft reconfiguration.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeer6ddr  
  alaBgpPeer6ReconfigureInBound  
  alaBgpPeer6ReconfigureOutound
```

---

---

## ipv6 bgp neighbor soft-reconfiguration

Enables or disables IPv6 BGP peer soft reconfiguration. Soft reconfiguration increases the stability of the peer by allowing you to reconfigure attributes that require peer resets without halting the TCP connection with other peers.

**ipv6 bgp neighbor *peer6\_address* soft-reconfiguration**

**no ipv6 bgp neighbor *peer6\_address* soft-reconfiguration**

---

### Syntax Definitions

*peer6\_address*                      The 128-bit IPv6 address of the BGP peer.

### Default

This command is enabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable this feature.
- This feature stores routes and other configuration information in local memory. When you make configuration changes that require a peer reset, the routing cache is not cleared and connections with other peers are not interrupted.
- BGP neighbor must be configured.
- BGP peer is restarted after issuing this command.

### Examples

```
-> ipv6 bgp neighbor 2021::10 soft-reconfiguration
-> no ipv6 bgp neighbor 2021::10 soft-reconfiguration
```

### Release History

Release 6.3.4; command was introduced

## Related Commands

**ipv6 bgp neighbor clear soft** Invokes an inbound or outbound policy reconfiguration for an IPv6 BGP peer.

## MIB Objects

alaBgpPeerTable  
  alaBgpPeer6Addr  
  alaBgpPeer6SoftReconfig

---

---

## ipv6 bgp neighbor in-prefix6list

Configures an inbound BGP prefix6-list policy for an IPv6 BGP peer.

```
ipv6 bgp neighbor peer6_address in-prefix6list pfx_list_name
```

---

### Syntax Definitions

<i>peer6_address</i>	The 128-bit IPv6 address of the BGP peer.
<i>pfx_list_name</i>	An Output prefix list name (1 - 70 characters).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The prefix list name (**uniqLocal** in the example below) is created using the [ip bgp policy prefix6-list](#) command. Any outbound routes from the BGP peer must match this prefix filter before being advertised or passed to outbound policy.
- BGP neighbor must be configured.

### Examples

```
-> ipv6 bgp neighbor 2021::10 in-prefix6list uniqLocal
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[ip bgp policy prefix6-list](#) Creates or deletes a BGP prefix6-list policy for filtering IPv6 prefixes.

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeer6Addr  
  alaBgpPeer6Prefix6ListIn
```

---

## ipv6 bgp neighbor out-prefix6list

Configures an outgoing BGP prefix6-list policy for an IPv6 BGP peer.

```
ipv6 bgp neighbor peer6_address out-prefix6list pxf_list_name
```

---

### Syntax Definitions

<i>peer6_address</i>	The 128-bit IPv6 address of the BGP peer.
<i>pxf_list_name</i>	An Output prefix list name ( 1 - 70 characters). .

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The prefix list name (**uniqLocal** in the example below) is created using the [ip bgp policy prefix6-list](#) command. Any outbound routes from the BGP peer must match this prefix filter before being advertised or passed to outbound policy.
- BGP neighbor must be configured.

### Examples

```
-> ipv6 bgp neighbor 2021::10 out-prefix6list uniqLocal
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">ip bgp policy prefix6-list</a>	Creates or deletes a BGP prefix6-list policy for filtering IPv6 prefixes.
--------------------------------------------	---------------------------------------------------------------------------

### MIB Objects

```
alaBgpPeerTable  
  alaBgpPeer6Addr  
  alaBgpPeer6Prefix6ListOut
```

---

---

## ipv6 bgp neighbor activate-ipv6

Enables the exchange of IPv6 unicast routes between BGP peer routers identified by their IPv6 addresses.

**ipv6 bgp neighbor** *ipv6\_address* [**activate-ipv6**]

**no ipv6 bgp neighbor** *ipv6\_address* [**activate-ipv6**]

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address.

### Defaults

This command is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to disable the exchange of IPv6 unicast routes between BGP peer routers identified by their IPv6 addresses.

### Examples

```
-> ipv6 bgp neighbor 1.0.0.1 activate-ipv6
-> no ipv6 bgp neighbor 1.0.0.1 activate-ipv6
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#)              Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table
  alaBgpPeer6Addr
  alaBgpPeer6ActivateIpv6
```

---

## ipv6 bgp neighbor ipv6-next-hop

Configures the IPv6 next hop addresses for IPv6 prefixes advertised between BGP peers. These BGP peers are identified by their IPv6 addresses.

```
ipv6 bgp neighbor ipv6_address [ipv6-next-hop ipv6_address]
```

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address of the next hop router.

### Defaults

By default, the IPv6 next hop address is set to all zeros.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- To reset the IPv6 next hop value, enter an all-zero address.
- For internal BGP (IBGP) peers, the IPv6 next hop is used only if the peer **next-hop-self** option is configured.
- For external BGP (EBGP) peers, the IPv6 next hop is used for all the advertised IPv6 routes.
- For BGP peers configured with their link-local addresses, the configured IPv6 next hop is used while advertising IPv6 prefixes.

### Examples

```
-> ipv6 bgp neighbor 2001::1 ipv6-next-hop fe80::/24  
-> no ipv6 bgp neighbor 2001::1 ipv6-next-hop fe80::/24
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#)      Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeerIpv6NextHop
```

---

## ipv6 bgp neighbor status

Enables or disables the BGP peer status. These peers are identified by their IPv6 addresses.

**ipv6 bgp neighbor** *ipv6\_address* [status {enable | disable}]

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address of the new BGP peer.
<b>enable</b>	Enables the BGP peer.
<b>disable</b>	Disables the BGP peer.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You should first create a BGP peer and assign it an IPv6 address using the [ipv6 bgp neighbor](#) command before enabling the peer.
- You should configure all the BGP peer related commands before enabling a BGP peer. Once you have enabled the peer, it will begin sending BGP connection and route advertisement messages.

### Examples

```
-> ipv6 bgp neighbor 2001::1 status enable
-> ipv6 bgp neighbor 2001::1 status disable
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#) Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table
  alaBgpPeer6Addr
  alaBgpPeer6RowStatus
```

---



## ipv6 bgp neighbor remote-as

Assigns an AS number to the BGP peer.

```
ipv6 bgp neighbor ipv6_address [remote-as num]
```

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address of the BGP peer.

*num*                                      Autonomous system number in the range 1–65535.

### Defaults

---

parameter	default
<i>num</i>	1

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- A BGP peer created with the **ipv6 bgp neighbor** command cannot be enabled until it is assigned an autonomous system number. If the AS number assigned to the peer matches the AS number of the local BGP speaker (assigned using the **ip bgp autonomous-system** command), the peer is considered internal to the local autonomous system. Otherwise, the peer is considered external to the local BGP speaker's AS.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ipv6 bgp neighbor 2001::1 remote-as 100
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

**ip bgp autonomous-system**       Sets the AS for the local BGP speaker.

### MIB Objects

```
alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6AS
```

---

## ipv6 bgp neighbor timers

Configures the KEEPALIVE message interval and hold time interval (in seconds) with regards to the specified BGP peer.

**ipv6 bgp neighbor** *ipv6\_address* [**timers** *num num*]

---

### Syntax Definitions

<i>ipv6_address</i>	A 128-bit IPv6 address for the BGP peer.
<i>num</i>	The KEEPALIVE message interval in seconds.
<i>num</i>	The hold time interval in seconds.

### Defaults

parameter	default
<i>num</i> (keepalive)	30 seconds
<i>num</i> (holdtime)	90 seconds

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- KEEPALIVE messages do not contain route updates or indicate a change in the status of the BGP peer; they indicate to the receiving BGP peer that the connection is still live and the peer is reachable.
- By default, the KEEPALIVE interval of 30 seconds is one-third the default hold time interval of 90 seconds. The KEEPALIVE interval can never be more than one-third the value of the hold time interval. When the hold time interval is reached without receiving KEEPALIVE or other updates messages, the peer is considered dead.
- Setting the KEEPALIVE value to zero means no KEEPALIVE messages will be sent.
- Once a connection is established with a peer and a time period of the length specified in this command transpires with no messages from the remote peer, then the connection with that remote peer will be considered dead.
- The hold timer is used during the connection setup process and for on-going connection maintenance with BGP peers. If the peer does not receive a KEEPALIVE, UPDATE, or NOTIFICATION message within this time period, then the BGP connection will be closed.
- Both the KEEPALIVE and hold time interval should be set at the same time.
- Using this command without the variables resets the variables to their default value.

### Examples

```
-> ipv6 bgp neighbor 2001::1 timers 80 240
```

## Release History

Release 6.1.5; command was introduced.

## Related Commands

**ipv6 bgp neighbor conn-retry-interval** The interval, in seconds, between BGP retries to set up a connection with another peer via the transport protocol.

## MIB Objects

alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6HoldTime  
  alaBgpPeer6KeepAlive

---

## ipv6 bgp neighbor maximum-prefix

Configures the maximum number of prefixes, or paths, the local router can receive from a BGP peer in UPDATE messages.

**ipv6 bgp neighbor** *ipv6\_address* [**maximum-prefix** *num* [**warning-only**]]

**no ipv6 bgp neighbor** *ipv6\_address* [**maximum-prefix** *num* [**warning-only**]]

---

### Syntax Definitions

*ipv6\_address* A 128-bit IPv6 address for the BGP peer.

*num* The number of prefixes. The valid range is 0–4294967295.

### Defaults

parameter	default
<i>num</i>	5000

By default, **warning-only** is enabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When the number of prefixes sent by the BGP peer reaches the maximum limit, the peer is restarted.
- You can use BGP logging to receive a warning when the number of prefixes received from the peer reaches 80 percent of the value you configure in this command.
- If the **warning-only** prefix is used, the operator will be warned when the peer exceeds 80 percent of the configured number of maximum prefixes.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ipv6 bgp neighbor 2001::2 maximum-prefix 1000 warning-only
-> no ipv6 bgp neighbor 2001::2 maximum-prefix 1000
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

**show ipv6 bgp neighbors** Displays the configured IPv6 BGP peers.

## **MIB Objects**

alaBgpPeer6Table

  alaBgpPeer6Addr

  alaBgpPeer6MaxPrefix

  alaBgpPeer6MaxPrefixWarnOnly

---

## ipv6 bgp neighbor next-hop-self

Configures router to advertise its peering address as the next hop address for the specified neighbor.

```
ipv6 bgp neighbor ipv6_address [next-hop-self]
```

```
no ipv6 bgp neighbor ipv6_address [next-hop-self]
```

---

### Syntax Definitions

*ipv6\_address*                      A 128-bit IPv6 address for the BGP peer.

### Defaults

By default, the **next-hop-self** parameter of BGP updates is disabled.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the **next-hop-self** parameter.
- In meshed networks, the BGP peer may not have direct connections to other peers. When such a peer receives route updates from these distant peers (via other peers), it may treat the remote peer as if it were the next hop in the routing path. Packet forwarding will not work in such a case because no direct connection exists. This command allows the peer to deem itself the next hop on the routing path so that the two non-connected peers can route packets. This peer would have a direct connection to both peers that want to exchange packets.
- The BGP peer is restarted after issuing this command.

### Examples

```
-> ipv6 bgp neighbor 2001::2 next-hop-self  
-> no ipv6 bgp neighbor 2001::2 next-hop-self
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#)      Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6NextHopSelf
```

---

## ipv6 bgp neighbor conn-retry-interval

The interval, in seconds, between BGP retries to set up a connection with another peer via the transport protocol. In the connect state, BGP tries to set up a connection with a remote peer. If the connection fails, then the connection retry interval starts. Once this interval elapses, BGP retries setting up the connection.

**ipv6 bgp neighbor** *ipv6\_address* [**conn-retry-interval** *num*]

---

### Syntax Definitions

<i>ipv6_address</i>	A 128-bit IPv6 address for the BGP neighbor.
<i>num</i>	The time interval (in seconds) between retries. The valid range is 0–65535.

### Defaults

---

parameter	default
<i>num</i>	120

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The connection retry time interval starts when a connection to a peer is lost.
- Using this command without the *num* variable resets the variable to its default value.

### Examples

```
-> ipv6 bgp neighbor 2001::2 conn-retry-interval 60
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#) Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6ConnRetryInterval
```

---

## ipv6 bgp neighbor default-originate

Enables or disables the BGP local speaker to advertise a default route to the peer.

```
ipv6 bgp neighbor ipv6_address [default-originate]
```

```
no ipv6 bgp neighbor ipv6_address [default-originate]
```

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address for the neighbor.

### Defaults

This **default-originate** parameter is disabled by default.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the BGP peer default origination.
- When this command is enabled, the local BGP speaker advertises the default route to the peer. Such a default route overrides any learned default (propagation) and outbound policy. The default route `::/0` does not need to exist on the local router.
- If the peer is capable of exchanging IP as well as IPv6 prefixes, the default route for both IP and IPv6 is advertised.

### Examples

```
-> ipv6 bgp neighbor 2001::1 default-originate  
-> no ipv6 bgp neighbor 2001::1 default-originate
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#)    Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6DefaultOriginate
```

---



## ipv6 bgp neighbor update-source

Configures the local IPv6 interface from which a BGP peer will be connected. This local IPv6 interface can be configured for internal and external BGP peers.

**ipv6 bgp neighbor** *ipv6\_address* [**update-source** *interface\_name*]

**no ipv6 bgp neighbor** *ipv6\_address* [**update-source** *interface\_name*]

---

### Syntax Definitions

*ipv6\_address*

The 128-bit IPv6 address for the BGP peer.

*interface\_name*

The name of the local IPv6 interface that provides the TCP connection for this BGP peer.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The BGP peer is restarted after issuing this command.
- If a BGP peer is configured with its link-local address, use the **update-source** parameter to specify the name of the IPv6 interface from which this peer is reachable. This is required to establish a BGP peering session.

### Examples

```
-> ipv6 bgp neighbor 2004::1 update-source bgp_ipv6  
-> no ipv6 bgp neighbor 2004::1 update-source bgp_ipv6
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#) Displays the configured IPv6 BGP peers.

[ipv6 interface](#) Configures an IPv6 interface on a VLAN or IPv6 tunnel.

### MIB Objects

alaBgpPeer6Table

  alaBgpPeer6Addr

  alaBgpPeer6LocalIntfName

---

---

## ipv6 bgp neighbor ipv4-nexthop

Configures the IPv4 next hop addresses for IPv4 prefixes advertised between BGP peers. These BGP peers are identified by their IPv6 addresses.

```
ipv6 bgp neighbor ipv6_address [ipv4-nexthop ip_address]
```

---

### Syntax Definitions

<i>ipv6_address</i>	The 128-bit IPv6 address for the BGP peer.
<i>ip_address</i>	The 32-bit IP address of the next hop.

### Defaults

By default, the IPv4 next hop value is set to all zeros.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

To reset the IPv4 next hop value, enter an all-zero address.

### Examples

```
-> ipv6 bgp neighbor 2004::1 ipv4-nexthop 172.22.2.115
-> ipv6 bgp neighbor 2004::1 ipv4-nexthop 0.0.0.0
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[show ipv6 bgp neighbors](#) .Displays the configured IPv6 BGP peers.

### MIB Objects

```
alaBgpPeer6Table
  alaBgpPeer6Addr
  alaBgpPeer6Ipv4NextHop
```

---

## show ipv6 bgp neighbors

Displays the configured IPv6 BGP peers.

**show ipv6 bgp neighbors** [*ipv6\_address*]

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address of the BGP neighbor.

### Defaults

By default, all the configured IPv6 BGP peers will be displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipv6\_address* parameter to display the details of a specified IPv6 BGP peer.

### Examples

```
-> show ipv6 bgp neighbors
Legends: Nbr = Neighbor
         As  = Autonomous System
Nbr address                As  Admin state Oper state  BGP Id      Up/Down
-----+-----+-----+-----+-----+-----
2001:100:3:4::1           30  enabled    established  11.4.0.1    01h:42m:08s
fe80::200:57ff:fe28:7e89  10  enabled    established  11.5.0.1    01h:40m:58s
```

```
-> show ipv6 bgp neighbors 2001:100:3:4::1
Neighbor address           = 2001:100:3:4::1,
Neighbor autonomous system = 30,
Neighbor Admin state      = enabled,
Neighbor Oper state       = established,
Neighbor passive status   = disabled,
Neighbor name              = peer(2001:100:3:4::1),
Neighbor local address     = 2001:100:3:4::10,
Neighbor EBGP multiHop    = disabled,
Neighbor next hop self    = disabled,
Neighbor Route Refresh    = enabled,
Neighbor Ipv4 unicast     = enabled,
Neighbor Ipv4 multicast   = disabled,
Neighbor type              = internal,
Neighbor auto-restart     = enabled,
Neighbor route-reflector-client = disabled,
Neighbor confederation status = disabled,
Neighbor remove private AS = disabled,
Neighbor default originate = disabled,
Neighbor maximum prefixes = 5000,
Neighbor max prefixes warning = enabled,
# of prefixes received    = 10,
```

```

Neighbor MD5 key           = <none>,
Neighbor local port       = 49154,
Neighbor TCP window size  = 32768,
Graceful Restart State    = None,
Advertised Restart Interval = 0s,
Forwarding State during restart = NotPreserved,
Activate IPv6 unicast     = enabled,
Configured IPv4 NextHop Address = 0.0.0.0,
Configured IPv6 NextHop Address = ::,
Neighbor Ipv6 unicast     = advertised

```

### *output definitions*

<b>Nbr address</b> or <b>Neighbor address</b>	The IPv6 address for this BGP peer. Assign this address through the <b>ipv6 bgp neighbor</b> command.
<b>As</b> or <b>Neighbor autonomous system</b>	The autonomous system to which this peer belongs. A peer's AS number is assigned through the <b>ipv6 bgp neighbor remote-as</b> command.
<b>Admin state</b> or <b>Neighbor Admin state</b>	Indicates whether this peer has been enabled or disabled through the <b>ipv6 bgp neighbor status</b> command.
<b>Oper state</b> or <b>Neighbor Oper state</b>	The current BGP state for this peer. Possible states are <b>idle</b> , <b>connect</b> , <b>active</b> , <b>opensent</b> , <b>openconfirm</b> , and <b>established</b> .
<b>BGP Id</b>	The unique BGP identifier of the peer.
<b>Up/Down</b>	The time since this peer has transitioned to its current UP or DOWN state. If the peer is currently Established, then this is the time that the peer has been UP. If the peer is currently Idle, then this is the time the peer has been DOWN.
<b>Neighbor passive status</b>	Indicates whether the local BGP speaker is "passive" (i.e., waiting for this peer to initiate a session).
<b>Neighbor name</b>	The name assigned to this peer.
<b>Neighbor local address</b>	The interface assigned to this peer. This value is configured through the <b>ipv6 bgp neighbor update-source</b> command.
<b>Neighbor EBGp multiHop</b>	Indicates whether BGP multi-hop support is enabled or disabled. This supports allows external BGP peers to communicate with each other even when they are not directly connected.
<b>Neighbor next hop self</b>	Indicates whether this peer is using next hop processing. This value is configured through the <b>ipv6 bgp neighbor next-hop-self</b> command.
<b>Neighbor Route Refresh</b>	Indicates whether this peer supports Route Refresh capability as defined in RFC 2918. This capability is an alternative to soft-reconfiguration that can save CPU and memory resources. It allows peers to dynamically request the re-advertisement of BGP routing tables. Since this router supports route refresh all BGP peers are automatically enabled for this capability.
<b>Neighbor Ipv4 unicast</b>	Indicates whether this peer is multiprotocol IPv4 unicast capable.
<b>Neighbor Ipv4 multicast</b>	Indicates whether this peer is multiprotocol IPv4 multicast capable.
<b>Neighbor type</b>	Indicates whether this peer is internal or external to the AS.
<b>Neighbor auto-restart</b>	Indicates whether peer auto-restart is enabled or disabled.

*output definitions (continued)*

---

<b>Neighbor route-reflector-client</b>	Indicates whether this peer is a client to the local route reflector, if configured.
<b>Neighbor confederation status</b>	Indicates whether this peer is a member of a BGP confederation.
<b>Neighbor remove private AS</b>	Indicates whether the stripping of private AS numbers (64512 to 65535) from AS paths is enabled or disabled.
<b>Neighbor default originate</b>	Indicates whether peer default origination is enabled or disabled. When enabled, the local BGP speaker advertises the default route to the peer. This value is configured through the <b>ipv6 bgp neighbor default-originate</b> command.
<b>Neighbor maximum prefixes</b>	The maximum number of prefixes the local router can receive in UPDATE from this peer. This value is configured through the <b>ipv6 bgp neighbor maximum-prefix</b> command.
<b>Neighbor max prefixes warning</b>	Indicates whether a warning will be issued when this peer exceeds 80 percent of the maximum prefix value. This value is configured through the <b>ipv6 bgp neighbor update-source</b> command.
<b># of prefixes received</b>	Displays the total number of prefixes received by this neighbor.
<b>Neighbor MD5 key</b>	When present, shows an encrypted version of the MD5 password. When not present, and MD5 password has not been configured.
<b>Neighbor local port</b>	The TCP port used for the session with this peer.
<b>Neighbor TCP window size</b>	The size of the TCP window for this BGP session. This value will always be 32768 as that is the maximum size of a BGP message.
<b>Graceful Restart State</b>	Indicates the graceful restart state. This feature does not support IPv6 prefixes.
<b>Advertised Restart Interval</b>	Indicates the restart interval in seconds.
<b>Forwarding State during restart</b>	Indicates whether the peer has preserved the forwarding state during the graceful restart.
<b>Activate IPv6 unicast</b>	Indicates whether or not IPv6 unicast advertisements are enabled. Options include <b>enabled</b> or <b>disabled</b> .
<b>Configured IPv4 NextHop Address</b>	Specifies the IPv4 nexthop address. This is specified using the <b>ipv6 bgp neighbor ipv4-nexthop</b> command.
<b>Configured IPv6 NextHop Address</b>	Specifies the IPv6 nexthop address. This is specified using the <b>ipv6 bgp neighbor ipv6-nexthop</b> command.
<b>Neighbor Ipv6 unicast</b>	Indicates whether or not IPv6 unicast capability is advertised between the peers. Options include enabled or disabled.

---

**Release History**

Release 6.1.5; command was introduced.

## Related Commands

<a href="#">ipv6 bgp neighbor</a>	Creates or deletes a BGP peer relationship using IPv6 addresses
<a href="#">ipv6 bgp neighbor status</a>	Enables or disables the BGP peer status.

## MIB Objects

```

alaBgpPeer6Table
  alaBgpPeer6Addr
  alaBgpPeer6AS
  alaBgpPeer6Passive
  alaBgpPeer6Name
  alaBgpPeer6MultiHop
  alaBgpPeer6MaxPrefix
  alaBgpPeer6MaxPrefixWarnOnly
  alaBgpPeer6NextHopSelf
  alaBgpPeer6SoftReconfig
  alaBgpPeer6InSoftReset
  alaBgpPeer6Ipv4Unicast
  alaBgpPeer6Ipv4Multicast
  alaBgpPeer6RcvdRtRefreshMsgs
  alaBgpPeer6SentRtRefreshMsgs
  alaBgpPeer6RouteMapOut
  alaBgpPeer6RouteMapIn
  alaBgpPeer6LocalAddr
  alaBgpPeer6LastDownReason
  alaBgpPeer6LastDownTime
  alaBgpPeer6LastReadTime
  alaBgpPeer6RcvdNotifyMsgs
  alaBgpPeer6SentNotifyMsgs
  alaBgpPeer6LastSentNotifyReason
  alaBgpPeer6LastRecvNotifyReason
  alaBgpPeer6RcvdPrefixes
  alaBgpPeer6DownTransitions
  alaBgpPeer6Type
  alaBgpPeer6AutoRestart
  alaBgpPeer6ClientStatus
  alaBgpPeer6ConfedStatus
  alaBgpPeer6RemovePrivateAs
  alaBgpPeer6ClearCounter
  alaBgpPeer6TTL
  alaBgpPeer6AspathListOut
  alaBgpPeer6AspathListIn
  alaBgpPeer6PrefixListOut
  alaBgpPeer6PrefixListIn
  alaBgpPeer6CommunityListOut
  alaBgpPeer6CommunityListIn
  alaBgpPeer6Restart
  alaBgpPeer6DefaultOriginate
  alaBgpPeer6ReconfigureInBound
  alaBgpPeer6ReconfigureOutBound
  alaBgpPeer6MD5Key
  alaBgpPeer6MD5KeyEncrypt
  alaBgpPeer6RowStatus
  alaBgpPeer6UpTransitions
  alaBgpPeer6LastWriteTime
  alaBgpPeer6AdminStatus

```

```
alaBgpPeer6State  
alaBgpPeer6LocalPort  
alaBgpPeer6TcpWindowSize  
alaBgpPeer6ActivateIpv6
```

---

## show ipv6 bgp neighbors statistics

Displays the neighbor statistics of the configured IPv6 BGP peers.

**show ipv6 bgp neighbors statistics** [*ipv6\_address*]

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address.

### Defaults

By default, the neighbor statistics for all the IPv6 BGP peers will be displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipv6\_address* parameter to display the neighbor statistics of a specified IPv6 BGP peer.

### Examples

```
-> show ipv6 bgp neighbors statistics
```

```
Legends: Nbr    = Neighbor
          As     = Autonomous System
          RMSGS  = # of received messages
          SMSGS  = # of sent messages
          RUPDS  = # of Update messages received
          SUPDS  = # of Update messages sent
          RNOFY  = # of Notify messages received
          SNOFY  = # of Notify messages sent
          RPFXS  = # of prefixes received
          UPTNS  = # of UP transitions
          DNTNS  = # of DOWN transitions
```

```
Nbr address           As     RMSGS SMSGS RUPDS SUPDS RNOFY SNOFY RPFXS UPTNS DNTNS
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
2001:100:3:4::1      30    225   260    2     3     0     0     10    1     1
```

### output definitions

---

<b>Nbr address</b>	The IPv6 address for this peer. This value is configured using the <b>ipv6 bgp neighbor</b> command.
<b>As</b>	The autonomous system to which this peer belongs. This value is configured using the <b>ipv6 bgp neighbor remote-as</b> command.
<b>RMSGS</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
<b>SMSGS</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent by this peer.



*output definitions (continued)*


---

<b>RUPDS</b>	The number of route UPDATE messages received by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b>SUPDS</b>	The number of route UPDATE messages sent by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b>RNOFY</b>	The number of NOTIFY messages received by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
<b>SNOFY</b>	The number of NOTIFY messages sent by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
<b>RPFXS</b>	Number of unique route prefixes received by this peer.
<b>UPTNS</b>	Number of times this peer has come up, operationally.
<b>DNTNS</b>	Number of times this peer has gone down, operationally.

---

```
-> show ipv6 bgp neighbors statistics 2001:100:3:4::1
Neighbor address           = 2001:100:3:4::1,
# of UP transitions        = 1,
Time of last UP transition = 01h:50m:36s,
# of DOWN transitions      = 1,
Time of last DOWN transition = 00h:00m:00s,
Last DOWN reason          = none,
# of msgs rcvd            = 226,
# of Update msgs rcvd     = 2,
# of prefixes rcvd        = 10,
# of Route Refresh msgs rcvd = 0,
# of Notification msgs rcvd = 0,
Last rcvd Notification reason = none [none]
Time last msg was rcvd     = 00h:00m:04s,
# of msgs sent            = 260,
# of Update msgs sent     = 3,
# of Route Refresh msgs sent = 0
# of Notification msgs sent = 0,
Last sent Notification reason = none [none]
Time last msg was sent     = 00h:00m:18s,
```

*output definitions*


---

<b>Neighbor address</b>	The IPv6 address for this peer. This value is configured using the <b>ipv6 bgp neighbor</b> command.
<b># of UP transitions</b>	Number of times this peer has come up, operationally.
<b>Time of last UP transition</b>	The duration that this peer has been up.
<b># of DOWN transitions</b>	Number of times this peer has gone down, operationally.
<b>Time of last DOWN transition</b>	The duration since this peer last went down.

---

*output definitions (continued)*

---

<b>Last DOWN reason</b>	Provides a message as the last reason why a peer went down. The possible reasons for going down are:  user_request - user initiated conn_timeout - connection timer expired hold_timeout - hold timer expired bad_msg - received a bad message from neighbor fsm_blink - BGP FSM error peer_closed - neighbor closed connection peer_notify - neighbor sent fatal notification tcp_error - Fatal TCP error none - None
<b># of msgs rcvd</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
<b># of Update msgs rcvd</b>	The number of route UPDATE messages received from this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b># of prefixes rcvd</b>	Number of unique route prefixes received by this peer.
<b># of Route Refresh msgs rcvd</b>	Number of route refresh requests this peer has received. Route refresh requests all routes learned by a peer.
<b># of Notification msgs rcvd</b>	Number of NOTIFY messages received from this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.

*output definitions (continued)*


---

<b>Last rcvd Notification reason</b>	<p>NOTIFY messages include errors codes. These error codes are listed in this field. They apply to the last NOTIFY message received from this peer. The notification reasons are listed in two parts separated by a dash (-). The following are possible notification reasons:</p> <ul style="list-style-type: none"> <li>message header error - synchronization loss</li> <li>message header error - bad length</li> <li>message header error - bad type</li> <li>open message error - unsupported version</li> <li>open message error - bad peer autonomous system</li> <li>open message error - bad peer bgp id</li> <li>open message error - unsupported option</li> <li>open message error - authentication failure</li> <li>open message error - unacceptable hold time</li> <li>open message error - unsupported capability</li> <li>update message error - malformed attribute</li> <li>update message error - unknown attribute</li> <li>update message error - missing wellknown attribute</li> <li>update message error - attribute flags error</li> <li>update message error - attribute length error</li> <li>update message error - invalid origin</li> <li>update message error - as loop</li> <li>update message error - invalid nexthop</li> <li>update message error - optional attribute error</li> <li>update message error - invalid network</li> <li>update message error - malformed aspath</li> <li>cease - maximum number of prefixes reached</li> <li>cease - administrative shutdown</li> <li>cease - peer de-configured</li> <li>cease- administrative reset</li> <li>cease- connection rejected</li> <li>cease - other configuration change</li> <li>cease - connection collision resolution</li> <li>cease - out of resources</li> <li>hold time out - none</li> <li>fsm error - none</li> <li>none - none</li> </ul>
<b>Time last msg was rcvd</b>	The duration since a message was received from this peer.
<b># of msgsd sent</b>	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent to this peer.
<b># of Update msgsd sent</b>	Number of route UPDATE messages sent to this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
<b># of Route Refresh msgsd sent</b>	Number of route refresh requests this peer has sent. Route refresh requests request all routes learned be a peer.
<b># of Notification msgsd sent</b>	Number of NOTIFY messages sent to this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.

*output definitions (continued)*


---

<b>Last sent Notification reason</b>	NOTIFY messages include errors codes. These error codes are listed in this field. They apply to the last NOTIFY message sent by this peer. The notification reasons are listed in two parts separated by a dash (-). See the list of possible notification reasons under the description for the <b>Peer last received notification reason</b> field above.
<b>Time last msg was sent</b>	The duration since a message was sent to this peer.

---

**Release History**

Release 6.1.5; command was introduced.

**Related Commands**

**show ipv6 bgp neighbors** Displays the configured IPv6 BGP peers.

**MIB Objects**

```
alaBgpPeer6Table
  alaBgpPeer6Addr
  alaBgpPeer6RcvdMsgs
  alaBgpPeer6SentMsgs
  alaBgpPeer6RcvdUpdMsgs
  alaBgpPeer6SentUpdMsgs
  alaBgpPeer6LastTransitionTime
  alaBgpPeer6LastUpTime
  alaBgpPeer6BgpId
  alaBgpPeer6LocalIntfName
  alaBgpPeer6RestartTime
  alaBgpPeer6RestartState
  alaBgpPeer6RestartFwdState
  alaBgpPeer6Ipv6Unicast
  alaBgpPeer6HoldTime
  alaBgpPeer6KeepAlive
  alaBgpPeer6ConnRetryInterval
  alaBgpPeer6HoldTimeConfigured
  alaBgpPeer6KeepAliveConfigured
  alaBgpPeer6Ipv4NextHop
  alaBgpPeer6Ipv6NextHop
```

---

## show ipv6 bgp neighbors timers

Displays the timers for configured IPv6 BGP peers.

**show ipv6 bgp neighbors timers** [*ipv6\_address*]

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address.

### Defaults

By default, the timer values for all the IPv6 BGP peers will be displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the *ipv6\_address* parameter to display the timer value for a specified IPv6 BGP peer.

### Examples

```
-> show ipv6 bgp neighbors timers
Legends: Nbr      = Neighbor
          As       = Autonomous System
          RtAdv    = Route Advertisement
          Kalive   = Keep Alive (actual)
          Ka(C)    = Configured Keep Alive

Nbr address                As    Hold  Hold(C) RtAdv  Retry  Kalive  Ka(C)
-----+-----+-----+-----+-----+-----+-----+-----
2001:100:3:4::1           30   90   90     30   120   30     30
```

### output definitions

---

<b>Nbr address</b>	The IPv6 address for this BGP peer. Assign this address using the <a href="#">ipv6 bgp neighbor</a> command.
<b>As</b>	The autonomous system to which this peer belongs. A peer's AS number is assigned using the <a href="#">ipv6 bgp neighbor remote-as</a> command.
<b>Hold</b>	The actual negotiated hold time value.
<b>Hold (C)</b>	The hold time value. This value is configured using the <a href="#">ipv6 bgp neighbor timers</a> command.
<b>RtAdv</b>	The route advertisement interval, in seconds, for updates between external BGP peers.
<b>Retry</b>	The interval, in seconds, between retries by this peer to set up a connection via TCP with another peer. This value is configured using the <a href="#">ipv6 bgp neighbor timers</a> command.

---

*output definitions (continued)*

---

<b>Kalive</b>	The actual negotiated value, in seconds, between KEEPALIVE messages. KEEPALIVE messages do not contain route or status updates; they serve only to tell other peers that the connection is still live and this peer is reachable.
<b>Ka (C)</b>	The KEEPALIVE interval as configured using the <a href="#">ipv6 bgp neighbor timers</a> command.

---

## Release History

Release 6.1.5; command was introduced.

## Related Commands

[show ip bgp statistics](#) Displays BGP global statistics.

## MIB Objects

alaBgpPeer6Table  
  alaBgpPeer6Addr  
  alaBgpPeer6ConnRetryInterval  
  alaBgpPeer6MinRouteAdvertisementInterval  
  alaBgpPeer6HoldTime

---

## show ipv6 bgp neighbors policy

Displays the incoming and outgoing prefix6 list policy identifiers configured for BGP IPv6 peer.

```
show ipv6 bgp neighbors policy ipv6_address
```

---

### Syntax Definitions

*ipv6\_address*                      The 128-bit IPv6 address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command displays all of the configured policies for the router, or the policies configured for a specific BGP IPv6 peer.

### Examples

```
OS6850::> show ipv6 bgp neighbors policy
Neighbor address = 2001::1,
  Neighbor autonomous system      = 1,
  Neighbor output policy map name = <none>,
  Neighbor input policy map name  = <none>,
  Neighbor output aspath-list name = <none>,
  Neighbor input aspath-list name = <none>,
  Neighbor output prefix-list name = <none>,
  Neighbor input prefix-list name = <none>,
  Neighbor output community-list name = <none>,
  Neighbor input community-list name = <none>,
  Neighbor soft reconfiguration   = enabled
  Neighbor output prefix6-list name = <none>,
  Neighbor input prefix6-list name = <none>
```

#### *output definitions*

---

<b>Neighbor autonomous system</b>	The AS to which the peer is assigned. This can be assigned by using the <b>ip bgp neighbor remote-as</b> command.
<b>Neighbor output policy map name</b>	The outbound route map policy for the peer. This can be assigned by using the <b>ip bgp neighbor route-map</b> command.
<b>Neighbor input policy map name</b>	The inbound route map policy for the peer. This can be assigned by using the <b>ip bgp neighbor route-map</b> command.
<b>Neighbor output aspath-list name</b>	The outbound AS path list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-prefix6list</b> command.
<b>Neighbor input aspath-list name</b>	The inbound AS path list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-aspathlist</b> command.

*output definitions (continued)*


---

<b>Neighbor output prefix-list name</b>	The outbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-prefixlist</b> command.
<b>Neighbor input prefix-list name</b>	The inbound prefix list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-prefixlist</b> command.
<b>Neighbor output community-list name</b>	The outbound community list policy for the peer. This can be assigned by using the <b>ip bgp neighbor out-communitylist</b> command.
<b>Neighbor input community-list name</b>	The inbound community list policy for the peer. This can be assigned by using the <b>ip bgp neighbor in-communitylist</b> command.
<b>Neighbor soft reconfiguration</b>	Lists whether soft reconfigurations are enabled or disabled for this peer. This is configured using the <b>ip bgp neighbor soft-reconfiguration</b> command.
<b>Neighbor output prefix6-list name</b>	The outbound prefix6-list policy for the peer. This can be assigned by using the <b>ipv6 bgp neighbor out-prefix6list</b> command.
<b>Neighbor input prefix6-list name</b>	The inbound prefix6-list policy for the peer. This can be assigned by using the <b>ipv6 bgp neighbor in-prefix6list</b> command.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

**show ipv6 bgp neighbors**      Displays configured IPv6 BGP peers

**MIB Objects**

```
alaBgpPeer6Table
  alaBgpPeer6Prefix6ListIn
  alaBgpPeer6Prefix6ListOut
```

---



# 26 Server Load Balancing Commands

Server Load Balancing (SLB) allows clients to send requests to servers logically grouped together in clusters. Each cluster logically aggregates a set of servers running identical applications with access to the same content (e.g., web servers). Clients access clusters through the use of a Virtual IP (VIP) address.

MIB information for the SLB commands is as follows:

*Filename* AlcatellIND1Slb.mib  
*Module:* ALCATEL-IND1-SLB-MIB

A summary of available commands is listed here:

<b>Global SLB Commands</b>	<b>ip slb admin</b> <b>ip slb reset statistics</b> <b>show ip slb</b>
<b>SLB Cluster Commands</b>	<b>ip slb cluster</b> <b>ip slb cluster admin status</b> <b>ip slb cluster ping period</b> <b>ip slb cluster ping timeout</b> <b>ip slb cluster ping retries</b> <b>ip slb cluster probe</b> <b>show ip slb clusters</b> <b>show ip slb cluster</b>
<b>SLB Server Commands</b>	<b>ip slb server ip cluster</b> <b>ip slb server ip cluster probe</b> <b>show ip slb cluster server</b> <b>show ip slb servers</b>
<b>SLB Probe Commands</b>	<b>ip slb probe</b> <b>ip slb probe timeout</b> <b>ip slb probe period</b> <b>ip slb probe port</b> <b>ip slb probe retries</b> <b>ip slb probe username</b> <b>ip slb probe password</b> <b>ip slb probe url</b> <b>ip slb probe status</b> <b>ip slb probe send</b> <b>ip slb probe expect</b> <b>show ip slb probes</b>

## ip slb admin

Enables or disables the administrative status for Server Load Balancing (SLB) on a switch.

**ip slb admin {enable | disable}**

---

### Syntax Definitions

**enable** Enables Server Load Balancing on a switch.

**disable** Disables Server Load Balancing on a switch.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

Disabling the administrative status for the SLB feature does not delete the SLB configuration from the switch. The next time the feature is enabled, the existing configuration will go active.

### Examples

```
-> ip slb admin enable
-> ip slb admin disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip slb</a>	Displays the status of Server Load Balancing on a switch.
<a href="#">ip slb cluster</a>	Configures a Server Load Balancing cluster on a switch.
<a href="#">ip slb server ip cluster</a>	Adds, deletes, or modifies parameters of physical servers in logical Server Load Balancing clusters.

### MIB Objects

```
slbFeature
  slbAdminStatus
```

---

## ip slb reset statistics

Resets SLB statistics for all clusters configured on the switch.

**ip slb reset statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

Note that the **qos apply** command resets both QoS statistics *and* SLB cluster statistics. The **ip slb reset statistics** command only resets SLB statistics.

### Examples

```
-> ip slb reset statistics
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

- |                                      |                                                                                                                |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <a href="#">show ip slb clusters</a> | Displays the status and configuration of all Server Load Balancing clusters on a switch.                       |
| <a href="#">show ip slb cluster</a>  | Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch. |

### MIB Objects

```
slbFeature  
  slbResetStatistics
```

---

## ip slb cluster

Configures a Server Load Balancing (SLB) cluster on a switch.

**ip slb cluster** *name* {**vip** *ip\_address* | **condition** *string*} [**I3** | **I2**]

**no ip slb cluster** *name*

---

### Syntax Definitions

<i>name</i>	The name of the Server Load Balancing (SLB) cluster. The name can consist of a maximum of 23 characters. Spaces must be enclosed within quotation marks (e.g., “mail server”).
<i>ip_address</i>	The Virtual IP (VIP) address for the Server Load Balancing cluster. This IP address must be in dotted decimal format.
<i>string</i>	The name of an existing QoS policy condition that identifies the Server Load Balancing cluster.
<b>I3</b>	Specifies Layer 3 Server Load Balancing mode. The source and destination MAC and TTL of each packet is modified before the packet is bridged or routed to the server.
<b>I2</b>	Specifies Layer 2 Server Load Balancing mode. Packets are not modified before they are bridged to the server. This parameter is only available when using the <b>condition</b> parameter.

### Defaults

parameter	default
<b>I3</b>   <b>I2</b>	<b>I3</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a Server Load Balancing cluster.
- The VIP address of the SLB cluster *must* be an address that is in the same subnet as the servers.
- Specifying the **I3** parameter when configuring a VIP cluster is not required. VIP clusters only use the Layer-3 mode to route traffic to the servers. Layer-2 mode is not supported with this type of cluster.
- The QoS policy condition must exist before it is assigned to an SLB cluster. Use the **policy condition** command to create the QoS policy condition. See the “QoS Policy Commands” chapter for more information.
- SLB clusters are not active if the Server Load Balancing feature is disabled for the switch. Use the **ip slb admin** command to enable this feature. Note, however, that it is possible to configure clusters and add or remove servers from a cluster even when SLB is disabled for the switch.

- A maximum of 16 Server Load Balancing clusters may be configured on an OmniSwitch 6850/6850E switch. Each cluster may contain up to 16 servers for a total of 256 servers per switch.

## Examples

```
-> ip slb cluster corporate_servers vip 1.2.3.4
-> ip slb cluster "mail servers" vip 1.2.3.6
-> ip slb cluster cluster_1 condition intranet_cond 12
-> ip slb cluster cluster_2 condition slb_cond 13
-> no ip slb cluster hr_servers
```

## Release History

Release 6.1; command was introduced.

Release 6.1.3; **condition**, **I2**, **I3**, and **arp** parameters added.

Release 6.1.5; **I2** and **I3** parameters not used with the **vip** parameter; **arp** parameter deprecated.

## Related Commands

<a href="#">show ip slb clusters</a>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<a href="#">ip slb admin</a>	Enables or disables Server Load Balancing on a switch.
<a href="#">ip slb server ip cluster</a>	Adds, deletes, or modifies parameters of physical servers in logical Server Load Balancing clusters.

## MIB Objects

```
slbClusterTable
  slbClusterName
  slbClusterVIP
  slbClusterRowStatus
  slbClusterPackets
  slbClusterCondition
  slbClusterType
```

---

## ip slb cluster admin status

Administratively enables or disables a Server Load Balancing (SLB) cluster on a switch.

**ip slb cluster** *cluster\_name* **admin status** {enable | disable}

---

### Syntax Definitions

<i>cluster_name</i>	The name of an existing Server Load Balancing cluster.
<b>enable</b>	Administratively enables a Server Load Balancing cluster on a switch.
<b>disable</b>	Administratively disables a Server Load Balancing cluster on a switch.

### Defaults

By default, a cluster is administratively enabled when the cluster is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

The SLB cluster name specified with this command must already exist in the switch configuration.

### Examples

```
-> ip slb cluster hr_servers admin status enable
-> ip slb cluster "mail servers" admin status disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip slb clusters</a>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<a href="#">ip slb cluster</a>	Configures Server Load Balancing clusters.
<a href="#">ip slb server ip cluster</a>	Adds, deletes, or modifies parameters of physical servers in logical Server Load Balancing clusters.

### MIB Objects

```
slbClusterTable
    slbClusterAdminStatus
```

---

## ip slb cluster ping period

Modifies the number of seconds to check the health of the servers in a Server Load Balancing cluster.

**ip slb cluster** *cluster\_name* **ping period** *seconds*

---

### Syntax Definitions

<i>cluster_name</i>	The name of the Server Load Balancing (SLB) cluster.
<i>seconds</i>	The number of seconds for the ping period. Specifying 0 (zero) will disable the ping. The valid range for the ping period is 0–600 seconds.

### Defaults

---

parameter	default
<i>seconds</i>	60

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

If you do not set the ping period to zero, then the ping period *must* be greater than or equal to the ping timeout value divided by 1000. Use the [ip slb cluster ping timeout](#) command to modify the ping timeout value.

### Examples

```
-> ip slb cluster hr_servers ping period 120
-> ip slb cluster "mail servers" ping period 0
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>show ip slb clusters</b>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<b>show ip slb cluster</b>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<b>ip slb cluster ping timeout</b>	Modifies the ping timeout value.
<b>ip slb cluster ping retries</b>	Modifies the number of ping retries.

**MIB Objects**

```
slbClusterTable  
    slbClusterPingPeriod
```

---



## ip slb cluster ping timeout

Configures the ping timeout value for a Server Load Balancing (SLB) cluster before it retries.

**ip slb cluster** *cluster\_name* **ping timeout** *milliseconds*

---

### Syntax Definitions

<i>cluster_name</i>	The name of the Server Load Balancing (SLB) cluster.
<i>milliseconds</i>	The number of milliseconds for the ping timeout. The valid range for the ping timeout value is 0 to 1000 times the ping period. For example, if the ping period is 10 seconds, then maximum value for the ping timeout is 10000.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>milliseconds</i>	3000

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

Use the [ip slb cluster ping period](#) command to modify the ping period value.

### Examples

```
-> ip slb cluster "mail servers" ping timeout 1000
-> ip slb cluster hr_servers ping timeout 6000
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>show ip slb clusters</b>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<b>show ip slb cluster</b>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<b>ip slb cluster ping period</b>	Modifies the ping period value.
<b>ip slb cluster ping retries</b>	Modifies the number of ping retries.

**MIB Objects**

```
slbClusterTable  
    slbClusterPingTimeout
```

---

## ip slb cluster ping retries

Configures the number of ping attempts for a Server Load Balancing (SLB) cluster.

**ip slb cluster** *cluster\_name* **ping retries** *count*

---

### Syntax Definitions

<i>cluster_name</i>	The name of the Server Load Balancing (SLB) cluster.
<i>count</i>	The number of ping retries. The valid range for the ping retry value is 0–255.

### Defaults

---

parameter	default
<i>count</i>	3

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb cluster "mail servers" ping retries 5
-> ip slb cluster hr_servers ping retries 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip slb clusters</a>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<a href="#">ip slb cluster ping period</a>	Modifies the ping period value.
<a href="#">ip slb cluster ping timeout</a>	Modifies the ping timeout value.

### MIB Objects

slbClusterTable  
    slbClusterPingRetries

---

## ip slb cluster probe

Configures a probe for a Server Load Balancing (SLB) cluster.

```
ip slb cluster cluster_name probe probe_name
```

---

### Syntax Definitions

<i>cluster_name</i>	The name of the Server Load Balancing (SLB) cluster.
<i>probe_name</i>	The name of the Server Load Balancing (SLB) probe.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

You must create the probe with the [ip slb probe](#) before you can use this command.

### Examples

```
-> ip slb cluster mail_servers probe mail_server_probe
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip slb clusters</a>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<a href="#">ip slb server ip cluster</a>	Adds, deletes, or modifies parameters of physical servers in logical Server Load Balancing clusters.

### MIB Objects

slbClusterTable  
    slbClusterProbeName

---

## ip slb server ip cluster

Adds a physical server to a Server Load Balancing (SLB) cluster, deletes a physical server from an SLB cluster, or modifies the administrative status of a physical server in an SLB cluster.

**ip slb server ip** *ip\_address* **cluster** *cluster\_name* [**admin status** {**enable** | **disable**}] [**weight** *weight*]

**no ip slb server ip** *ip\_address* **cluster** *cluster\_name*

---

### Syntax Definitions

<i>ip_address</i>	The IP address of the physical server.
<i>cluster_name</i>	The name of an existing Server Load Balancing cluster.
<b>enable</b>	Enables a server.
<b>disable</b>	Disables a server.
<i>weight</i>	Specifies the weight of the server. The valid range of weight value is 0 - 32

### Defaults

parameter	default
<b>enable   disable</b>	<b>enable</b>
<b>weight</b>	<b>1</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a physical server from a Server Load Balancing cluster.
- Up to 16 clusters per switch are allowed. Each cluster may contain up to 16 servers to provide a maximum of 256 physical servers per switch.
- Use the **weight** parameter to assign the server preference value. Each server or server cluster can be assigned a weight to set their preference value for distribution of incoming network traffic. The weights assigned are relative. For example, if Servers A and B have respective weights of 10 and 20 within a cluster, Server A would get half the traffic of Server B.
- Assigning a weight of 0 (zero) to a server will prevent this server from being assigned any new connections. This server will be a backup server.
- A higher weight value indicates that the server can accept more network traffic.

### Examples

```
-> ip slb cluster corporate_servers vip 15.2.2.50
-> ip slb server ip 15.2.2.2 cluster corporate_servers weight 7
-> no ip slb server ip 15.2.2.3 cluster corporate_servers
```

## Release History

Release 6.1; command was introduced.

Release 6.4.2; **weight** parameter added.

## Related Commands

<b>ip slb admin</b>	Enables or disables Server Load Balancing on a switch.
<b>ip slb cluster</b>	Configures Server Load Balancing clusters.
<b>show ip slb clusters</b>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<b>show ip slb cluster</b>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<b>show ip slb cluster server</b>	Displays detailed statistics and configuration information for a single physical server in a Server Load Balancing cluster.

## MIB Objects

```
slbServerTable
  slbServerAdminStatus
  slbServerAdminWeight
  slbServerClusterName
  slbServerRowStatus
  slbServerWeight
```

---

## ip slb server ip cluster probe

Configures a probe for a Server Load Balancing (SLB) server.

**ip slb server ip** *ip\_address* **cluster** *cluster\_name* **probe** *probe\_name*

---

### Syntax Definitions

<i>ip_address</i>	The IP address for the physical server.
<i>cluster_name</i>	The name of the Server Load Balancing (SLB) cluster.
<i>probe_name</i>	The name of the Server Load Balancing (SLB) probe.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

You must create the probe with the [ip slb probe](#) before you can use this command.

### Examples

```
-> ip slb server ip 10.255.11.127 cluster corporate_servers probe p_http
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show ip slb clusters</a>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">ip slb admin</a>	Enables or disables Server Load Balancing on a switch.
<a href="#">ip slb cluster</a>	Configures Server Load Balancing clusters.

### MIB Objects

slbServerTable  
    slbServerProbeName

---

## ip slb probe

Configures a Server Load Balancing (SLB) probe used to check the health of servers or clusters.

```
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp | udp}
```

```
no ip slb probe probe_name
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>ftp</b>	Specifies an FTP probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>imap</b>	Specifies an IMAP probe.
<b>imaps</b>	Specifies an IMAPS probe.
<b>nntp</b>	Specifies an NNTP probe.
<b>ping</b>	Specifies a ping probe.
<b>pop</b>	Specifies a POP probe.
<b>pops</b>	Specifies a POPS probe.
<b>smtp</b>	Specifies an SMTP probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an SLB probe.
- It is possible to configure up to 20 probes per switch.

### Examples

```
-> ip slb probe mail_server_probe smtp  
-> no ip slb probe mail_server_probe
```



## Release History

Release 6.1; command was introduced.

## Related Commands

[show ip slb probes](#) Displays the configuration of SLB probes.

## MIB Objects

```
slbProbeTable  
    slbProbeName  
    slbProbeMethod
```

---

## ip slb probe timeout

Configures the amount of time to wait for Server Load Balancing (SLB) probe answers.

```
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp | udp}
timeout seconds
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>ftp</b>	Specifies an FTP probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>imap</b>	Specifies an IMAP probe.
<b>imaps</b>	Specifies an IMAPS probe.
<b>nntp</b>	Specifies an NNTP probe.
<b>ping</b>	Specifies a ping probe.
<b>pop</b>	Specifies a POP probe.
<b>pops</b>	Specifies a POPS probe.
<b>smtp</b>	Specifies an SMTP probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>seconds</i>	Specifies the timeout in seconds, which can be 1–3600000.

### Defaults

parameter	default
<i>seconds</i>	3000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe mail_server smtp timeout 12000
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[ip slb probe](#)

Configures and deletes SLB probes.

[show ip slb probes](#)

Displays the configuration of SLB probes.

## MIB Objects

slbProbeTable

slbProbeName

slbProbeMethod

slbProbeTimeout

---

## ip slb probe period

Configures the length of time between each SLB probe to check the health of the servers.

```
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp | udp}
period seconds
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>ftp</b>	Specifies an FTP probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>imap</b>	Specifies an IMAP probe.
<b>imaps</b>	Specifies an IMAPS probe.
<b>nntp</b>	Specifies an NNTP probe.
<b>ping</b>	Specifies a ping probe.
<b>pop</b>	Specifies a POP probe.
<b>pops</b>	Specifies a POPS probe.
<b>smtp</b>	Specifies an SMTP probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>seconds</i>	Specifies the length of time for the SLB probe period (0–3600 seconds).

### Defaults

parameter	default
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe web_server http period 120
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[ip slb probe](#)

Configures and deletes SLB probes.

[show ip slb probes](#)

Displays the configuration of SLB probes.

## MIB Objects

slbProbeTable

slbProbeName

slbProbeMethod

slbProbePeriod

---

## ip slb probe port

Configures the TCP/UDP port on which the Server Load Balancing (SLB) probe is sent.

```
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp | udp}
port port_number
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>ftp</b>	Specifies an FTP probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>imap</b>	Specifies an IMAP probe.
<b>imaps</b>	Specifies an IMAPS probe.
<b>nntp</b>	Specifies an NNTP probe.
<b>ping</b>	Specifies a ping probe.
<b>pop</b>	Specifies a POP probe.
<b>pops</b>	Specifies a POPS probe.
<b>smtp</b>	Specifies an SMTP probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>port_number</i>	Specifies the TDP/UDP port number (0–65535).

### Defaults

parameter	default
<i>port_number</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe mis_server udp port 200
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[ip slb probe](#)

Configures and deletes SLB probes.

[show ip slb probes](#)

Displays the configuration of SLB probes.

## MIB Objects

slbProbeTable

    slbProbeName

    slbProbeMethod

    slbProbePort

---

## ip slb probe retries

Configures the number of Server Load Balancing (SLB) probe retries that are performed before deciding that a server is out of service.

**ip slb probe** *probe\_name* {**ftp** | **http** | **https** | **imap** | **imaps** | **nntp** | **ping** | **pop** | **pops** | **smtp** | **tcp** | **udp**}  
**retries** *retries*

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>ftp</b>	Specifies an FTP probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>imap</b>	Specifies an IMAP probe.
<b>imaps</b>	Specifies an IMAPS probe.
<b>nntp</b>	Specifies an NNTP probe.
<b>ping</b>	Specifies a ping probe.
<b>pop</b>	Specifies a POP probe.
<b>pops</b>	Specifies a POPS probe.
<b>smtp</b>	Specifies an SMTP probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>retries</i>	Specifies the number of retries (0–255).

### Defaults

parameter	default
<i>retries</i>	3

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe mail_server smtp retries 5
```



## Release History

Release 6.1; command was introduced.

## Related Commands

[ip slb probe](#)

Configures and deletes SLB probes.

[show ip slb probes](#)

Displays the configuration of SLB probes.

## MIB Objects

slbProbeTable

    slbProbeName

    slbProbeMethod

    slbProbeRetries

---

## ip slb probe username

Configures a user name that is sent to a server as credentials for an HTTP GET operation to verify the health of the server.

```
ip slb probe probe_name {http | https} username user_name
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<i>user_name</i>	Specifies user name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe web_server http username subnet1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbeHttpUsername
```

---

## ip slb probe password

Configures a password that is sent to a server as credentials for an HTTP GET to verify the health of the server.

```
ip slb probe probe_name {http | https} password password
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<i>password</i>	Specifies the password.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

The password is encrypted in the configuration file so it is not readable.

### Examples

```
-> ip slb probe web_server http password h1f45xc
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbeHttpPassword
```

---

## ip slb probe url

Configures a URL that is sent to a server for an HTTP GET to verify the health of the server.

```
ip slb probe probe_name {http | https} url url
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<i>url</i>	Specifies the URL of the server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
->ip slb probe web_server http url pub/index.html
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbeHttpUrl
```

---

## ip slb probe status

Configures the expected status returned from an HTTP GET to verify the health of a server.

```
ip slb probe probe_name {http | https} status status_value
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<i>status_value</i>	Specifies the expected status returned, which can be 0–4294967295.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>status_value</i>	200

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe web_server http status 404
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbePeriod  
  slbProbeHttpStatus
```

---

## ip slb probe send

Configures an ASCII string that is sent to a server to invoke a server response and verify the health of the server.

```
ip slb probe probe_name {tcp | udp} send send_string
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>send_string</i>	Specifies the ASCII string sent to a server to invoke a response.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe web_server tcp send test
```

### Release History

Release 6.1; command was introduced.

Release 6.1.3; **http** and **https** parameters removed.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbeSend
```

---

## ip slb probe expect

Configures an ASCII string used to compare a response from a server to verify the health of the server.

```
ip slb probe probe_name {http | https | tcp | udp} expect expect_string
```

---

### Syntax Definitions

<i>probe_name</i>	Specifies the name of the Server Load Balancing (SLB) probe.
<b>http</b>	Specifies an HTTP probe.
<b>https</b>	Specifies an HTTPS probe.
<b>tcp</b>	Specifies a TCP probe.
<b>udp</b>	Specifies a UDP probe.
<i>expect_string</i>	Specifies the ASCII string used to compare a response from a server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip slb probe web_server http expect test
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip slb probe</a>	Configures and deletes SLB probes.
<a href="#">show ip slb probes</a>	Displays the configuration of SLB probes.

### MIB Objects

```
slbProbeTable  
  slbProbeName  
  slbProbeMethod  
  slbProbeExpect
```

---

## show ip slb

Displays the status of Server Load Balancing on a switch.

**show ip slb**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip slb
Admin status           : Enabled,
Operational status    : In Service,
Number of clusters    : 3
```

Output fields are described here:

#### *output definitions*

---

<b>Admin status</b>	The current administrative status of Server Load Balancing (SLB) on this switch ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Operational status</b>	The current operational status of Server Load Balancing (SLB) on this switch, which is either <b>In service</b> (at least one SLB cluster is in service) or <b>Out of service</b> (all SLB clusters are out of service).
<b>Number of clusters</b>	The total number of Server Load Balancing (SLB) clusters on this switch. A maximum of 16 SLB clusters per switch is allowed.

---

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>show ip slb servers</b>	Displays the status of all physical servers belonging to Server Load Balancing clusters on a switch.
<b>show ip slb clusters</b>	Displays the status and configuration of all Server Load Balancing clusters on a switch.
<b>show ip slb cluster</b>	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
<b>show ip slb cluster server</b>	Displays detailed status and configuration information for a single physical server in a Server Load Balancing cluster.

## MIB Objects

```
slbFeature  
  slbAdminStatus  
  slbOperStatus  
  slbClustersCount
```

---



```
-> show ip slb clusters statistics
Cluster Name                                     Count
-----+-----
Cluster1           Enabled  In Service           4 Servers
Cluster2           Enabled  In Service           4 Servers
Cluster3           Enabled  In Service          14 Servers
    Dst IP 101.113.113.1/255.255.255.255      4503911
Cluster6           Enabled  In Service           2 Servers
    Src IP 202.202.1.0/255.255.255.0          6527831
    Src Port 2/49
```

### *output definitions*

---

<b>Cluster Name</b>	The name of the SLB cluster. This field also contains the administrative and operational status for the cluster and either the VIP address or QoS policy condition value that identifies the cluster.
<b>Count</b>	The total number of physical servers that belong to the cluster, and the total number of packets serviced by the cluster.

---

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **statistics** parameter added; **Count** field added.

## Related Commands

<a href="#">ip slb reset statistics</a>	Resets SLB statistics for all clusters.
<a href="#">show ip slb cluster</a>	Displays detailed status and configuration information for a single SLB cluster.
<a href="#">show ip slb servers</a>	Displays the status of all physical servers belonging to each SLB cluster on a switch.
<a href="#">show ip slb cluster server</a>	Displays detailed status and configuration information for a single physical server in an SLB cluster.

## MIB Objects

```
slbClusterTable
  slbClusterName
  slbClusterVIP
  slbClusterCondition
  slbClusterAdminStatus
  slbClusterOperStatus
  slbClusterNumberOfServers
  slbClusterNewFlows
slbStatsTable
  slbStatsClusterName
  slbStatsIndex
  slbStatsCounter
slbStatsQualTable
  slbStatsQualType
  slbStatsQualData
```

---

## show ip slb cluster

Displays detailed statistics and configuration information for a single Server Load Balancing (SLB) cluster. This command also displays traffic statistics for single QoS policy condition cluster.

**show ip slb cluster** *name* [**statistics**]

---

### Syntax Definitions

**name** Specifies the name of the SLB cluster.

**statistics** Displays SLB statistics for the specified cluster.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

Use the **statistics** parameter to display the total number of packets that were passed to the cluster because they met the QoS condition criteria configured for that cluster. The polling interval used to obtain such statistics is every 15 minutes. See the second example below:

### Examples

```
-> show ip slb cluster Intranet
Cluster Intranet
  VIP                : 128.241.130.205,
  Type               : L3
  Admin status       : Enabled,
  Operational status : In Service,
  Ping period (seconds) : 60,
  Ping timeout (milliseconds) : 3000,
  Ping retries       : 3,
  Probe              : None,
  Number of packets  : 45768,
  Number of servers  : 2
  Server 128.241.130.4
    Admin status = Enabled, Operational Status = In Service,
    Availability (%) = 98
  Server 128.241.130.5
    Admin status = Enabled, Operational Status = Discovery,
    Availability (%) = 0
```

### output definitions

---

<b>Cluster</b>	The name of this Server Load Balancing (SLB) cluster.
<b>VIP</b>	The virtual IP (VIP) address for this Server Load Balancing (SLB) cluster.
<b>Type</b>	The classifier for the hypothetical packet, which can be <b>L2</b> or <b>L3</b> .

*output definitions (continued)*


---

<b>Admin status</b>	The current administrative status of this Server Load Balancing (SLB) cluster ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Operational status</b>	The current operational status of this Server Load Balancing (SLB) cluster, which is <b>In Service</b> (i.e., at least one physical server is operational in the cluster) or <b>Out of Service</b> .
<b>Ping period (seconds)</b>	The ping period (in seconds) used by this Server Load Balancing (SLB) cluster to check the health of physical servers.
<b>Ping timeout (milliseconds)</b>	The timeout (in milliseconds) used by this Server Load Balancing (SLB) cluster to wait for ping answers from physical servers.
<b>Ping retries</b>	The number of ping retries that this Server Load Balancing (SLB) cluster will execute before switching the status to <b>No answer</b> .
<b>Probe</b>	The probe configured for this cluster.
<b>Number of packets</b>	The number of packets balanced for this Server Load Balancing (SLB) cluster.
<b>Number of servers</b>	The total number of physical servers that belong to this Server Load Balancing (SLB) cluster.
<b>Server</b>	The IP address for this physical server.
<b>Admin Status</b>	The administrative state of this physical server ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Operational Status</b>	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none"> <li>• <b>Disabled</b> (this server is administratively disabled).</li> <li>• <b>No Answer</b> (this server has not responded to ping requests).</li> <li>• <b>Link Down</b> (there is a bad connection to this server).</li> <li>• <b>In Service</b> (this server is used for SLB cluster client connections).</li> <li>• <b>Discovery</b> (the SLB cluster is pinging this physical server).</li> <li>• <b>Retrying</b> (the SLB cluster is making another attempt to bring up this server).</li> </ul>
<b>Availability (%)</b>	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time ( <b>In Service</b> plus <b>Retrying</b> ) versus down time ( <b>No Answer</b> plus <b>Link Down</b> ). Please note that the <b>Disabled</b> and the initial <b>Discovery</b> states are not counted as down time.

---

```
-> show ip slb cluster Cluster6 statistics
Cluster Name                               Count
-----+-----
Cluster6      Enabled  In Service      2 Servers
  Src IP 202.202.1.0/255.255.255.0         6527831
  Src Port 2/49
```

*output definitions*


---

<b>Cluster Name</b>	The name of the SLB cluster. This field also contains the administrative and operational status for the cluster and either the VIP address or QoS policy condition value that identifies the cluster.
<b>Count</b>	The total number of physical servers that belong to the cluster, and the total number of packets serviced by the cluster.

---

## Release History

Release 6.1; command was introduced.

Release 6.1.3; **Type** field added; **Routed flows success ratio (%)** field removed.

Release 6.1.5; **statistics** parameter added; **Count** field added.

## Related Commands

<b>ip slb reset statistics</b>	Resets SLB statistics for all clusters.
<b>show ip slb clusters</b>	Displays detailed status and configuration information for all Server Load Balancing clusters on a switch.
<b>show ip slb servers</b>	Displays the status of all physical servers belonging to Server Load Balancing clusters on a switch.
<b>show ip slb cluster server</b>	Displays detailed status and configuration information for a single physical server in a Server Load Balancing cluster.
<b>ip slb cluster probe</b>	Configures a probe for an SLB cluster.

## MIB Objects

```

slbClusterTable
  slbClusterName
  slbClusterVIP
  slbClusterAdminStatus
  slbClusterOperStatus
  slbClusterUpTime
  slbClusterPingPeriod
  slbClusterPingTimeout
  slbClusterPingRetries
  slbClusterRedirectAlgorithm
  slbClusterIdleTimer
  slbClusterNumberOfServers
  slbClusterProbeName
  slbClusterRowStatus
  slbClusterPackets
  slbClusterCondition
  slbClusterType
slbServerTable
  slbServerClusterName
  slbServerIpAddress
  slbServerAdminStatus
  slbServerOperStatus
slbStatsTable
  slbStatsClusterName
  slbStatsIndex
  slbStatsCounter
slbStatsQualTable
  slbStatsQualType
  slbStatsQualData

```

## show ip slb cluster server

Displays detailed statistics and configuration information for a single physical server in a Server Load Balancing (SLB) cluster.

**show ip slb cluster** *cluster\_name* **server** *ip\_address*

---

### Syntax Definitions

*cluster\_name* Specifies the name of the Server Load Balancing (SLB) cluster.

*ip\_address* Specifies the IP address for the physical server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

Specifying a value for the *cluster\_name* and *ip\_address* parameters is required.

### Examples

```
-> show ip slb cluster Intranet server 128.220.40.4
Cluster c11
  VIP 128.220.40.205
  Server 128.220.40.4
    Admin weight           : 3,
    MAC addr               : 00:00:1f:40:53:6a,
    Slot number            : 1,
    Port number             : 4,
    Admin status           : Enabled,
    Oper status            : In Service,
    Probe                   : None,
    Availability time (%)  : 95,
    Ping failures          : 0,
    Last ping round trip time (milliseconds) : 20,
    Probe status           : OK,
```

Output fields are described here:

#### *output definitions*

---

<b>Cluster</b>	The name of the Server Load Balancing (SLB) cluster.
<b>VIP</b>	The virtual IP (VIP) address for this Server Load Balancing (SLB) cluster.
<b>Server</b>	The IP address for this physical server.

*output definitions (continued)*


---

<b>Admin weight</b>	The weight assigned to this physical server.. A weight of 0 (zero) indicates that no new connections will be assigned to the server. A higher weight value indicates that the server can accept more network traffic.
<b>MAC addr</b>	The MAC address of this physical server.
<b>Slot number</b>	The slot number of the network interface (NI) module to which this physical server is attached.
<b>Port number</b>	The port number to which this physical server is attached.
<b>Admin status</b>	The current administrative status of this physical server ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Oper status</b>	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none"> <li>• <b>Disabled</b> (this server is administratively disabled).</li> <li>• <b>No Answer</b> (this server has not responded to ping requests).</li> <li>• <b>Link Down</b> (there is a bad connection to this server).</li> <li>• <b>In Service</b> (this server is used for SLB cluster client connections).</li> <li>• <b>Discovery</b> (the SLB cluster is pinging this physical server).</li> <li>• <b>Retrying</b> (the SLB cluster is making another attempt to bring up this server).</li> </ul>
<b>Probe</b>	The name of the probe configured for this server.
<b>Availability time (%)</b>	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time ( <b>In Service</b> plus <b>Retrying</b> ) versus down time ( <b>No Answer</b> plus <b>Link Down</b> ). Please note that the <b>Disabled</b> and the initial <b>Discovery</b> states are not counted as down time.
<b>Ping failures</b>	The total number of pings that have failed on this physical server.
<b>Last ping round trip time (milliseconds)</b>	The total amount of time (in milliseconds) measured for the last valid ping to this physical server to make a round trip.
<b>Probe status</b>	The status of the probe configured for this server.

---

**Release History**

Release 6.1; command was introduced.

Release 6.4.2; **Admin weight** field added.



## Related Commands

- show ip slb servers** Displays the status of all physical servers belonging to Server Load Balancing clusters on a switch.
- show ip slb clusters** Displays detailed status and configuration information for all Server Load Balancing clusters on a switch.
- show ip slb cluster** Displays detailed status and configuration information for a single Server Load Balancing cluster.

## MIB Objects

```
slbClusterTable
  slbClusterVIP
slbServerTable
  slbServerClusterName
  slbServerIpAddress
  slbServerAdminStatus
  slbServerAdminWeight
  slbServerOperStatus
  slbServerMacAddress
  slbServerSlotNumber
  slbServerPortNumber
  slbServerUpTime
  slbServerProbeName
  slbServerLastRTT
  slbServerPingFails
  slbServerProbeStatus
  slbServerWeight
```

---

## show ip slb servers

Displays the status and configurations of all physical servers in Server Load Balancing clusters.

**show ip slb servers**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show ip slb servers

IP addr	Cluster Name	Admin Status	Operational Status	% Avail
128.220.40.4	Intranet	Enabled	In Service	98
128.220.40.5	Intranet	Enabled	Retrying	80
128.220.40.6	FileTransfer	Enabled	No answer	50
128.220.40.7	FileTransfer	Disabled	Disabled	---
128.220.40.1	WorldWideWeb	Enabled	In Service	100
128.220.40.2	WorldWideWeb	Enabled	Discovery	50
128.220.40.3	WorldWideWeb	Enabled	Link Down	75

Output fields are described here:

#### *output definitions*

---

<b>IP addr</b>	The IP address for this physical server.
<b>Cluster Name</b>	The name of the Server Load Balancing (SLB) cluster to which this physical server belongs.
<b>Admin Status</b>	The current administrative status of this physical server ( <b>Enabled</b> or <b>Disabled</b> ).

*output definitions (continued)*

---

<b>Operational Status</b>	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none"><li>• <b>Disabled</b> (this server is administratively disabled).</li><li>• <b>No Answer</b> (this server has not responded to ping requests).</li><li>• <b>Link Down</b> (there is a bad connection to this server).</li><li>• <b>In Service</b> (this server is used for SLB cluster client connections).</li><li>• <b>Discovery</b> (the SLB cluster is pinging this physical server).</li><li>• <b>Retrying</b> (the SLB cluster is making another attempt to bring up this server).</li></ul>
<b>% Avail</b>	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time ( <b>In Service</b> plus <b>Retrying</b> ) versus down time ( <b>No Answer</b> plus <b>Link Down</b> ). Please note that the <b>Disabled</b> and the initial <b>Discovery</b> states are not counted as down time.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>show ip slb cluster server</b>	Displays the detailed status and configuration of a single physical server in a Server Load Balancing cluster.
<b>show ip slb clusters</b>	Displays detailed status and configuration information for all Server Load Balancing clusters on a switch.
<b>show ip slb cluster</b>	Displays detailed status and configuration information for a single Server Load Balancing cluster.

**MIB Objects**

```
slbServers
  slbServerIpAddress
  slbServerClusterName
  slbServerAdminStatus
  slbServerOperStatus
  slbServerFlows
```

---

## show ip slb probes

Displays the configuration of Server Load Balancing (SLB) probes.

**show ip slb probes** [*probe\_name*]

---

### Syntax Definitions

*probe\_name* Specifies the name of the Server Load Balancing (SLB) probe.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

If you do not specify the name of an SLB probe then all SLB probes will be displayed.

### Examples

No probe name is specified:

```
-> show ip slb probes
Probe Name          Period  Retries  Timeout  Method
-----+-----+-----+-----+-----
web_server          60000    3    12000   HTTP
mail_server         60000    3     3000   SMTP
mis_servers         3600000  5    24000   Ping
```

Output fields are described here:

#### *output definitions*

---

<b>Probe Name</b>	The user-specified name of the probe.
<b>Period</b>	The period (in seconds) to check the health of servers.
<b>Retries</b>	The number of probe retries before deciding that a server is out of service.
<b>Timeout</b>	The timeout (in seconds) used to wait for probe answers.
<b>Method</b>	The type of probe.

---

The name of a probe that is not an HTTP/HTTPS probe is specified:

```
-> show ip slb probes mail_server
Probe mail_server
Type                : SMTP,
Period (seconds)    : 60,
Timeout (milliseconds) : 3000,
Retries              : 3,
Port                : 0,
```

The name of an HTTP/HTTPS probe is specified:

```
-> show ip slb probes phttp
Probe phttp
  Type           : HTTP,
  Period (seconds) : 60,
  Timeout (milliseconds) : 3000,
  Retries        : 3,
  Port           : 0,
  Username       : ,
  Password       : ,
  Expect         : ,
  Status         : 200,
  URL            : /,
```

Output fields are described here:

### *output definitions*

---

<b>Probe</b>	The user-specified name of the probe.
<b>Type</b>	The type of probe.
<b>Period</b>	The period (in seconds) to check the health of servers.
<b>Timeout</b>	The timeout (in seconds) used to wait for probe answers.
<b>Retries</b>	The number of probe retries before deciding that a server is out of service.
<b>Port</b>	The TCP/UDP port on which the probe is sent.
<b>Username</b>	The configured user name sent to a server as credentials for an HTTP GET operation for the probe.
<b>Password</b>	The configured password for the probe.
<b>Expect</b>	The configured ASCII string used to compare a response from a server to verify the health of the server.
<b>Status</b>	The expected status returned from an HTTP GET to verify the health of a server.
<b>URL</b>	The configured URL sent to a server for an HTTP GET to verify the health of the server.

---

### **Release History**

Release 6.1; command was introduced.

## Related Commands

<b>ip slb probe</b>	Configures and deletes SLB probes.
<b>ip slb probe period</b>	Configures the probe period to check the health of servers.
<b>ip slb probe timeout</b>	Configures the timeout used to wait for probe answers.
<b>ip slb probe retries</b>	Configures the number of probe retries before deciding that a server is out of service.
<b>ip slb probe port</b>	Configures the TCP/UDP port that the probe should be sent on.
<b>ip slb probe username</b>	Configures a user name sent to a server as credentials for an HTTP GET operation
<b>ip slb probe password</b>	Configures a password sent to a server as credentials for an HTTP GET to verify the health of the server
<b>ip slb probe expect</b>	Configures an ASCII string used to compare a response from a server to verify the health of the server.
<b>ip slb probe status</b>	Configures the expected status returned from an HTTP GET to verify the health of a server.
<b>ip slb probe url</b>	Configures a URL sent to a server for an HTTP GET to verify the health of the server.

## MIB Objects

```
slbProbeTable
  slbProbeName
  slbProbeMethod
  slbProbePeriod
  slbProbeTimeout
  slbProbeRetries
  slbProbePort
  slbProbeHttpUsername
  slbProbeHttpPassword
  slbProbeExpect
  slbProbeHttpStatus
  slbProbeHttpUrl
```

---

# 27 IP Multicast Switching Commands

IP Multicast Switching (IPMS) is a one-to-many communication technique employed by emerging applications such as video distribution, news feeds, conferencing, netcasting, and resource discovery (OSPF, RIP2, and BOOTP). Unlike unicast, which sends one packet per destination, multicast sends one packet to all devices in any subnetwork that has at least one device requesting the multicast traffic.

Alcatel-Lucent's IPMS software is compatible with the following RFCs:

- RFC 1112 — Host Extensions for IP Multicasting
- RFC 2236 — Internet Group Management Protocol, Version 2
- RFC 2933 — Internet Group Management Protocol MIB
- RFC 3376 — Internet Group Management Protocol, Version 3

Alcatel-Lucent's IPv6MS software is compatible with the following RFCs:

- RFC 2710 — Multicast Listener Discovery for IPv6
- RFC 3019 — IPv6 MIB for Multicast Listener Discovery Protocol
- RFC 3810 — Multicast Listener Discovery Version 2 for IPv6

MIB information for the IPMS commands is as follows:

*Filename:* AlcatelIND1Igmplib  
*Module:* ALCATEL-IGMP-IND1-MIB

MIB information for the IPv6MS commands is as follows:

*Filename:* AlcatelIND1Mld.mib  
*Module:* ALCATEL-MLD-IND1-MIB

The following table summarizes the available IP and IPv6 multicast commands:

---

**ip multicast status**  
**ip multicast router-timeout**  
**ip multicast querier-forwarding**  
**ip multicast version**  
**ip multicast max-group**  
**ip multicast vlan max-group**  
**ip multicast port max-group**  
**ip multicast static-neighbor**  
**ip multicast static-querier**  
**ip multicast static-group**  
**ip multicast query-interval**  
**ip multicast last-member-query-interval**  
**ip multicast query-response-interval**  
**ip multicast unsolicited-report-interval**  
**ip multicast router-timeout**  
**ip multicast source-timeout**  
**ip multicast querying**  
**ip multicast robustness**  
**ip multicast spoofing**  
**ip multicast zapping**  
**ip multicast proxying**  
**ip multicast helper-address**  
**ip multicast helper-address**  
**ipv6 multicast querier-forwarding**  
**ipv6 multicast version**  
**ipv6 multicast max-group**  
**ipv6 multicast vlan max-group**  
**ipv6 multicast port max-group**  
**ipv6 multicast static-neighbor**  
**ipv6 multicast static-querier**  
**ipv6 multicast static-group**  
**ipv6 multicast query-interval**  
**ipv6 multicast last-member-query-interval**  
**ipv6 multicast query-response-interval**  
**ipv6 multicast unsolicited-report-interval**  
**ipv6 multicast router-timeout**  
**ipv6 multicast source-timeout**  
**ipv6 multicast querying**  
**ipv6 multicast robustness**  
**ipv6 multicast spoofing**  
**ipv6 multicast zapping**  
**ipv6 multicast proxying**  
**show ip multicast**  
**show ip multicast port**  
**show ip multicast forward**  
**show ip multicast neighbor**  
**show ip multicast querier**  
**show ip multicast group**  
**show ip multicast source**  
**show ip multicast tunnel**  
**show ipv6 multicast**  
**show ipv6 multicast port**  
**show ipv6 multicast forward**  
**show ipv6 multicast neighbor**  
**show ipv6 multicast querier**  
**show ipv6 multicast group**  
**show ipv6 multicast source**  
**show ipv6 multicast tunnel**

---



## ip multicast status

Enables or disables IP Multicast Switching and Routing on the specified VLAN, or on the system if no VLAN is specified.

**ip multicast** [*vlan vid*] **status** [{*enable* | *disable*}]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable IP Multicast Switching and Routing.
<b>disable</b>	Disable IP Multicast Switching and Routing.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If an IP Multicast Routing protocol is already running on the system, the **ip multicast status** command will override the existing configuration and always enable IP Multicast Switching and Routing.
- If the IP Multicast Switching and Routing is already enabled on the system, then the VLAN configuration will override the system's configuration.
- You can also restore the IP Multicast Switching and Routing to its default (i.e., disabled) status on the system if no VLAN is specified, by using only **ip multicast status** (e.g., ip multicast status).
- You can also restore the IP Multicast Switching and Routing to its default (i.e., disabled) status on the specified VLAN, by using only **ip multicast vlan vid status** (e.g., ip multicast vlan 2 status).

### Examples

```
-> ip multicast status enable
-> ip multicast status disable
-> ip multicast status
-> ip multicast vlan 2 status enable
-> ip multicast vlan 2 status disable
-> ip multicast vlan 2 status
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpStatus

alaIcmpVlan

    alaIcmpVlanStatus

---

## ip multicast flood-unknown

Enables or disables the flooding of new multicast packets until the multicast group membership table is updated.

**ip multicast flood-unknown {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enable the flooding of multicast packets until membership table updated.
<b>disable</b>	Disable the flooding of multicast packets.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When flood-unknown is enabled and IP multicast switching is enabled, multicast packets are flooded on the VLAN until the multicast group membership table is updated. They are then forwarded based on the multicast group membership table.
- When flood-unknown is enabled and IP multicast switching is disabled, all multicast traffic will be flooded on the VLAN.
- When flood-unknown is disabled and IP multicast switching is enabled, multicast packets are not flooded on the VLAN but will be forwarded once the multicast group membership table is updated.
- If IP multicast switching is disabled and flood-unknown is disabled, all multicast packets are flooded on the VLAN.

### Examples

```
-> ip multicast flood-unknown enable  
-> ip multicast flood-unknown disable
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **ip multicast status**

Enables or disables IP Multicast Switching and Routing on the specified VLAN, or on the system if no VLAN is specified.

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpStatus

alaIcmpVlan

    alaIcmpVlanStatus

---

## ip multicast querier-forwarding

Enables or disables IGMP querier forwarding on the specified VLAN or on the system if no VLAN is specified.

**ip multicast [vlan *vid*] querier-forwarding [{enable | disable}]**

**no ip multicast [vlan *vid*] querier-forwarding**

---

### Syntax Definitions

<i>vid</i>	The VLAN on which configuration is applied.
<b>enable</b>	Enable IGMP querier forwarding.
<b>disable</b>	Disable IGMP querier forwarding.

### Defaults

---

parameter	default
<b>enable / disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP querier forwarding entry on the specified VLAN or on the system and return to its default behavior.
- If the IGMP querier forwarding is already enabled on the system, then the VLAN configuration will override the system's configuration.
- IGMP querier forwarding refers to promoting detected IGMP queriers to receive all IP multicast data traffic.

### Examples

```
-> ip multicast querier-forwarding enable
-> ip multicast querier-forwarding disable
-> ip multicast querier-forwarding
-> ip multicast vlan 2 querier-forwarding enable
-> ip multicast vlan 2 querier-forwarding disable
-> ip multicast vlan 2 querier-forwarding
-> no ip multicast vlan 2 querier-forwarding
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpQuerierForwarding
alaIcmpVlan
  alaIcmpVlanQuerierForwarding
```

---

## ip multicast version

Sets the default version of the IGMP protocol on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan** *vid*] **version** [*version*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*version* Default IGMP protocol version to run. Valid range is 1 to 3.

### Defaults

parameter	default
<i>version</i>	2

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the default IGMP protocol version on the system and/or the specified VLANs.
- If the default IGMP protocol version is already configured on the system, then the VLAN configuration will override the system's configuration.
- Due to protocol inter-operation requirements, this command specifies only a default version of the IGMP protocol to run.
- To restore the IGMP multicast version to the default (i.e., 2) version on the system if no VLAN is specified, use **ip multicast version** followed by the value 0 (e.g., ip multicast version 0) or use only **ip multicast version** (e.g., ip multicast version).
- To restore the IGMP multicast version to the default (i.e., 2) version on the specified VLAN, use **ip multicast vlan** *vid* **version**, followed by the value 0 (e.g., ip multicast vlan 2 version 0) or use only **ip multicast vlan** *vid* **version** (e.g., ip multicast vlan 2 version).

### Examples

```
-> ip multicast version 3
-> ip multicast version 0
-> ip multicast version
-> ip multicast vlan 2 version 3
-> ip multicast vlan 2 version 0
-> ip multicast vlan 2 version
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpVersion
alaIcmpVlan
  alaIcmpVlanVersion
```

---



## ip multicast max-group

Configures the global maximum group limit that can be learned per port/VLAN instance. The limit is applied to each port/VLAN instance and an action is taken when it exceeds the limit.

**ip multicast max-group** [*num*] [action {**none** | **drop** | **replace**}]

---

### Syntax Definitions

<i>num</i>	Specifies the maximum IGMP group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

---

parameter	defaults
<b>action</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no effect on existing group memberships until the memberships are refreshed on the port/VLAN instance.
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a specific VLAN or port will override the global configuration.
- IGMP zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ip multicast max-group 10 action drop
-> ip multicast max-group 20 action replace
-> ip multicast max-group
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpMaxGroupLimit  
alaIcmpMaxGroupExceedAction

---

## ip multicast vlan max-group

Configures the maximum group limit learned per port on a VLAN. The limit is applied to each port that is a member of the given VLAN.

**ip multicast vlan *vid* max-group [*num*] [action {none | drop | replace}]**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>num</i>	The maximum IGMP group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration.
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

---

parameter	defaults
<b>Action</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no affect on existing group memberships until the memberships are refreshed on the port/VLAN instance
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a VLAN will override the global configuration.
- IGMP zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ip multicast vlan 10 max-group 10 action drop
-> ip multicast vlan 10 max-group
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpVlanTable

    alaIcmpVlanMaxGroupLimit

    alaIcmpVlanMaxGroupExceedAction

---

## ip multicast port max-group

Configures the maximum group limit learned per port. The limit is applicable on the given port for all VLAN instances of the port.

**ip multicast port *slot / port* max-group [*num*] [action {none | drop | replace}]**

---

### Syntax Definitions

<i>slot / port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>num</i>	The maximum IGMP group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration.
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

---

parameter	defaults
<b>Action</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no affect on existing group memberships until the memberships are refreshed on the port/VLAN instance
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a port will override the VLAN or global configuration.
- IGMP zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ip multicast port 1/1 max-group 10 action drop
-> ip multicast port 6/14 max-group 20 action replace
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpPortTable

  alaIcmpPortMaxGroupLimit

  alaIcmpPortMaxGroupExceedAction

---

## ip multicast static-neighbor

Creates a static IGMP neighbor entry on a specified port on a specified VLAN.

**ip multicast static-neighbor** *vlan vid port slot/port*

**no ip multicast static-neighbor** *vlan vid port slot/port*

---

### Syntax Definitions

*vid* VLAN to include as a static IGMP neighbor.

*slot/port* The slot/port number you want to configure as a static IGMP neighbor.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP static neighbor entry on a specified port on a specified VLAN.
- The **ip multicast static-neighbor** command allows you to create an IGMP static neighbor entry on a specified port on a specified VLAN. This, in turn, enables that network segment to receive all the IGMP traffic.
- You can also create an IGMP static neighbor entry on a link aggregate port by entering **ip multicast static-neighbor** *vlan vid port*, followed by the link aggregation group number (e.g., `ip multicast static-neighbor vlan 2 port 7`).

### Examples

```
-> ip multicast static-neighbor vlan 4 port 1/1
-> no ip multicast static-neighbor vlan 4 port 1/1
-> ip multicast static-neighbor vlan 4 port 7
-> no ip multicast static-neighbor vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**show ip multicast neighbor** Displays the IGMP neighbor table entries of IP Multicast Switching and Routing.

## MIB Objects

```
alaIcmpStaticNeighborTable  
  alaIcmpStaticNeighborVlan  
  alaIcmpStaticNeighborIfIndex  
  alaIcmpStaticNeighborRowStatus
```

---



## ip multicast static-querier

Creates a static IGMP querier entry on a specified port on a specified VLAN.

**ip multicast static-querier** *vlan vid port slot/port*

**no ip multicast static-querier** *vlan vid port slot/port*

---

### Syntax Definitions

*vid* VLAN to include as a static IGMP querier.

*slot/port* The slot/port number you want to configure as a static IGMP querier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP static querier entry on a specified port on a specified VLAN.
- The **ip multicast static-querier** command allows you to create an IGMP static querier entry on a specified port on a specified VLAN. This, in-turn, enables that network segment to receive all the IGMP traffic.
- You can also create an IGMP static querier entry on a link aggregate port by entering **ip multicast static-querier** *vlan vid port*, followed by the link aggregation group number (e.g., `ip multicast static-querier vlan 2 port 7`).

### Examples

```
-> ip multicast static-querier vlan 4 port 1/1
-> no ip multicast static-querier vlan 4 port 1/1
-> ip multicast static-querier vlan 4 port 7
-> no ip multicast static-querier vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**show ip multicast querier**      Displays the IGMP querier table entries of IP Multicast Switching and Routing.

## MIB Objects

```
alaIcmpStaticQuerierTable  
  alaIcmpStaticQuerierVlan  
  alaIcmpStaticQuerierIfIndex  
  alaIcmpStaticQuerierRowStatus
```

---

## ip multicast static-group

Creates a static IGMP group entry on a specified port on a specified VLAN.

**ip multicast static-group** *ip\_address* **vlan** *vid* **port** *slot/port*

**no ip multicast static-group** *ip\_address* **vlan** *vid* **port** *slot/port*

---

### Syntax Definitions

<i>ip_address</i>	The IP address of the multicast group.
<i>vid</i>	VLAN to include as a static IGMP group.
<i>slot/port</i>	The slot/port number you want to configure as a static IGMP group.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP static group entry on a specified port on a specified VLAN.
- The **ip multicast static-group** command allows you to create an IGMP static group entry on a specified port on a specified VLAN. This, in-turn, enables that network segment to receive IGMP traffic addressed to the specified IP multicast group address.
- You can also create an IGMP static group entry on a link aggregate port by entering **ip multicast static-group** *ip\_address* **vlan** *vid* **port**, followed by the link aggregation group number (e.g., ip multicast static-group 11.0.0.1 vlan 2 port 7).

### Examples

```
-> ip multicast static-group 229.10.10.10 vlan 4 port 1/1
-> no ip multicast static-group 229.10.10.10.10 vlan 4 port 1/1
-> ip multicast static-group 225.11.11.11 vlan 4 port 7
-> no ip multicast static-group 225.11.11.11 vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast group**

Displays the IGMP group membership table entries of IP Multicast Switching and Routing for the specified IP multicast group address or all entries if no IP multicast group address is specified.

## MIB Objects

```
alaIcmpStaticMemberTable  
  alaIcmpStaticMemberVlan  
  alaIcmpStaticMemberIfIndex  
  alaIcmpStaticMemberGroupAddress  
  alaIcmpStaticMemberRowStatus
```

---

## ip multicast query-interval

Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan vid**] **query-interval** [*seconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.  
*seconds* IGMP query interval in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	125

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP query interval on the system and/or the specified VLANs.
- If the IGMP query interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The IGMP query interval refers to the time period between IGMP query messages.
- To restore the IGMP query interval to its default (i.e., 125 seconds) value on the system if no VLAN is specified, use **ip multicast query-interval** followed by the value 0 (e.g., ip multicast query-interval 0) or use only **ip multicast query-interval** (e.g., ip multicast query-interval).
- To restore the IGMP query interval to its default (i.e., 125 seconds) value on the specified VLAN, use **ip multicast vlan vid query-interval**, followed by the value 0 (e.g., ip multicast vlan 2 query-interval 0) or use only **ip multicast vlan vid query-interval** (e.g., ip multicast vlan 2 query-interval).

### Examples

```
-> ip multicast query-interval 100
-> ip multicast query-interval 0
-> ip multicast query-interval
-> ip multicast vlan 2 query-interval 100
-> ip multicast vlan 2 query-interval 0
-> ip multicast vlan 2 query-interval
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpQueryInterval
alaIcmpVlan
  alaIcmpVlanQueryInterval
```

---

## ip multicast last-member-query-interval

Sets the IGMP last member query interval value on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan vid**] **last-member-query-interval** [*tenths-of-seconds*]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>tenths-of-seconds</i>	IGMP last member query interval in tenths of seconds. Valid range is 1 to 65535.

### Defaults

---

parameter	default
<i>tenths-of-seconds</i>	10

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP last member query interval on the system and/or the specified VLANs.
- If the IGMP last member query interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The IGMP last member query interval refers to the time period to reply to an IGMP query message sent in response to a leave group message.
- To restore the IGMP last member query interval to its default (i.e., 10 tenths-of-seconds) value on the system if no VLAN is specified, use **ip multicast last-member-query-interval** followed by the value 0 (e.g., **ip multicast last-member-query-interval 0**) or use only **ip multicast last-member-query-interval** (e.g., **ip multicast last-member-query-interval**).
- To restore the IGMP last member query interval to its default (i.e., 10 tenths-of-seconds) value on the specified VLAN, use **ip multicast vlan vid last-member-query-interval** followed by the value 0 (e.g., **ip multicast vlan 2 last-member-query-interval 0**) or use only **ip multicast vlan vid last-member-query-interval** (e.g., **ip multicast vlan 2 last-member-query-interval**).

### Examples

```
-> ip multicast last-member-query-interval 22
-> ip multicast last-member-query-interval 0
-> ip multicast last-member-query-interval
-> ip multicast vlan 2 last-member-query-interval 22
-> ip multicast vlan 2 last-member-query-interval 0
-> ip multicast vlan 2 last-member-query-interval
```

## Release History

Release 6.1.1; command was introduced.

## Related Commands

### [show ip multicast](#)

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpLastMemberQueryInterval

alaIcmpVlan

    alaIcmpVlanLastMemberQueryInterval

---



## ip multicast query-response-interval

Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan** *vid*] **query-response-interval** [*tenths-of-seconds*]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>tenths-of-seconds</i>	IGMP query response interval in tenths of seconds. Valid range is 1 to 65535.

### Defaults

---

parameter	default
<i>tenths-of-seconds</i>	100

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP query response interval on the system and/or the specified VLANs.
- If the IGMP query response interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The query response interval refers to the time period to reply to an IGMP query message.
- To restore the IGMP query response interval to its default (i.e., 100 tenths-of-seconds) value on the system if no VLAN is specified, use **ip multicast query-response-interval** followed by the value 0 (e.g., **ip multicast query-response-interval 0**) or use only **ip multicast query-response-interval** (e.g., **ip multicast query-response-interval**).
- To restore the IGMP last member query interval to its default (i.e., 100 tenths-of-seconds) value on the specified VLAN, use **ip multicast vlan** *vid* **query-response-interval** followed by the value 0 (e.g., **ip multicast vlan 2 query-response-interval 0**) or use only **ip multicast vlan** *vid* **query-response-interval** (e.g., **ip multicast vlan 2 query-response-interval**).

### Examples

```
-> ip multicast query-response-interval 200
-> ip multicast query-response-interval 0
-> ip multicast query-response-interval
-> ip multicast vlan 2 query-response-interval 300
-> ip multicast vlan 2 query-response-interval 0
-> ip multicast vlan 2 query-response-interval
```

## Release History

Release 6.1.1; command was introduced.

## Related Commands

### [show ip multicast](#)

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpQueryResponseInterval

alaIcmpVlan

    alaIcmpVlanQueryResponseInterval

---

## ip multicast unsolicited-report-interval

Sets the value of the IGMP unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan vid**] **unsolicited-report-interval** [*seconds*]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>seconds</i>	IGMP query response interval in seconds. Valid range is 1 to 65535, where 0 represents the default setting.

### Defaults

---

parameter	default
<i>seconds</i>	1

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP unsolicited report interval on the system and/or the specified VLANs.
- If the IGMP query response interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The unsolicited report interval refers to the time period to proxy any changed IGMP membership state.
- To restore the IGMP unsolicited report interval to its default (i.e., 1 second) value on the system if no VLAN is specified, use **ip multicast unsolicited-report-interval** followed by the value 0 (e.g., ip multicast unsolicited-report-interval 0) or use only **ip multicast unsolicited-report-interval** (e.g., ip multicast unsolicited-report-interval).
- To restore the IGMP unsolicited report interval to its default (i.e., 1 second) value on the specified VLAN, use **ip multicast vlan vid unsolicited-report-interval** followed by the value 0 (e.g., ip multicast vlan 2 unsolicited-report-interval 0) or use only **ip multicast vlan vid unsolicited-report-interval** (e.g., ip multicast vlan 2 unsolicited-report-interval).

### Examples

```
-> ip multicast unsolicited-report-interval 200
-> ip multicast unsolicited-report-interval 0
-> ip multicast unsolicited-report-interval
-> ip multicast vlan 2 unsolicited-report-interval 300
-> ip multicast vlan 2 unsolicited-report-interval 0
-> ip multicast vlan 2 unsolicited-report-interval
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

### [show ip multicast](#)

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpUnsolicitedReportInterval

alaIcmpVlan

    alaIcmpVlanUnsolicitedReportInterval

---

## ip multicast router-timeout

Configures the expiry time of IP multicast routers on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [*vlan vid*] **router-timeout** [*seconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*seconds* IGMP router timeout in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	90

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP router timeout on the system and/or the specified VLANs.
- If the IGMP router timeout is already configured on the system, then the VLAN configuration will override the system's configuration.
- To restore the IGMP router timeout to its default (i.e., 90 seconds) value on the system if no VLAN is specified, use **ip multicast router-timeout** followed by the value 0 (e.g., ip multicast router-timeout 0) or use only **ip multicast router-timeout** (e.g., ip multicast router-timeout).
- To restore the IGMP router timeout to its default (i.e., 90 seconds) value on the specified VLAN, use **ip multicast vlan vid router-timeout** followed by the value 0 (e.g., ip multicast vlan 2 router-timeout 0) or use only **ip multicast vlan vid router-timeout** (e.g., ip multicast vlan 2 router-timeout).

### Examples

```
-> ip multicast router-timeout 100
-> ip multicast router-timeout 0
-> ip multicast router-timeout
-> ip multicast vlan 2 router-timeout 100
-> ip multicast vlan 2 router-timeout 0
-> ip multicast vlan 2 router-timeout
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpRouterTimeout
alaIcmpVlan
  alaIcmpVlanRouterTimeout
```

---

## ip multicast source-timeout

Configures the expiry time of IP multicast sources on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan vid**] **source-timeout** [*seconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*seconds* IGMP source timeout in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	30

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP source timeout on the system and/or the specified VLANs.
- If the IGMP source timeout is already configured on the system, then the VLAN configuration will override the system's configuration.
- To restore the IGMP source timeout to its default (i.e., 30 seconds) value on the system if no VLAN is specified, use **ip multicast source-timeout** followed by the value 0 (e.g., ip multicast source-timeout 0) or use only **ip multicast source-timeout** (e.g., ip multicast source-timeout).
- To restore the IGMP source timeout to its default (i.e., 30 seconds) value on the specified VLAN, use **ip multicast vlan vid source-timeout** followed by the value 0 (e.g., ip multicast vlan 2 source-timeout 0) or use only **ip multicast vlan vid source-timeout** (e.g., ip multicast vlan 2 source-timeout).

### Examples

```
-> ip multicast source-timeout 100
-> ip multicast source-timeout 0
-> ip multicast source-timeout
-> ip multicast vlan 2 source-timeout 100
-> ip multicast vlan 2 source-timeout 0
-> ip multicast vlan 2 source-timeout
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpSourceTimeout
alaIcmpVlan
  alaIcmpVlanSourceTimeout
```

---



## ip multicast querying

Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.

**ip multicast [vlan *vid*] querying [{enable | disable}]**

**no ip multicast [vlan *vid*] querying**

---

### Syntax Definitions

<i>vid</i>	VLAN on which configuration is applied.
<b>enable</b>	Enable IGMP querying.
<b>disable</b>	Disable IGMP querying.

### Defaults

---

parameter	default
<b>enable / disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP querying entry on the specified VLAN or on the system and return to its default behavior.
- IP Multicast Switching and Routing must be enabled to enable IGMP querying on the system and/or specified VLANs.
- If the IGMP querying is already enabled/disabled on the system, then the VLAN configuration will override the system's configuration.
- IGMP querying refers to requesting the network's IGMP group membership information by sending out IGMP queries. IGMP querying also involves participating in IGMP querier election.
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ip multicast querying** (e.g., ip multicast querying).
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the specified VLAN, by using only **ip multicast vlan *vid* querying** (e.g., ip multicast vlan 2 querying).

### Examples

```
-> ip multicast querying enable
-> ip multicast querying disable
-> ip multicast querying
-> ip multicast vlan 2 querying enable
-> ip multicast vlan 2 querying disable
-> ip multicast vlan 2 querying
-> no ip multicast vlan 2 querying
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **no** parameter added.

## Related Commands

### [show ip multicast](#)

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpQuerying

alaIcmpVlan

    alaIcmpVlanQuerying

---

## ip multicast robustness

Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.

**ip multicast** [**vlan** *vid*] **robustness** [*robustness*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.  
*robustness* IGMP robustness variable. Valid range is 1 to 7.

### Defaults

---

parameter	default
<i>robustness</i>	2

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IP Multicast Switching and Routing must be enabled to set the IGMP robustness variable on the system and/or the specified VLANs.
- If the IGMP robustness variable is already configured on the system, then the VLAN configuration will override the system's configuration.
- Robustness variable allows fine-tuning on the network, where the expected packet loss would be greater.
- To restore the IGMP robustness variable to its default (i.e., 2) value on the system if no VLAN is specified, use **ip multicast robustness** followed by the value 0 (e.g., ip multicast robustness 0) or use only **ip multicast robustness** (e.g., ip multicast robustness).
- To restore the IGMP robustness variable to its default (i.e., 2) value on the specified VLAN, use **ip multicast vlan vid robustness** followed by the value 0 (e.g., ip multicast vlan 2 robustness 0) or use only **ip multicast vlan vid robustness** (e.g., ip multicast vlan 2 robustness).

### Examples

```
-> ip multicast robustness 3
-> ip multicast robustness 0
-> ip multicast robustness
-> ip multicast vlan 2 robustness 3
-> ip multicast vlan 2 robustness 0
-> ip multicast vlan 2 robustness
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpRobustness
alaIcmpVlan
  alaIcmpVlanRobustness
```

---

## ip multicast spoofing

Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.

**ip multicast [vlan *vid*] spoofing [{enable | disable}]**

**no ip multicast [vlan *vid*] spoofing**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable IGMP spoofing.
<b>disable</b>	Disable IGMP spoofing.

### Defaults

---

parameter	default
<b>enable / disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an IGMP spoofing entry on the specified VLAN or on the system and return to its default behavior.
- If the IGMP spoofing is already enabled on the system, then the VLAN configuration will override the system's configuration.
- IGMP spoofing refers to replacing a client's MAC and IP address with the system's MAC and IP address when proxying aggregated IGMP group membership information.
- You can also restore the IGMP spoofing to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ip multicast spoofing** (e.g., ip multicast spoofing).
- You can also restore the IGMP spoofing to its default (i.e., disabled) setting on the specified VLAN, by using only **ip multicast vlan *vid* spoofing** (e.g., ip multicast vlan 2 spoofing).

### Examples

```
-> ip multicast spoofing enable
-> ip multicast spoofing disable
-> ip multicast spoofing
-> ip multicast vlan 2 spoofing enable
-> ip multicast vlan 2 spoofing disable
-> ip multicast vlan 2 spoofing
-> no ip multicast vlan 2 spoofing
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **no** parameter added.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmp

    alaIcmpSpoofing

alaIcmpVlan

    alaIcmpVlanSpoofing

---

## ip multicast zapping

Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.

**ip multicast [vlan *vid*] zapping [{enable | disable}]**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable IGMP zapping.
<b>disable</b>	Disable IGMP zapping.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the IGMP zapping is already enabled on the system, then the VLAN configuration will override the system's configuration.
- IGMP zapping refers to processing membership, immediate source filter removals and will not wait for the protocol's specified time period. This mode facilitates IP TV applications looking for quick changes between IP multicast groups.
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ip multicast zapping** (e.g., ip multicast zapping).
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the specified VLAN, by using only **ip multicast vlan *vid* zapping** (e.g., ip multicast vlan 2 zapping).

### Examples

```
-> ip multicast zapping enable
-> ip multicast zapping disable
-> ip multicast zapping
-> ip multicast vlan 2 zapping enable
-> ip multicast vlan 2 zapping disable
-> ip multicast vlan 2 zapping
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpZapping
alaIcmpVlan
  alaIcmpVlanZapping
```

---



## ip multicast proxying

Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.

**ip multicast [vlan *vid*] proxying [enable | disable]**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable IGMP proxying.
<b>disable</b>	Disable IGMP proxying.

### Defaults

---

parameter	default
<b>enable   disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the IGMP proxying is already enabled on the system, then the VLAN configuration will override the system's configuration.
- IGMP proxying refers to processing membership information on behalf of client systems and reporting membership on their behalf.
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ip multicast proxying** (e.g., ip multicast proxying).
- You can also restore the IGMP querying to its default (i.e., disabled) setting on the specified VLAN, by using only **ip multicast vlan *vid* proxying** (e.g., ip multicast vlan 2 proxying).

### Examples

```
-> ip multicast proxying enable
-> ip multicast proxying disable
-> ip multicast proxying
-> ip multicast vlan 2 proxying enable
-> ip multicast vlan 2 proxying disable
-> ip multicast vlan 2 proxying
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### **show ip multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIcmp
  alaIcmpProxying
alaIcmpVlan
  alaIcmpVlanProxying
```

---

## ip multicast helper-address

Specifies the destination IP address of a relay host where IGMP host reports and Leave messages are to be sent.

**ip multicast helper-address** [*ip-address*]

---

### Syntax Definitions

*ip-address*                                      The IP address of the relay host

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- After the destination IP address is specified, the IPMS reporting feature is enabled.
- To disable the IPMS reporting feature, 0.0.0.0 is used as the IP address. It can also be disabled by omitting the IP address from the command.

### Examples

```
-> ip multicast helper-address 10.1.1.198  
-> ip multicast helper-address 0.0.0.0
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show ip multicast**                              Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

### MIB Objects

```
alaIgmP  
  alaIgmPHelperAddress  
  alaIgmPHelperAddressType
```

---

## ipv6 multicast status

Enables or disables IPv6 Multicast Switching and Routing on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **status** [{**enable** | **disable**}]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable IPv6 Multicast Switching and Routing.
<b>disable</b>	Disable IPv6 Multicast Switching and Routing.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If an IPv6 multicast routing protocol is already running on the system, the **ipv6 multicast status** command will override this configuration and always enable IPv6 Multicast Switching and Routing.
- If the IPv6 Multicast Switching and Routing is already enabled on the system, then the VLAN configuration will override the system's configuration.
- You can also restore the MLD querying to its default (i.e., disabled) status on the system if no VLAN is specified, by using only **ipv6 multicast status** (e.g., `ipv6 multicast status`).
- You can also restore the MLD querying to its default (i.e., disabled) status on the specified VLAN, by using only **ipv6 multicast vlan vid status** (e.g., `ipv6 multicast vlan 2 status`).

### Examples

```
-> ipv6 multicast status enable
-> ipv6 multicast status disable
-> ipv6 multicast status
-> ipv6 multicast vlan 2 status enable
-> ipv6 multicast vlan 2 status disable
-> ipv6 multicast vlan 2 status
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldStatus
alaMldVlan
  alaMldVlanStatus
```

---

## ipv6 multicast querier-forwarding

Enables or disables MLD querier forwarding on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast [vlan *vid*] querier-forwarding [{enable | disable}]**

**no ipv6 multicast [vlan *vid*] querier-forwarding**

---

### Syntax Definitions

<i>vid</i>	The VLAN on which configuration is applied.
<b>enable</b>	Enable MLD querier forwarding.
<b>disable</b>	Disable MLD querier forwarding.

### Defaults

parameter	default
enable / disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD querier forwarding entry on the specified VLAN or on the system and return to its default behavior.
- If the MLD querier forwarding is already enabled on the system, then the VLAN configuration will override the system's configuration.
- MLD querier forwarding refers to promoting detected MLD queriers to receive all IP multicast data traffic.

### Examples

```
-> ipv6 multicast querier-forwarding enable
-> ipv6 multicast querier-forwarding disable
-> ipv6 multicast querier-forwarding
-> ipv6 multicast vlan 2 querier-forwarding enable
-> ipv6 multicast vlan 2 querier-forwarding disable
-> ipv6 multicast vlan 2 querier-forwarding
-> no ipv6 multicast vlan 2 querier-forwarding
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldQuerierForwarding
alaMldVlan
  alaMldVlanQuerierForwarding
```

---

## ipv6 multicast version

Sets the default version of the MLD protocol on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [**vlan** *vid*] **version** [*version*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*version* Default MLD protocol version to run. Valid range is 1 to 2.

### Defaults

parameter	default
<i>version</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the default MLD protocol version on the system and/or the specified VLANs.
- If the default MLD protocol version is already configured on the system, then the VLAN configuration will override the system's configuration.
- Due to protocol inter-operation requirements, this command specifies only a default version of the MLD protocol to run.
- To restore the MLD multicast version to the default (i.e., 1) version on the system if no VLAN is specified, use **ipv6 multicast version** followed by the value 0 (e.g., `ipv6 multicast version 0`) or use only **ipv6 multicast version** (e.g., `ipv6 multicast version`).
- To restore the MLD multicast version to the default (i.e., 1) version on the specified VLAN, use **ipv6 multicast vlan** *vid* **version** followed by the value 0 (e.g., `ipv6 multicast vlan 2 version 0`) or use only **ipv6 multicast vlan** *vid* **version** (e.g., `ipv6 multicast vlan 2 version`).

### Examples

```
-> ipv6 multicast version 2
-> ipv6 multicast version 0
-> ipv6 multicast version
-> ipv6 multicast vlan 2 version 2
-> ipv6 multicast vlan 2 version 0
-> ipv6 multicast vlan 2 version
```

### Release History

Release 6.1.1; command was introduced.



## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldVersion
alaMldVlan
  alaMldVlanVersion
```

---

## ipv6 multicast max-group

Configures the global maximum group limit that can be learned per port/VLAN instance. The limit is applied to each port/VLAN instance and an action is taken when it exceeds the limit.

**ipv6 multicast max-group** [*num*] [**action** {**none** | **drop** | **replace**}]

---

### Syntax Definitions

<i>num</i>	Specifies the maximum MLD group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

parameter	defaults
Action	none

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no affect on existing group memberships until the memberships are refreshed on the port/VLAN instance.
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a specific VLAN or port will override the global configuration.
- MLD zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ipv6 multicast max-group 10 action drop
-> ipv6 multicast max-group 20 action replace
-> ipv6 multicast max-group
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpMaxGroupLimit  
alaIcmpMaxGroupExceedAction

---

## ipv6 multicast vlan max-group

Configures the maximum group limit learned per port on a VLAN. The limit is applied to each port that is a member of the given VLAN.

**ipv6 multicast vlan** *vid* **max-group** [*num*] [**action** {**none** | **drop** | **replace**}]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>num</i>	The maximum MLD group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration.
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

---

parameter	defaults
<b>Action</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no affect on existing group memberships until the memberships are refreshed on the port/VLAN instance.
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a VLAN will override the global configuration.
- MLD zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ipv6 multicast vlan 10 max-group 10 action drop
-> ipv6 multicast vlan 10 max-group 20 action replace
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpVlanTable

    alaIcmpVlanMaxGroupLimit

    alaIcmpVlanMaxGroupExceedAction

---

## ipv6 multicast port max-group

Configures the maximum group limit learned per port. The limit is applicable on the given port for all VLAN instances of the port.

**ipv6 multicast port** *slot / port* **max-group** [*num*] [**action** {**none** | **drop** | **replace**}]

---

### Syntax Definitions

<i>slot / port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>num</i>	The maximum MLD group count. Valid range is 0 to 4294967295.
<b>none</b>	Disables the maximum group limit configuration.
<b>drop</b>	Drops the incoming membership request.
<b>replace</b>	Replaces an existing membership with the incoming membership request.

### Defaults

By default, the max-group limit is set to zero.

parameter	defaults
<b>Action</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Configuring a max-group value will have no affect on existing group memberships until the memberships are refreshed on the port/VLAN instance.
- The configuration is allowed even when the ip multicast status is disabled.
- If the num and action parameters are not specified, then the limit is removed.
- The max-group configuration on a port will override the VLAN or global configuration.
- MLD zapping must be enabled when the max-group limit is enabled and the action is dropped.

### Examples

```
-> ipv6 multicast port 1/1 max-group 10 action drop
-> ipv6 multicast port 1/1 max-group action replace
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaIcmpPortTable

    alaIcmpPortMaxGroupLimit

    alaIcmpPortMaxGroupExceedAction

---

## ipv6 multicast static-neighbor

Creates a static MLD neighbor entry on a specified port on a specified VLAN.

**ipv6 multicast static-neighbor** *vlan vid port slot/port*

**no ipv6 multicast static-neighbor** *vlan vid port slot/port*

---

### Syntax Definitions

*vid* VLAN to include as a static MLD neighbor.

*slot/port* The slot/port number you want to configure as a static MLD neighbor.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD static neighbor entry on a specified port on a specified VLAN.
- The **ipv6 multicast static-neighbor** command allows you to create an MLD static neighbor entry on a specified port on a specified VLAN. This, in turn, enables that network segment to receive all MLD traffic.
- You can also create an MLD static neighbor entry on a link aggregate port by entering **ipv6 multicast static-neighbor** *vlan vid port*, followed by the link aggregation group number (e.g., `ipv6 multicast static-neighbor vlan 2 port 7`).

### Examples

```
-> ipv6 multicast static-neighbor vlan 4 port 1/1
-> no ipv6 multicast static-neighbor vlan 4 port 1/1
-> ipv6 multicast static-neighbor vlan 4 port 7
-> no ipv6 multicast static-neighbor vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.



## Related Commands

**show ipv6 multicast neighbor** Displays the MLD neighbor table entries of IPv6 Multicast Switching and Routing.

## MIB Objects

```
alaMldStaticNeighborTable  
  alaMldStaticNeighborVlan  
  alaMldStaticNeighborIfIndex  
  alaMldStaticNeighborRowStatus
```

---

## ipv6 multicast static-querier

Creates a static MLD querier entry on a specified port on a specified VLAN.

**ipv6 multicast static-querier** *vlan vid port slot/port*

**no ipv6 multicast static-querier** *vlan vid port slot/port*

---

### Syntax Definitions

*vid* VLAN to include as a static MLD querier.

*slot/port* The slot/port number you want to configure as a static MLD querier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD static querier entry on a specified port on a specified VLAN.
- The **ipv6 multicast static-querier** command allows you to create an MLD static querier entry on a specified port on a specified VLAN. This, in turn, enables that network segment to receive all MLD traffic.
- You can also create an MLD static querier entry on a link aggregate port by entering **ipv6 multicast static-querier** *vlan vid port*, followed by the link aggregation group number (e.g., `ipv6 multicast static-querier vlan 2 port 7`).

### Examples

```
-> ipv6 multicast static-querier vlan 4 port 1/1
-> no ipv6 multicast static-querier vlan 4 port 1/1
-> ipv6 multicast static-querier vlan 4 port 7
-> no ipv6 multicast static-querier vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**show ipv6 multicast querier** Displays the MLD querier table entries of IPv6 Multicast Switching and Routing.

## MIB Objects

```
alaMldStaticQuerierTable  
  alaMldStaticQuerierVlan  
  alaMldStaticQuerierIfIndex  
  alaMldStaticQuerierRowStatus
```

---

## ipv6 multicast static-group

Creates a static MLD group entry on a specified port on a specified VLAN.

**ipv6 multicast static-group** *ip\_address* **vlan** *vid* **port** *slot/port*

**no ipv6 multicast static-group** *ip\_address* **vlan** *vid* **port** *slot/port*

### Syntax Definitions

<i>ip_address</i>	IPv6 multicast group address.
<i>vid</i>	VLAN to include as a static MLD group.
<i>slot/port</i>	The slot/port number you want to configure as a static MLD group.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD static group entry on a specified port on the specified VLAN.
- The **ipv6 multicast static-group** command allows you to create an MLD static group entry on a specified port on a specified VLAN. This, in turn, enables that network segment to receive MLD traffic addressed to the specified IPv6 multicast group address.
- You can also create an MLD static group entry on a link aggregate port by entering **ipv6 multicast static-group** *ip\_address* **vlan** *vid* **port**, followed by the link aggregation group number (e.g., `ipv6 multicast static-group ff05::5 vlan 2 port 7`).

### Examples

```
-> ipv6 multicast static-group ff05::4681 vlan 4 port 1/1
-> no ipv6 multicast static-group ff05::4681 vlan 4 port 1/1
-> ipv6 multicast static-group ff05::4681 vlan 4 port 7
-> no ipv6 multicast static-group ff05::4681 vlan 4 port 7
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast group**

Displays the MLD group membership table entries of IPv6 Multicast Switching and Routing for the specified IPv6 multicast group address or all entries if no IPv6 multicast group address is specified.

## MIB Objects

```
alaMldStaticMemberTable  
  alaMldStaticMemberVlan  
  alaMldStaticMemberIfIndex  
  alaMldStaticMemberGroupAddress  
  alaMldStaticMemberRowStatus
```

---

## ipv6 multicast query-interval

Sets the MLD query interval on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **query-interval** [*seconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*seconds* MLD query interval in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	125

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD query interval on the system and/or the specified VLANs.
- If the MLD query interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The MLD query interval refers to the time period between MLD query messages.
- To restore the MLD query interval to its default (i.e., 125 seconds) value on the system if no VLAN is specified, use **ipv6 multicast query-interval** followed by the value 0 (e.g., `ipv6 multicast query-interval 0`) or use only **ipv6 multicast query-interval** (e.g., `ipv6 multicast query-interval`).
- To restore the MLD query interval to its default (i.e., 125 seconds) value on the specified VLAN, use **ipv6 multicast vlan vid query-interval** followed by the value 0 (e.g., `ipv6 multicast vlan 2 query-interval 0`) or use only **ipv6 multicast vlan vid query-interval** (e.g., `ipv6 multicast vlan 2 query-interval`).

### Examples

```
-> ipv6 multicast query-interval 100
-> ipv6 multicast query-interval 0
-> ipv6 multicast query-interval
-> ipv6 multicast vlan 2 query-interval 100
-> ipv6 multicast vlan 2 query-interval 0
-> ipv6 multicast vlan 2 query-interval
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldQueryInterval
alaMldVlan
  alaMldVlanQueryInterval
```

---

## ipv6 multicast last-member-query-interval

Sets the MLD last member query interval on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **last-member-query-interval** [*milliseconds*]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>milliseconds</i>	MLD last member query interval in milliseconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>milliseconds</i>	1000

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD last member query interval to use on the system and/or the specified VLANs. apply this configuration.
- If the MLD last member query interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The MLD last member query interval refers to the time period to reply to an MLD query message sent in response to a leave group message.
- To restore the MLD last member query interval to its default (i.e., 1000 milliseconds) value on the system if no VLAN is specified, use **ipv6 multicast last-member-query-interval** followed by the value 0 (e.g., `ipv6 multicast last-member-query-interval 0`) or use only **ipv6 multicast last-member-query-interval** (e.g., `ipv6 multicast last-member-query-interval`).
- To restore the MLD last member query interval to its default (i.e., 1000 milliseconds) value on the specified VLAN, use **ipv6 multicast vlan vid last-member-query interval** followed by the value 0 (e.g., `ipv6 multicast vlan 2 last-member-query-interval 0`) or use only **ipv6 multicast vlan vid last-member-query-interval** (e.g., `ipv6 multicast vlan 2 last-member-query-interval`).

### Examples

```
-> ipv6 multicast last-member-query-interval 2200
-> ipv6 multicast last-member-query-interval 0
-> ipv6 multicast last-member-query-interval
-> ipv6 multicast vlan 4 last-member-query-interval 2200
-> ipv6 multicast vlan 4 last-member-query-interval 0
-> ipv6 multicast vlan 4 last-member-query-interval
```



## Release History

Release 6.1.1; command was introduced.

## Related Commands

### [show ipv6 multicast](#)

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaMld

    alaMldLastMemberQueryInterval

alaMldVlan

    alaMldVlanLastMemberQueryInterval

---

## ipv6 multicast query-response-interval

Sets the MLD query response interval on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **query-response-interval** [*milliseconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*milliseconds* MLD query response interval in milliseconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>milliseconds</i>	10000

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD query response interval to use on the system and/or the specified VLANs.
- If the MLD query response interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The MLD query response interval refers to the time period to reply to an MLD query message.
- To restore the MLD query response interval to its default (i.e., 10000 milliseconds) value on the system if no VLAN is specified, use **ipv6 multicast query-response-interval** followed by the value 0 (e.g., `ipv6 multicast query-response-interval 0`) or use only **ipv6 multicast query-response-interval** (e.g., `ipv6 multicast query-response-interval`).
- To restore the MLD last member query interval to its default (i.e., 10000 milliseconds) value on the specified VLAN, use **ipv6 multicast vlan vid query-response-interval** followed by the value 0 (e.g., `ipv6 multicast vlan 2 query-response-interval 0`) or use only **ipv6 multicast vlan vid query-response-interval** (e.g., `ipv6 multicast vlan 2 query-response-interval`).

### Examples

```
-> ipv6 multicast query-response-interval 20000
-> ipv6 multicast query-response-interval 0
-> ipv6 multicast query-response-interval
-> ipv6 multicast vlan 2 query-response-interval 20000
-> ipv6 multicast vlan 2 query-response-interval 0
-> ipv6 multicast vlan 2 query-response-interval
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaMld

    alaMldQueryResponseInterval

alaMldVlan

    alaMldVlanQueryReponseInterval

---

## ipv6 multicast unsolicited-report-interval

Sets the MLD unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **unsolicited-report-interval** [*seconds*]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<i>seconds</i>	MLD unsolicited report interval in seconds. Valid range is 1 to 65535, where 0 represents the default setting.

### Defaults

parameter	default
<i>seconds</i>	1

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD unsolicited report interval to use on the system and/or the specified VLANs.
- If the MLD unsolicited report interval is already configured on the system, then the VLAN configuration will override the system's configuration.
- The unsolicited report interval refers to the time period to proxy any changed MLD membership state.
- To restore the MLD unsolicited interval to its default (i.e., 1 second) value on the system if no VLAN is specified, use **ipv6 multicast unsolicited-report-interval** followed by the value 0 (e.g., `ipv6 multicast unsolicited-report-interval 0`) or use only **ipv6 multicast unsolicited-report-interval** (e.g., `ipv6 multicast unsolicited-report-interval`).
- To restore the MLD unsolicited report interval to its default (i.e., 1 second) value on the specified VLAN, use **ipv6 multicast vlan vid unsolicited-report-interval** followed by the value 0 (e.g., `ipv6 multicast vlan 2 unsolicited-report-interval 0`) or use only **ipv6 multicast vlan vid unsolicited-report-interval** (e.g., `ipv6 multicast vlan 2 unsolicited-report-interval`).

### Examples

```
-> ipv6 multicast unsolicited-report-interval 20000
-> ipv6 multicast unsolicited-report-interval 0
-> ipv6 multicast unsolicited-report-interval
-> ipv6 multicast vlan 2 unsolicited-report-interval 20000
-> ipv6 multicast vlan 2 unsolicited-report-interval 0
-> ipv6 multicast vlan 2 unsolicited-report-interval
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

### [show ipv6 multicast](#)

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldUnsolicitedReportInterval
alaMldVlan
  alaMldVlanUnsolicitedReportInterval
```

---

## ipv6 multicast router-timeout

Configures the expiry time of IPv6 multicast routers on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **router-timeout** [*seconds*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*seconds* MLD router timeout in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	90

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD router timeout on the system and/or the specified VLANs. apply this configuration.
- If the MLD router timeout is already configured on the system, then the VLAN configuration will override the system's configuration.
- To restore the MLD router timeout to its default (i.e., 90 seconds) value on the system if no VLAN is specified, use **ipv6 multicast router-timeout** followed by the value 0 (e.g., `ipv6 multicast router-timeout 0`) or use only **ipv6 multicast router-timeout** (e.g., `ipv6 multicast router-timeout`).
- To restore the MLD router timeout to its default (i.e., 90 seconds) value on the specified VLAN, use **ipv6 multicast vlan vid router-timeout** followed by the value 0 (e.g., `ipv6 multicast vlan 2 router-timeout 0`) or use only **ipv6 multicast vlan vid router-timeout** (e.g., `ipv6 multicast vlan 2 router-timeout`).

### Examples

```
-> ipv6 multicast router-timeout 100
-> ipv6 multicast router-timeout 0
-> ipv6 multicast router-timeout
-> ipv6 multicast vlan 2 router-timeout 100
-> ipv6 multicast vlan 2 router-timeout 0
-> ipv6 multicast vlan 2 router-timeout
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldRouterTimeout
alaMldVlan
  alaMldVlanRouterTimeout
```

---

## ipv6 multicast source-timeout

Configures the expiry time of IPv6 multicast sources on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **source-timeout** [*seconds*]

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*seconds* MLD source timeout in seconds. Valid range is 1 to 65535.

### Defaults

parameter	default
<i>seconds</i>	30

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD source timeout on the system and/or the specified VLANs.
- If the MLD source timeout is already configured on the system, then the VLAN configuration will override the system's configuration.
- To restore the MLD router timeout to its default (i.e., 30 seconds) value on the system if no VLAN is specified, use **ipv6 multicast source-timeout** followed by the value 0 (e.g., `ipv6 multicast source-timeout 0`) or use only **ipv6 multicast source-timeout** (e.g., `ipv6 multicast source-timeout`).
- To restore the MLD router timeout to its default (i.e., 30 seconds) value on the specified VLAN, use **ipv6 multicast vlan vid source-timeout** followed by the value 0 (e.g., `ipv6 multicast vlan 2 source-timeout 0`) or use only **ipv6 multicast vlan vid source-timeout** (e.g., `ipv6 multicast vlan 2 source-timeout`).

### Examples

```
-> ipv6 multicast source-timeout 100
-> ipv6 multicast source-timeout 0
-> ipv6 multicast source-timeout
-> ipv6 multicast vlan 2 source-timeout 100
-> ipv6 multicast vlan 2 source-timeout 0
-> ipv6 multicast vlan 2 source-timeout
```

### Release History

Release 6.1.1; command was introduced.



## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldSourceTimeout
alaMldVlan
  alaMldVlanSourceTimeout
```

---

## ipv6 multicast querying

Enables or disables MLD querying on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast [vlan *vid*] querying [{enable | disable}]**

**no ipv6 multicast [vlan *vid*] querying**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable MLD querying.
<b>disable</b>	Disable MLD querying.

### Defaults

parameter	default
<b>enable / disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD querying entry on the specified VLAN or on the system and return to its default behavior.
- IPv6 Multicast Switching and Routing must be enabled to enable MLD querying on the system and/or specified VLANs.
- If the MLD querying is already enabled/disabled on the system, then the VLAN configuration will override the system's configuration.
- MLD querying refers to requesting the network's MLD group membership information by sending out MLD queries. MLD querying also involves participating in MLD querier election.
- You can also restore the MLD querying to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ipv6 multicast querying** (e.g., `ipv6 multicast querying`).
- You can also restore the MLD querying to its default (i.e., disabled) setting on the specified VLAN, by using only **ipv6 multicast vlan *vid* querying** (e.g., `ipv6 multicast vlan 2 querying`).

### Examples

```
-> ipv6 multicast querying enable
-> ipv6 multicast querying disable
-> ipv6 multicast querying
-> ipv6 multicast vlan 2 querying enable
-> ipv6 multicast vlan 2 querying disable
-> ipv6 multicast vlan 2 querying
-> no ipv6 multicast vlan 2 querying
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **no** parameter added.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaMld

    alaMldQuerying

alaMldVlan

    alaMldVlanQuerying

---

## ipv6 multicast robustness

Sets the MLD robustness variable on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **robustness** [*robustness*]

---

### Syntax Definitions

*vid* VLAN on which to apply the configuration.

*robustness* MLD robustness variable. Valid range is 1 to 7.

### Defaults

parameter	default
<i>robustness</i>	2

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- IPv6 Multicast Switching and Routing must be enabled to set the MLD robustness variable on the system and/or the specified VLANs.
- If the MLD robustness variable is already configured on the system, then the VLAN configuration will override the system's configuration.
- Robustness variable allows fine-tuning on the network, where the expected packet loss would be greater.
- To restore the MLD robustness variable to its default (i.e., 2) value on the system if no VLAN is specified, use **ipv6 multicast robustness** followed by the value 0 (e.g., `ipv6 multicast robustness 0`) or use only **ipv6 multicast robustness** (e.g., `ipv6 multicast robustness`).
- To restore the MLD robustness variable to its default (i.e., 2) value on the specified VLAN, use **ipv6 multicast vlan vid robustness** followed by the value 0 (e.g., `ipv6 multicast vlan 2 robustness 0`) or use only **ipv6 multicast vlan vid robustness** (e.g., `ipv6 multicast vlan 2 robustness`).

### Examples

```
-> ipv6 multicast robustness 3
-> ipv6 multicast robustness 0
-> ipv6 multicast robustness
-> ipv6 multicast vlan 2 robustness 3
-> ipv6 multicast vlan 2 robustness 0
-> ipv6 multicast vlan 2 robustness
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldRobustness
alaMldVlan
  alaMldVlanRobustness
```

---

## ipv6 multicast spoofing

Enables or disables MLD spoofing on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast [vlan *vid*] spoofing [{enable | disable}]**

**no ipv6 multicast [vlan *vid*] spoofing**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable MLD spoofing.
<b>disable</b>	Disable MLD spoofing.

### Defaults

parameter	defaults
<b>enable / disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an MLD spoofing entry on the specified VLAN or on the system and return to its default behavior.
- If the MLD spoofing is already enabled on the system, then the VLAN configuration will override the system's configuration.
- MLD spoofing refers to replacing a client's MAC and IP address with the system's MAC and IP address when proxying aggregated MLD group membership information.
- You can also restore the MLD spoofing to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ipv6 multicast spoofing** (i.e., ipv6 multicast spoofing).
- You can also restore the MLD spoofing to its default (i.e., disabled) setting on the specified VLAN, by using only **ipv6 multicast vlan *vid* spoofing** (i.e., ipv6 multicast vlan 2 spoofing).

### Examples

```
-> ipv6 multicast spoofing enable
-> ipv6 multicast spoofing disable
-> ipv6 multicast spoofing
-> ipv6 multicast vlan 2 spoofing enable
-> ipv6 multicast vlan 2 spoofing disable
-> ipv6 multicast vlan 2 spoofing
-> no ipv6 multicast vlan 2 spoofing
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **no** parameter added.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaMld

    alaMldSpoofing

alaMldVlan

    alaMldVlanSpoofing

---

## ipv6 multicast zapping

Enables or disables MLD zapping on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast** [*vlan vid*] **zapping** [{*enable* | *disable*}]

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable MLD zapping.
<b>disable</b>	Disable MLD zapping.

### Defaults

parameter	default
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the MLD zapping is already enabled on the system, then the VLAN configuration will override the system's configuration.
- MLD zapping refers to processing membership and source filter removals immediately and not waiting for the protocol's specified time period. This mode facilitates IP TV applications looking for quick changes between IP multicast groups.
- You can also restore the MLD zapping to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ipv6 multicast zapping** (e.g., `ipv6 multicast zapping`).
- You can also restore the MLD zapping to its default (i.e., disabled) setting on the specified VLAN, by using only **ipv6 multicast vlan vid zapping** (e.g., `ipv6 multicast vlan 2 zapping`).

### Examples

```
-> ipv6 multicast zapping enable
-> ipv6 multicast zapping disable
-> ipv6 multicast zapping
-> ipv6 multicast vlan 2 zapping enable
-> ipv6 multicast vlan 2 zapping disable
-> ipv6 multicast vlan 2 zapping
```

### Release History

Release 6.1.1; command was introduced.



## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldZapping
alaMldVlan
  alaMldVlanZapping
```

---

## ipv6 multicast proxying

Enables or disables MLD proxying on the specified VLAN or on the system if no VLAN is specified.

**ipv6 multicast [vlan *vid*] proxying [enable | disable]**

---

### Syntax Definitions

<i>vid</i>	VLAN on which to apply the configuration.
<b>enable</b>	Enable MLD proxying.
<b>disable</b>	Disable MLD proxying.

### Defaults

parameter	default
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the MLD proxying is already enabled on the system, then the VLAN configuration will override the system's configuration.
- MLD proxying refers to processing membership information on behalf of client systems and reporting membership on their behalf.
- You can also restore the MLD proxying to its default (i.e., disabled) setting on the system if no VLAN is specified, by using only **ipv6 multicast proxying** (e.g., ipv6 multicast proxying).
- You can also restore the MLD proxying to its default (i.e., disabled) setting on the specified VLAN, by using only **ipv6 multicast vlan *vid* proxying** (e.g., ipv6 multicast vlan 2 proxying).

### Examples

```
-> ipv6 multicast proxying enable
-> ipv6 multicast proxying disable
-> ipv6 multicast proxying
-> ipv6 multicast vlan 2 proxying enable
-> ipv6 multicast vlan 2 proxying disable
-> ipv6 multicast vlan 2 proxying
```

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### **show ipv6 multicast**

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaMld
  alaMldProxying
alaMldVlan
  alaMldVlanProxying
```

---

## show ip multicast

Displays the IP Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

**show ip multicast** [*vlan vid*]

---

### Syntax Definitions

*vid* VLAN ID number (1–4094).

### Defaults

By default the status and general configuration parameters for the system.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Specify a VLAN ID to display the configuration information for an individual VLAN.

### Examples

```
-> show ip multicast
```

```
Status: Enabled
Querying: Disabled
Proxying: Disabled
Spoofing: Disabled
Zapping: Disabled
Querier Forwarding: Disabled
Version: 2
Robustness: 2
Query Interval (seconds): 125
Query Response Interval (tenths of seconds): 100
Last Member Query Interval(tenths of seconds):10
Unsolicited Report Interval(seconds): 1
Router Timeout (seconds): 90
Source Timeout (seconds): 30
Max-group: 10,
Max-group action: replace
Helper-address 10.1.1.198
```

```
-> show ip multicast vlan 10
```

```
Status: Enabled
Querying: Disabled
Proxying: Disabled
Spoofing: Disabled
Zapping: Disabled
Querier Forwarding: Disabled
Version: 2
Robustness: 2
Query Interval (seconds): 125
Query Response Interval (tenths of seconds): 100
Last Member Query Interval(tenths of seconds):10
Unsolicited Report Interval(seconds): 1
Router Timeout (seconds): 90
Source Timeout (seconds): 30
Max-group: 0,
Max-group action: none
```

Output fields are described here:

#### *output definitions*

<b>Status</b>	Whether the IP Multicast Switching and Routing is <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IP Multicast Switching and Routing with the <b>ip multicast status</b> command, which is described on <a href="#">page 27-3</a> .
<b>Querying</b>	The current state of IGMP querying, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IGMP querying with the <b>ip multicast querying</b> command, which is described on <a href="#">page 27-35</a> .
<b>Proxying</b>	The current state of IGMP proxying on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IGMP spoofing with the <b>ip multicast proxying</b> command, which is described on <a href="#">page 27-43</a> .
<b>Spoofing</b>	The current state of IGMP spoofing on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IGMP spoofing with the <b>ip multicast spoofing</b> command, which is described on <a href="#">page 27-39</a> .
<b>Zapping</b>	The current state of IGMP zapping on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IGMP zapping with the <b>ip multicast zapping</b> command, which is described on <a href="#">page 27-41</a> .
<b>Querier Forwarding</b>	The current state of IGMP querier forwarding on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IGMP Querier forwarding with the <b>ip multicast querier-forwarding</b> command, which is described on <a href="#">page 27-7</a> .
<b>Version</b>	Displays the default IGMP version, which can be <b>1</b> , <b>2</b> or <b>3</b> . Use the <b>ip multicast version</b> command to modify this parameter.
<b>Robustness</b>	Displays the IGMP robustness value, ranging from <b>1</b> to <b>7</b> . (The default value is <b>2</b> ). Use the <b>ip multicast robustness</b> command to modify this parameter.

*output definitions*


---

<b>Query Interval (seconds)</b>	Displays the time (in seconds) between IGMP queries. (The default value is 125 seconds). You can modify this parameter with the <a href="#">ip multicast query-interval</a> command, which is described on <a href="#">page 27-23</a> .
<b>Query Response Interval (tenths of seconds)</b>	Displays the time (in tenths of seconds) taken to reply to an IGMP query message. (The default value is 100 tenths-of-seconds). You can modify this parameter with the <a href="#">ip multicast query-response-interval</a> command, which is described on <a href="#">page 27-27</a> .
<b>Last Member Query Interval (tenths of seconds)</b>	Displays the time (in tenths of seconds) taken to reply to an IGMP query message sent in response to a leave group message. (The default value is 10 tenths-of-seconds.) You can modify this parameter with the <a href="#">ip multicast last-member-query-interval</a> command, which is described on <a href="#">page 27-25</a> .
<b>Unsolicited Report Interval (seconds)</b>	Displays the time period (in seconds) to proxy any changed IGMP membership state. (The default value is 1 second). You can modify this parameter with the <a href="#">ip multicast unsolicited-report-interval</a> command, which is described on <a href="#">page 27-29</a> .
<b>Router Timeout (seconds)</b>	Displays the IGMP router timeout in seconds. (The default value is 90 seconds.) You can modify this parameter with the <a href="#">ip multicast router-timeout</a> command, which is described on <a href="#">page 27-31</a> .
<b>Source Timeout (seconds)</b>	Displays the IGMP source timeout in seconds. (The default value is 30 seconds.) You can modify this parameter with the <a href="#">ip multicast source-timeout</a> command, which is described on <a href="#">page 27-33</a> .
<b>Max-group</b>	The global or VLAN specific maximum group count allowed.
<b>Max-group action</b>	The action to be taken when the group membership limit is exceeded.
<b>Helper-address</b>	Displays the configured helper address. Use the <a href="#">ip multicast helper-address</a> command to modify this parameter, which is described on <a href="#">page 27-45</a> .

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; **Querier Forwarding** field added.

Release 6.3.4; **Max-group and Max-group action** field added.

Release 6.4.2; **Helper-address** field added.

.

## Related Commands

<b>ip multicast status</b>	Enables or disables IP Multicast Switching and Routing on the specified VLAN, or on the system if no VLAN is specified.
<b>ip multicast helper-address</b>	Sets the ip address of relay host on the system.
<b>ip multicast version</b>	Sets the default version of the IGMP protocol on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast querying</b>	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast robustness</b>	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast spoofing</b>	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast zapping</b>	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast proxying</b>	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-interval</b>	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast last-member-query-interval</b>	Sets the IGMP last member query interval value on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-response-interval</b>	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast unsolicited-report-interval</b>	Sets the value of the IGMP unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast router-timeout</b>	Configures the expiry time of IP multicast routers on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast source-timeout</b>	Configures the expiry time of IP multicast sources on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```
alaIgmpp
  alaIgmppStatus
  alaIgmppQuerying
  alaIgmppProxying
  alaIgmppSpoofing
  alaIgmppZapping
  alaIgmppQuerierForwarding
  alaIgmppHelperAddressType
  alaIgmppHelperAddress
  alaIgmppVersion
  alaIgmppRobustness
  alaIgmppQueryInterval
  alaIgmppQueryResponseInterval
  alaIgmppLastMemberQueryInterval
  alaIgmppUnsolicitedReportInterval
  alaIgmppRouterTimeout
  alaIgmppSourceTimeout
```

```
alaIcmpVlan
  alaIcmpVlanStatus
  alaIcmpVlanQuerying
  alaIcmpVlanProxying
  alaIcmpVlanSpoofing
  alaIcmpVlanZapping
  alaIcmpVlanQuerierForwarding
  alaIcmpVlanVersion
  alaIcmpVlanRobustness
  alaIcmpVlanQueryInterval
  alaIcmpVlanQueryResponseInterval
  alaIcmpVlanLastMemberQueryInterval
  alaIcmpVlanUnsolicitedReportInterval
  alaIcmpVlanRouterTimeout
  alaIcmpVlanSourceTimeout
```

---



## show ip multicast port

Displays the max-group configuration applicable for all port or vlan instances of a given port or all ports. The current number of groups learnt on a given port or vlan instance will also be displayed.

**show ip multicast port** [*slot/port*]

---

### Syntax Definitions

*slot / port*

The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3)).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Specify a slot and port number to display the configuration information for a specific switch port.

### Examples

```
-> show ip multicast port
```

```
Total 5 Port-Vlan Pairs
```

Port	VLAN	Current Igmp Groups	Max-group	Action
1/1	10	1	1	drop
1/1	20	1	1	drop
1/3	15	2	5	replace
1/4	20	3	10	drop
1/6	15	5	0	none

```
-> show ip multicast port 1/1
```

```
Max-group 0 Action none
```

```
Total 2 Port-Vlan Pairs
```

Port	vlan	current IGMP group	max-group	action
1/1	10	1	1	drop
1/1	20	2	5	replace

#### *output definitions*

---

<b>Port</b>	The slot and port number of the IP multicast port.
<b>VLAN</b>	The VLAN associated with the IP multicast port.
<b>Current Groups</b>	The current group associated with the IP Current groups.

*output definitions*

<b>IGMP</b>	The IGMP associated with the IP multicast port.
<b>Max-group</b>	The maximum group count allowed on the port.
<b>Action</b>	The action to be taken when the group membership limit is exceeded.

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<b>ip multicast status</b>	Enables or disables IP Multicast Switching and Routing on the specified VLAN, or on the system if no VLAN is specified.
<b>ip multicast version</b>	Sets the default version of the IGMP protocol on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast querying</b>	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast robustness</b>	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast spoofing</b>	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast zapping</b>	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast proxying</b>	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-interval</b>	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast last-member-query-interval</b>	Sets the IGMP last member query interval value on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-response-interval</b>	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast unsolicited-report-interval</b>	Sets the value of the IGMP unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast router-timeout</b>	Configures the expiry time of IP multicast routers on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast source-timeout</b>	Configures the expiry time of IP multicast sources on the specified VLAN or on the system if no VLAN is specified.

## **MIB Objects**

alaIcmpPortTable

    alaIcmpPortMaxGroupLimit

    alaIcmpPortMaxGroupExceedAction

alaIcmpPortVlanTable

    alaIcmpPortVlanCurrentGroupCount

    alaIcmpPortVlanMaxGroupLimit

    alaIcmpPortVlanMaxGroupExceedAction

---

## show ip multicast forward

Displays the IP Multicast Switching and Routing forwarding table entries for the specified IP multicast group address or all the entries if no IP multicast group address is specified.

**show ip multicast forward** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* IP multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip multicast forward
```

```
Total 1 Forwards
```

Group Address	Host Address	Tunnel Address	Ingress		Egress	
			VLAN	Port	VLAN	Port
228.0.0.1	1.0.0.2	0.0.0.0	1	2/1	1	2/23

```
-> show ip multicast forward 228.0.0.1
```

Group Address	Host Address	Tunnel Address	Ingress		Egress	
			VLAN	Port	VLAN	Port
228.0.0.1	1.0.0.2	0.0.0.0	1	2/1	1	2/23

Output fields are described here:

#### *output definitions*

---

<b>Group Address</b>	IP group address of the IP multicast forward.
<b>Host Address</b>	IP host address of the IP multicast forward.
<b>Tunnel Address</b>	IP source tunnel address of the IP multicast forward.
<b>VLAN</b>	VLAN associated with the IP multicast forward.
<b>Port</b>	The slot and port number of the IP multicast forward.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **ip multicast static-group**

Creates a static IGMP group entry on a specified port on a specified VLAN.

## MIB Objects

```
alaIgmPForwardTable  
  alaIgmPForwardVlan  
  alaIgmPForwardIfIndex  
  alaIgmPForwardGroupAddress  
  alaIgmPForwardHostAddress  
  alaIgmPForwardDestAddress  
  alaIgmPForwardOrigAddress  
  alaIgmPForwardType  
  alaIgmPForwardNextVlan  
  alaIgmPForwardNextIfIndex  
  alaIgmPForwardNextTunnelAddress  
  alaIgmPForwardNextType  
  alaIgmPForwardTtl
```

---

## show ip multicast neighbor

Displays the IGMP neighbor table entries of IP Multicast Switching and Routing.

**show ip multicast neighbor**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip multicast neighbor
```

```
Total 2 Neighbors
Host Address      VLAN  Port  Static  Count  Life
-----+-----+-----+-----+-----+-----
1.0.0.2           1     2/1   no      1      86
0.0.0.0           1     2/13  yes     0       0
```

Output fields are described here:

#### *output definitions*

---

<b>Host Address</b>	The IP address of the IP multicast neighbor.
<b>VLAN</b>	The VLAN associated with the IP multicast neighbor.
<b>Port</b>	The slot and port number of the IP multicast neighbor.
<b>Static</b>	Whether it is a static IP multicast neighbor or not.
<b>Count</b>	Displays the count of IP multicast neighbor.
<b>Life</b>	The life time of the IP multicast neighbor.

---

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**ip multicast static-neighbor** Creates a static IGMP neighbor entry on a specified port on a specified VLAN.

## **MIB Objects**

```
alaIcmpNeighborTable
  alaIcmpNeighborVlan
  alaIcmpNeighborIfIndex
  alaIcmpNeighborHostAddress
  alaIcmpNeighborCount
  alaIcmpNeighborTimeout
  alaIcmpNeighborUpTime
alaIcmpStaticNeighborTable
  alaIcmpStaticNeighborVlan
  alaIcmpStaticNeighborIfIndex
  alaIcmpStaticNeighborRowStatus
```

---

## show ip multicast querier

Displays the IGMP querier table entries of IP Multicast Switching and Routing.

**show ip multicast querier**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show ip multicast querier

```
Total 2 Queriers
Host Address      VLAN  Port  Static  Count  Life
-----+-----+-----+-----+-----+-----
1.0.0.2           1     2/1   no      1      250
0.0.0.0           1     2/13  yes     0       0
```

Output fields are described here:

#### *output definitions*

---

<b>Host Address</b>	The IP address of the IP multicast querier.
<b>VLAN</b>	The VLAN associated with the IP multicast querier.
<b>Port</b>	The slot and port number of the IP multicast querier.
<b>Static</b>	Whether it is a static multicast neighbor or not.
<b>Count</b>	Displays the count of the IP multicast querier.
<b>Life</b>	The life time of the IP multicast querier.

---

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**ip multicast static-querier** Creates a static IGMP querier entry on a specified port on a specified VLAN.



## **MIB Objects**

```
alaIcmpQuerierTable
  alaIcmpQuerierVlan
  alaIcmpQuerierIfIndex
  alaIcmpQuerierHostAddress
  alaIcmpQuerierCount
  alaIcmpQuerierTimeout
  alaIcmpQuerierUpTime
alaIcmpStaticQuerierTable
  alaIcmpStaticQuerierVlan
  alaIcmpStaticQuerierIfIndex
  alaIcmpStaticQuerierRowStatus
```

---

## show ip multicast group

Displays the IGMP group membership table entries of IP Multicast Switching and Routing for the specified IP multicast group address or all entries if no IP multicast group address is specified.

**show ip multicast group** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* IP multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

-> show ip multicast group

```
Total 3 Groups
Group Address   Source Address  VLAN  Port  Mode      Static  Count  Life
-----+-----+-----+-----+-----+-----+-----+-----
231.0.0.3      1.0.0.5        1     2/1   exclude  no      1      257
234.0.0.4      0.0.0.0        1     2/1   exclude  no      1      218
229.0.0.1      0.0.0.0        1     2/13  exclude  yes     0       0
```

-> show ip multicast group 234.0.0.4

```
Group Address   Source Address  VLAN  Port  Mode      Static  Count  Life
-----+-----+-----+-----+-----+-----+-----+-----
234.0.0.4      0.0.0.0        1     2/1   exclude  no      1      218
```

Output fields are described here:

#### *output definitions*

---

<b>Group Address</b>	IP address of the IP multicast group.
<b>Source Address</b>	IP address of the IP multicast source.
<b>VLAN</b>	The VLAN associated with the IP multicast group.
<b>Port</b>	The slot and port number of the IP multicast group.
<b>Mode</b>	IGMP source filter mode.
<b>Static</b>	Whether it is a static multicast group or not.
<b>Count</b>	Number of IGMP membership requests made.
<b>Life</b>	Life time of the IGMP group membership.

---

## Release History

Release 6.1.1; command was introduced

## Related Commands.

**ip multicast static-group** Creates a static IGMP group entry on a specified port on a specified VLAN.

## MIB Objects

```
alaIgmPMemberTable
  alaIgmPMemberVlan
  alaIgmPMemberIfIndex
  alaIgmPMemberGroupAddress
  alaIgmPMemberSourceAddress
  alaIgmPMemberMode
  alaIgmPMemberCount
  alaIgmPMemberTimeout
alaIgmPStaticMemberTable
  alaIgmPStaticMemberVlan
  alaIgmPStaticMemberIfIndex
  alaIgmPStaticMemberGroupAddress
  alaIgmPStaticMemberRowStatus
```

---

## show ip multicast source

Displays the IP Multicast Switching and Routing source table entries matching the specified IP multicast group address or all entries if no IP multicast group address is specified.

**show ip multicast source** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* IP multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip multicast source
```

```
Total 1 Sources
Group Address  Host Address  Tunnel Address  VLAN  Port
-----+-----+-----+-----+-----
228.0.0.1     1.0.0.2      0.0.0.0        1     2/1
```

```
-> show ip multicast source 228.0.0.1
```

```
Total 1 Sources
Group Address  Host Address  Tunnel Address  VLAN  Port
-----+-----+-----+-----+-----
228.0.0.1     1.0.0.2      0.0.0.0        1     2/1
```

### output definitions

---

<b>Group Address</b>	IP group address of the IP multicast source.
<b>Host Address</b>	IP host address of the IP multicast source.
<b>Tunnel Address</b>	IP destination tunnel address of the IP multicast source.
<b>VLAN</b>	VLAN associated with the IP multicast source.
<b>Port</b>	The slot and port number of the IP multicast source.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

### **show ip multicast tunnel**

Display the IP Multicast Switching and Routing tunneling table entries matching the specified IP multicast group address or all entries if no IP multicast address is specified.

## MIB Objects

```
alaIcmpSourceTable  
  alaIcmpSourceVlan  
  alaIcmpSourceIfIndex  
  alaIcmpSourceGroupAddress  
  alaIcmpSourceHostAddress  
  alaIcmpSourceDestAddress  
  alaIcmpSourceOrigAddress  
  alaIcmpSourceType  
  alaIcmpSourceUpTime
```

---

## show ip multicast tunnel

Display the IP Multicast Switching and Routing tunneling table entries matching the specified IP multicast group address or all entries if no IP multicast address is specified.

**show ip multicast tunnel [address]**

---

### Syntax Definitions

**address** IP multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip multicast tunnel
Total 1 Tunnels
```

Group Address	Host Address	Tunnel Address	Ingress	
			VLAN	Port
228.0.0.1	1.0.0.2	2.1.2.3	1	2/1

#### *output definitions*

---

<b>Group Address</b>	IP group address of the IP multicast tunnel.
<b>Host Address</b>	IP host address of the IP multicast tunnel.
<b>Tunnel Address</b>	IP source tunnel address of the IP multicast tunnel.
<b>VLAN</b>	VLAN associated with the IP multicast tunnel.
<b>Port</b>	The slot and port number of the IP multicast tunnel.

---

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**show ip multicast source** Displays the IP Multicast Switching and Routing source table entries matching the specified IP multicast group address or all entries if no IP multicast group address is specified

## **MIB Objects**

```
alaIcmpTunnelTable  
  alaIcmpTunnelVlan  
  alaIcmpTunnelIfIndex  
  alaIcmpTunnelGroupAddress  
  alaIcmpTunnelHostAddress  
  alaIcmpTunnelDestAddress  
  alaIcmpTunnelOrigAddress  
  alaIcmpTunnelType  
  alaIcmpTunnelNextDestAddress  
  alaIcmpTunnelNextType
```

---

## show ipv6 multicast

Displays the IPv6 Multicast Switching and Routing status and the general configuration parameters on the specified VLAN or on the system if no VLAN is specified.

**show ipv6 multicast** [**vlan** *vid*]

---

### Syntax Definitions

*vid* VLAN for which to display the configuration.

### Defaults

By default the status and general configuration parameters for the system.

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Specify a VLAN ID to display the configuration information for an individual VLAN.

### Examples

```
-> show ipv6 multicast vlan 100
```

```
Status: = Enabled
Querying: = Disabled
Proxying: = Disabled
Spoofing: = Disabled
Zapping: = Disabled
Querier Forwarding: = Disabled
Version: = 1
Robustness: = 2
Query Interval (seconds): = 125
Query Response Interval (milliseconds): = 10000
Last Member Query Interval (milliseconds): = 1000
Unsolicited Report Interval (seconds) = 1,
Router Timeout (seconds): = 90
Source Timeout (seconds): = 30
Max-group = 5,
Max-group action = drop
```



```
-> show ipv6 multicast vlan 100
```

```
Status: = Enabled
Querying: = Disabled
Proxying: = Disabled
Spoofing: = Disabled
Zapping: = Disabled
Querier Forwarding: = Disabled
Version: = 1
Robustness: = 2
Query Interval (seconds): = 125
Query Response Interval (milliseconds): = 10000
Last Member Query Interval (milliseconds): = 1000
Unsolicited Report Interval (seconds) = 1,
Router Timeout (seconds): = 90
Source Timeout (seconds): = 30:
Max-group = 23,
Max-group action = none
```

### *output definitions*

<b>Status</b>	Whether the IPv6 Multicast Switching and Routing is <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable IPv6 Multicast Switching and Routing with the <b>ip multicast helper-address</b> command, which is described on <a href="#">page 27-45</a>
<b>Querying</b>	The current state of MLD querying, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable MLD querying with the <b>ipv6 multicast querying</b> command, which is described on <a href="#">page 27-76</a>
<b>Proxying</b>	The current state of MLD proxying on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable MLD spoofing with the <b>ipv6 multicast proxying</b> command, which is described on <a href="#">page 27-84</a>
<b>Spoofing</b>	The current state of MLD spoofing on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable MLD spoofing with the <b>ipv6 multicast spoofing</b> command, which is described on <a href="#">page 27-39</a>
<b>Zapping</b>	The current state of MLD zapping on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable MLD zapping with the <b>ipv6 multicast zapping</b> command, which is described on <a href="#">page 27-82</a>
<b>Querier Forwarding</b>	The current state of MLD querier forwarding on the system, which can be <b>Enabled</b> or <b>Disabled</b> (the default status). You can enable or disable MLD Querier forwarding with the <b>ipv6 multicast querier-forwarding</b> command, which is described on <a href="#">page 27-48</a> .
<b>Version</b>	Displays the default MLD version, which can be <b>1</b> , <b>2</b> or <b>3</b> . Use the <b>ipv6 multicast version</b> command to modify this parameter.
<b>Robustness</b>	Displays the MLD robustness value, ranging from <b>1</b> to <b>7</b> . Use the <b>ipv6 multicast robustness</b> command to modify this parameter.
<b>Query Interval (seconds)</b>	Displays the time (in seconds) between MLD queries. (The default value is 125 seconds). You can modify this parameter with the <b>ipv6 multicast query-interval</b> command, which is described on <a href="#">page 27-64</a> .

*output definitions*


---

<b>Query Response Interval (milliseconds)</b>	Displays the time (in milliseconds) to reply to an MLD query message. (The default value is 10000 milliseconds.) You can modify this parameter with the <b>ipv6 multicast query-response-interval</b> command, which is described on <a href="#">page 27-68</a> .
<b>Last Member Query Interval (milliseconds)</b>	Displays the time (in milliseconds) to reply to an MLD query message sent in response to a leave group message. (The default value is 1000 milliseconds.) You can modify this parameter with the <b>ipv6 multicast last-member-query-interval</b> command, which is described on <a href="#">page 27-66</a> .
<b>Unsolicited Report Interval (seconds)</b>	Displays the time period (in seconds) to proxy any changed MLD membership state. (The default value is 1 second). You can modify this parameter with the <b>ipv6 multicast unsolicited-report-interval</b> command, which is described on <a href="#">page 27-70</a> .
<b>Router Timeout (seconds)</b>	Displays the MLD router timeout in seconds (The default value is 90 seconds.) You can modify this parameter with the <b>ipv6 multicast router-timeout</b> command, which is described on <a href="#">page 27-72</a>
<b>Source Timeout (seconds)</b>	Displays the IGMP source timeout in seconds (The default is 30 seconds.) You can modify this parameter with the <b>ipv6 multicast source-timeout</b> command, which is described on <a href="#">page 27-74</a>
<b>Max-group</b>	The global or VLAN specific maximum group count allowed.
<b>Max-group action</b>	The action to be taken when the group membership limit is exceeded.

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; **Querier Forwarding** field added.

Release 6.3.4; **Max-group** and **Max-group action** field added.

## Related Commands

<b>ipv6 multicast status</b>	Enables or disables IPv6 Multicast Switching and Routing on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast version</b>	Sets the default version of the MLD protocol on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast query-interval</b>	Sets the MLD query interval on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast last-member-query-interval</b>	Sets the MLD last member query interval on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast query-response-interval</b>	Sets the MLD query response interval on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast unsolicited-report-interval</b>	Sets the MLD unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast router-timeout</b>	Configures the expiry time of IPv6 multicast routers on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast source-timeout</b>	Configures the expiry time of IPv6 multicast sources on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast querying</b>	Enables or disables MLD querying on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast robustness</b>	Sets the MLD robustness variable on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast spoofing</b>	Enables or disables MLD spoofing on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast zapping</b>	Enables or disables MLD zapping on the specified VLAN or on the system if no VLAN is specified.
<b>ipv6 multicast proxying</b>	Enables or disables MLD proxying on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

alaMld

- alaMldStatus
- alaMldQuerying
- alaMldProxying
- alaMldSpoofing
- alaMldZapping
- alaMldQuerierForwarding
- alaMldVersion
- alaMldRobustness
- alaMldQueryInterval
- alaMldQueryResponseInterval
- alaMldLastMemberQueryInterval
- alaMldUnsolicitedReportInterval
- alaMldRouterTimeout
- alaMldSourceTimeout
- alaMldHelperInterfaceIndex

alaMldVlan

- alaMldVlanStatus
- alaMldVlanQuerying

alaMldVlanProxying  
alaMldVlanSpoofing  
alaMldVlanZapping  
alaMldVlanQuerierForwarding  
alaMldVlanVersion  
alaMldVlanRobustness  
alaMldVlanQueryInterval  
alaMldVlanQueryResponseInterval  
alaMldVlanLastMemberQueryInterval  
alaMldVlanUnsolicitedReportInterval  
alaMldVlanRouterTimeout  
alaMldVlanSourceTimeout

---

## show ipv6 multicast port

Display the max-group configuration applicable for all port or vlan instances of a given port or all ports. The current number of groups learnt on a given port or vlan instance will also be displayed in this show output..

**show ipv6 multicast port** [*slot/port*]

---

### Syntax Definitions

*slot / port*

The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3)).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

Specify a VLAN ID to display the configuration information for an individual VLAN.

### Examples

```
-> show ipv6 multicast port 1/6
Max-group 9 Action replace
```

```
Total 1 Port-Vlan Pairs
  Port   VLAN   Current Mld   Max-group   Action
          Groups
-----+-----+-----+-----+-----
      1/6   15             5           0         none
```

Output fields are described here:

#### *output definitions*

---

<b>Port</b>	The slot and port number of the IP multicast port.
<b>VLAN</b>	The VLAN associated with the IP multicast port.
<b>Current Groups</b>	The current group associated with the IP Current groups.
<b>IGMP</b>	The IGMP associated with the IP multicast port.
<b>Max-group</b>	The maximum group count allowed on the port.
<b>Action</b>	The action to be taken when the group membership limit is exceeded.

---

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>ip multicast status</b>	Enables or disables IP Multicast Switching and Routing on the specified VLAN, or on the system if no VLAN is specified.
<b>ip multicast version</b>	Sets the default version of the IGMP protocol on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast querying</b>	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast robustness</b>	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast spoofing</b>	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast zapping</b>	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast proxying</b>	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-interval</b>	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast last-member-query-interval</b>	Sets the IGMP last member query interval value on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast query-response-interval</b>	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast unsolicited-report-interval</b>	Sets the value of the IGMP unsolicited report interval on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast router-timeout</b>	Configures the expiry time of IP multicast routers on the specified VLAN or on the system if no VLAN is specified.
<b>ip multicast source-timeout</b>	Configures the expiry time of IP multicast sources on the specified VLAN or on the system if no VLAN is specified.

## MIB Objects

```

alaIgmpportTable
    alaIgmpportMaxGroupLimit
    alaIgmpportMaxGroupExceedAction
alaIgmpportVlanTable
    alaIgmpportVlanCurrentGroupCount
    alaIgmpportVlanMaxGroupLimit
    alaIgmpportVlanMaxGroupExceedAction

```

## show ipv6 multicast forward

Display the IPv6 Multicast Switching and Routing forwarding table entries for the specified IPv6 multicast group address or all entries if no IPv6 multicast address is specified.

```
show ipv6 multicast forward [ipv6_address]
```

---

### Syntax Definitions

*ipv6\_address* IPv6 multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast forward
```

```
Total 1 Forwards
```

Group Address	Host Address	Tunnel Address	Ingress		Egress	
			VLAN	Port	VLAN	Port
ff05::6	4444::2	::	1	2/1	1	2/23

```
-> show ipv6 multicast forward ff05::6
```

Group Address	Host Address	Tunnel Address	Ingress		Egress	
			VLAN	Port	VLAN	Port
ff05::6	4444::2	::	1	2/1	1	2/23

### output definitions

---

<b>Group Address</b>	IPv6 group address of the IPv6 multicast forward.
<b>Host Address</b>	IPv6 host address of the IPv6 multicast forward.
<b>Tunnel Address</b>	IPv6 source tunnel address of the IPv6 multicast forward.
<b>VLAN</b>	VLAN associated with the IPv6 multicast forward.
<b>Port</b>	The slot and port number of the IPv6 multicast forward.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**ipv6 multicast static-group**      Creates a static MLD group entry on a specified port on a specified VLAN.

## MIB Objects

```
alaMldForwardTable  
  alaMldForwardVlan  
  alaMldForwardIfIndex  
  alaMldForwardGroupAddress  
  alaMldForwardHostAddress  
  alaMldForwardDestAddress  
  alaMldForwardOrigAddress  
  alaMldForwardType  
  alaMldForwardNextVlan  
  alaMldForwardNextIfIndex  
  alaMldForwardNextDestAddress  
  alaMldForwardNextType  
  alaMldForwardTtl
```

---



## show ipv6 multicast neighbor

Displays the MLD neighbor table entries of IPv6 Multicast Switching and Routing.

**show ipv6 multicast neighbor**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast neighbor
```

```
Total 2 Neighbors
```

Host Address	VLAN	Port	Static	Count	Life
fe80::2a0:ccff:fed3:2853	1	2/1	no	1	6
::	1	2/13	yes	0	0

#### *output definitions*

---

<b>Host Address</b>	The IPv6 address of the IPv6 multicast neighbor.
<b>VLAN</b>	The VLAN associated with the IPv6 multicast neighbor.
<b>Port</b>	The slot and port number of the IPv6 multicast neighbor.
<b>Static</b>	Whether it is a static MLD neighbor or not.
<b>Count</b>	Displays the count of the IPv6 multicast neighbor.
<b>Life</b>	The life time of the IPv6 multicast neighbor.

---

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**ipv6 multicast static-neighbor** Creates a static MLD neighbor entry on a specified port on a specified VLAN.

**MIB Objects**

```
alaMldNeighborTable
  alaMldNeighborVlan
  alaMldNeighborIfIndex
  alaMldNeighborHostAddress
  alaMldNeighborCount
  alaMldNeighborTimeout
  alaMldNeighborUpTime
alaMldStaticNeighborTable
  alaMldStaticNeighborVlan
  alaMldStaticNeighborIfIndex
  alaMldStaticNeighborRowStatus
```

---

## show ipv6 multicast querier

Displays the MLD querier table entries of IPv6 Multicast Switching and Routing.

**show ipv6 multicast querier**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast querier
```

```
Total 2 Queriers
```

Host Address	VLAN	Port	Static	Count	Life
fe80::2a0:ccff:fed3:2853	1	2/1	no	1	6
::	1	2/13	yes	0	0

#### *output definitions*

---

<b>Host Address</b>	The IPv6 address of the IPv6 multicast querier.
<b>VLAN</b>	The VLAN associated with the IPv6 multicast querier.
<b>Port</b>	The slot and port number of the IPv6 multicast querier.
<b>Static</b>	Whether it is a static MLD neighbor or not.
<b>Count</b>	Displays the count of the IPv6 multicast querier.
<b>Life</b>	The life time of the IPv6 multicast querier.

---

### Release History

Release 6.1.1; command was introduced

### Related Commands

**ipv6 multicast static-querier** Creates a static MLD querier entry on a specified port on a specified VLAN.

**MIB Objects**

```
alaMldQuerierTable
  alaMldQuerierVlan
  alaMldQuerierIfIndex
  alaMldQuerierHostAddress
  alaMldQuerierCount
  alaMldQuerierTimeout
  alaMldQuerierUpTime
alaMldStaticQuerierTable
  alaMldStaticQuerierVlan
  alaMldStaticQuerierIfIndex
  alaMldStaticQuerierRowStatus
```

---

## show ipv6 multicast group

Displays the MLD group membership table entries of IPv6 Multicast Switching and Routing for the specified IPv6 multicast group address or all entries if no IPv6 multicast group address is specified.

```
show ipv6 multicast group [ip_address]
```

---

### Syntax Definitions

*ip\_address* IPv6 multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast group
```

```
Total 3 Groups
Group Address      Source Address  VLAN  Port  Mode      Static  Count  Life
-----+-----+-----+-----+-----+-----+-----+-----
ff05::5           ::             1     2/1   exclude  no      1     145
ff05::6           3333::1       1     2/1   exclude  no      1     242
ff05::9           ::             1     2/13  exclude  yes     0      0
```

```
-> show ipv6 multicast group ff05::5
```

```
Group Address      Source Address  VLAN  Port  Mode      Static  Count  Life
-----+-----+-----+-----+-----+-----+-----+-----
ff05::5           ::             1     2/1   exclude  no      1     145
```

### output definitions

---

<b>Group Address</b>	IPv6 address of the IPv6 multicast group.
<b>Source Address</b>	IPv6 address of the IPv6 multicast source.
<b>VLAN</b>	The VLAN associated with the IPv6 multicast group.
<b>Port</b>	The slot and port number of the IPv6 multicast group.
<b>Mode</b>	MLD source filter mode.
<b>Static</b>	Whether it is a static MLD group or not.
<b>Count</b>	Number of MLD membership requests made.
<b>Life</b>	Life time of the MLD group membership.

---

## Related Commands

**ipv6 multicast static-group**      Creates a static MLD group entry on a specified port on a specified VLAN.

## MIB Objects

```
alaMldMemberTable
  alaMldMemberVlan
  alaMldMemberIfIndex
  alaMldMemberGroupAddress
  alaMldMemberSourceAddress
  alaMldMemberMode
  alaMldMemberCount
  alaMldMemberTimeout
  alaMldMemberUpTime
alaMldStaticMemberTable
  alaMldStaticMemberVlan
  alaMldStaticMemberIfIndex
  alaMldStaticMemberGroupAddress
  alaMldStaticMemberRowStatus
```

---

## show ipv6 multicast source

Displays the IPv6 Multicast Switching and Routing source table entries matching the specified IPv6 multicast group address or all entries if no IPv6 multicast group address is specified.

**show ipv6 multicast source** [*ip\_address*]

---

### Syntax Definitions

*ip\_address* IPv6 multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast source
```

```
Total 1 Sources
Group Address   Host Address   Tunnel Address  VLAN  Port
-----+-----+-----+-----+-----
ff05::6        4444::2       ::             1     2/1
```

```
-> show ipv6 multicast source ff05::6
```

```
Total 1 Sources
Group Address   Host Address   Tunnel Address  VLAN  Port
-----+-----+-----+-----+-----
ff05::6        4444::2       ::             1     2/1
```

### output definitions

---

<b>Group Address</b>	IPv6 group address of the IPv6 multicast source.
<b>Host Address</b>	IPv6 host address of the IPv6 multicast source.
<b>Tunnel Address</b>	IPv6 source tunnel address of the IPv6 multicast source.
<b>VLAN</b>	VLAN associated with the IPv6 multicast source.
<b>Port</b>	The slot and port number of the IPv6 multicast source.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**ipv6 multicast static-group** Creates a static MLD group entry on a specified port on a specified VLAN.

## MIB Objects

```
alaMldSourceTable
  alaMldSourceVlan
  alaMldSourceIfIndex
  alaMldSourceGroupAddress
  alaMldSourceHostAddress
  alaMldSourceDestAddress
  alaMldSourceOrigAddress
  alaMldSourceType
  alaMldSourceUpTime
```

---



## show ipv6 multicast tunnel

Displays the IPv6 Multicast Switching and Routing tunneling table entries matching the specified IPv6 multicast group address, or all entries if no IPv6 multicast address is specified.

**show ipv6 multicast tunnel** [*address*]

---

### Syntax Definitions

*address* IPv6 multicast group address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 multicast tunnel
Total 1 Tunnels
```

Group Address	Host Address	Tunnel Address	Ingress	
			VLAN	Port
ff05::6	4444::2	3333::2	1	2/1

#### *output definitions*

---

<b>Group Address</b>	IPv6 group address of the IPv6 multicast tunnel.
<b>Host Address</b>	IPv6 host address of the IPv6 multicast tunnel.
<b>Tunnel Address</b>	IPv6 source tunnel address of the IPv6 multicast tunnel.
<b>VLAN</b>	VLAN associated with the IPv6 multicast tunnel.
<b>Port</b>	The slot and port number of the IPv6 multicast tunnel.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

**show ipv6 multicast source** Displays the IPv6 Multicast Switching and Routing source table entries matching the specified IPv6 multicast group address or all entries if no IPv6 multicast group address is specified

## MIB Objects

```
alaMldTunnelTable  
  alaMldTunnelVlan  
  alaMldTunnelIfIndex  
  alaMldTunnelGroupAddress  
  alaMldTunnelHostAddress  
  alaMldTunnelDestAddress  
  alaMldTunnelOrigAddress  
  alaMldTunnelType  
  alaMldTunnelNextDestAddress  
  alaMldTunnelNextType
```

---

# 28 IP Multicast VLAN Commands

The IP Multicast VLAN (IPMV) is a distribution Multicast VLAN that flows into the customer ports. These distribution VLANs connect to the nearest multicast router and support multicast traffic only. Multicast traffic flows from the distribution VLAN to the customer VLAN and not vice-versa. Customer-generated multicast traffic should flow via the customer VLANs so that the Multicast router can control distribution of this traffic. IPMV feature is invisible to the customer. The customer VLANs can be tagged or untagged.

IPMV works in both the Enterprise environment as well as the VLAN Stacking environment. The ports are separately classified as VLAN Stacking ports or as legacy ports (fixed ports/tagged ports). VLAN Stacking VLAN contains only VLAN Stacking ports as its members, while Normal data VLAN contains normal legacy ports. This ensures that data flow is confined to a single broadcast domain.

MIB information for the IP Multicast VLAN commands is as follows:

*Filename:* AlcatelIND1IPMV.MIB  
*Module:* Alcatel-IND1-IPM-VLAN-MIB

*Filename:* AlcatelIND1VlanStacking.MIB  
*Module:* Alcatel-IND1-VLAN-STACKING-MIB

*Filename:* AlcatelIND1VlanManager.MIB  
*Module:* Alcatel-IND1-VLAN-MGR-MIB

A summary of the available commands is listed here:

---

<b>VLAN Manager Commands</b>	<b><a href="#">vlan ipmvlan</a></b>
<b>VLAN Stacking Commands</b>	<b><a href="#">vlan ipmvlan ctag</a> <a href="#">vlan ipmvlan address</a> <a href="#">vlan ipmvlan sender-port</a> <a href="#">vlan ipmvlan receiver-port</a> <a href="#">show vlan ipmvlan c-tag</a> <a href="#">show vlan ipmvlan address</a> <a href="#">show vlan ipmvlan port-config</a> <a href="#">show ipmvlan port-config</a></b>

---

## vlan ipmvlan

Creates an IP Multicast VLAN.

```
vlan ipmvlan ipmvlan-id [{enable | disable} | [{1x1 | flat} stp {enable | disable}]] [name name-string]
```

```
no vlan ipmvlan ipmvlan-id [-ipmvlan-id2]
```

---

### Syntax Definitions

<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number. The valid range is 2–4094.
<b>enable</b>	Enables IPMVLAN.
<b>disable</b>	Disables IPMVLAN.
<b>1x1</b>	Specifies that the switch is running in the 1x1 Spanning Tree mode.
<b>flat</b>	Specifies that the switch is running in the Flat Spanning Tree mode.
<b>stp enable</b>	Enables Spanning Tree for the specified IPMVLAN.
<b>stp disable</b>	Disables Spanning Tree for the specified IPMVLAN.
<i>name-string</i>	Alphanumeric string up to 32 characters. Use quotes around the string if the name contains multiple words with spaces between them (for example, “Alcatel-Lucent VLAN”).
<i>ipmvlan-id2</i>	The last IPMVLAN number in a range of IPMVLANs that you want to configure.

### Defaults

parameter	default
<b>enable   disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a single or multiple IPMVLANs. If the specified IPMVLAN(s) does not exist, an error message will be displayed.
- If *ipmvlan-id* does not exist or if *ipmvlan-id* exists as VLAN Stacking VLAN or Standard VLAN, an error message will be displayed.
- The default mode of the IPMVLAN is the Enterprise mode.
- If an IPMVLAN is disabled, all the ports bound to an IPMVLAN will be blocked for that VLAN instance.
- A maximum of 256 IPMVLANs can be configured.

## Examples

```
-> vlan ipmvlan 1003 name "multicast vlan"  
-> vlan ipmvlan 1333 1x1 stp enable name "multicast vlan"  
-> no vlan ipmvlan 1003
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support added for entering a range and/or multiple entries of IPMVLANs; **1x1**, **flat**, **stp enable**, and **stp disable** parameters added.

## Related Commands

### [show vlan ipmvlan](#)

Displays IPMVLAN information for a specific IPMVLAN or all IPMVLANs.

### [show vlan](#)

Displays a list of VLANs and their types configured on the switch.

## MIB Objects

vlanTable

```
  vlanNumber  
  vlanDescription  
  vlanTrafficType  
  vlanAdmStatus  
  alavlanOperStatus  
  alavlanStpStatus  
  alavlan1x1StpStatus  
  alavlanflatStpStatus  
  vlanStatus
```

---

## vlan ipmvlan ctag

Defines the mapping between an IPMVLAN and a customer VLAN ID (c-tag) to be used in the c-tag translation rule.

```
vlan ipmvlan ipmvlan-id ctag {ctag | ctag1-ctag2}
```

```
no vlan ipmvlan ipmvlan-id ctag {ctag | ctag1-ctag2}
```

---

### Syntax Definitions

<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number for which the c-tag is to be assigned. The valid range is 2–4094.
<i>ctag</i>	The customer VLAN ID number is used in the translation rule. The valid range is 1–4094.
<i>ctag1-ctag2</i>	Specifies the range of the customer VLAN ID numbers.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the mapping between the IPMVLAN and the customer VLAN ID.
- If the c-tag is already assigned to another IPMVLAN, the configuration request will fail.
- If you assign a range of c-tags to an IPMVLAN, an error message will be displayed for the c-tags already assigned to the IPMVLAN.
- The command will not work in Enterprise Mode.

### Examples

```
-> vlan ipmvlan 1003 ctag 10  
-> no vlan ipmvlan 1003 ctag 10
```

### Release History

Release 6.2.1; command was introduced.

## Related Commands

### [show vlan ipmvlan c-tag](#)

Displays the customer VLAN IDs associated with a single IP Multicast VLAN or all the configured IP Multicast VLANs.

## MIB Objects

```
alaipmvVlanCtagTable  
  alaipmvVlanNumber  
  alaipmvVlanCtag  
  alaipmvVlanCtagRowStatus
```

---

## vlan ipmvlan address

Assigns an IPv4 address, IPv6 address, or a range of addresses to an existing IPMVLAN.

**vlan ipmvlan** *ipmvlan-id* **address** {*ip\_address* [{*/prefixlen* / **mask** *mask*}] | *ipv6\_address* | *ipaddress1-ipaddress2* | *ipv6address1-ipv6address2*}

**no vlan ipmvlan** *ipmvlan-id* **address** {*ip\_address* [{*/prefixlen* / **mask** *mask*}] | *ipv6\_address* | *ipaddress1-ipaddress2* | *ipv6address1-ipv6address2*}

---

### Syntax Definitions

<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number to which the IP address will be assigned. The valid range is 2–4094.
<i>ip_address</i>	Specifies a 32-bit IP Multicast address that will be assigned to the IPMVLAN.
<i>/prefixlen</i>	Specifies the Prefix Length of mask.
<i>mask</i>	Specifies the IPv4 address mask.
<i>ipv6_address</i>	Specifies a 128-bit IPv6 Multicast address that will be assigned to the IPMVLAN.
<i>ipaddress1-ipaddress2</i>	Specifies the IP Multicast address range.
<i>ipv6address1-ipv6address2</i>	Specifies the IPv6 Multicast address range.

### Defaults

parameter	default
<i>prefixlen</i>	32
<i>mask</i>	255.255.255.255

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to disassociate the already assigned IPv4 or IPv6 address from the IPMVLAN.
- Use optional parameters **mask** or *prefixlen* with this command to assign subnet mask to IPv4 Multicast Group Address.
- IPMVLAN overlapping is allowed. The same address can be assigned to different IPMVLANs as long as the IPMVLANs do not share a common receiver port. (Not supported on OS9000E)
- If you assign a range of addresses containing duplicate addresses already assigned to the IPMVLAN, an error message will be displayed and no addresses will be added from that range.



- The recommended maximum number of addresses to be specified in a range is 256. Larger ranges should be broken up into separate commands. Contiguous address ranges entered with separate commands are treated as a single range and should be broken up using the *prefixlen* or *mask* parameters.
- IPv4 multicast group address with longest Prefix Length association takes preference over other IPv4 multicast group address.
- Non-zero host bits are not allowed for the creation of IPv4 addresses with mask/prefix-length. E.g. 225.1.3.4/24 is not allowed; the correct group/mask should be 225.1.3.0/24.
- Optional parameters *Prefixlen* and **mask** are not supported in OS9000E.

## Examples

```
-> vlan ipmvlan 1003 address 225.0.0.1
-> vlan ipmvlan 1033 address ff08::3
-> vlan ipmvlan 1033 address 226.0.1.0/24
-> vlan ipmvlan 1033 address 226.0.1.0 mask 255.255.255.0
-> vlan ipmvlan 1033 address 224.1.1.7-224.1.1.9
-> vlan ipmvlan 1033 address ffae::7-ffae::9
-> no vlan ipmvlan 1003 address 225.0.0.1
-> no vlan ipmvlan 1033 address ff08::3
-> no vlan ipmvlan 1033 address 226.0.1.0/24
-> no vlan ipmvlan 1033 address 226.0.1.0 mask 255.255.255.0
-> no vlan ipmvlan 1033 address 224.1.1.7-224.1.1.9
-> no vlan ipmvlan 1033 address ffae::7-ffae::9
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.4; ability to assign the same multicast address to different IPMVLANs was added.

Release 6.4.2; *Prefixlen* and **mask** parameters added.

## Related Commands

**show vlan ipmvlan address** Displays the IPv4 and IPv6 addresses assigned to single IP Multicast VLAN or all the configured IP Multicast VLANs.

## MIB Objects

```
alaipmvVlanIpAddrMaskTable
  alaipmvVlanIpAddrVlanNumber
  alaipmvVlanIpAddrType
  alaipmvVlanIpAddress
  alaipmvVlanIpAddrMaskEntry
  alaipmvVlanIpAddrRowStatus
```

---

## vlan ipmvlan sender-port

Configures a port, a range of ports, an aggregate of ports, or a range of aggregates as sender port for the IP Multicast VLAN. This sender port can receive multicast data for the configured multicast groups.

```
vlan ipmvlan ipmvlan-id sender-port {port slot/port[-port2] / linkagg agg_num [-agg_num2]}
```

```
no vlan ipmvlan ipmvlan-id sender-port {port slot/port[-port2] / linkagg agg_num [-agg_num2]}
```

---

### Syntax Definitions

<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number to which the port will be attached as a sender port. The valid range is 2–4094.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>agg_num</i>	The link aggregate ID number (0–31) to be assigned as a sender port to the IPMVLAN.
<i>agg_num2</i>	The last link aggregate ID number in a range of aggregates that you want to configure.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a single port, a range of ports, an aggregate of ports, or a range of aggregates assigned as the sender port(s) for the IPMVLAN.
- Multiple sender ports can be assigned to an IPMVLAN and a port can be configured as a sender port for multiple IPMVLANs.
- In the Enterprise mode, the configuration fails if the port configured as a sender port is not a tagged port, or if the port is an aggregated port ( member port of a logical aggregate) or a VLAN Stacking port.
- In the VLAN Stacking mode, the configuration fails if the port configured as a sender port is not a VLAN Stacking port (network port).

### Examples

The following command configures the sender port in an Enterprise mode:

```
-> vlan ipmvlan 1003 sender-port port 1/45-50
```

The following commands configure the sender port in the VLAN Stacking mode:

```
-> ethernet-service svlan 1001
-> ethernet-service svlan 1001 nni 1/49
-> ethernet-service ipmvlan 1033
-> vlan ipmvlan 1033 sender-port port 1/49
```

Note that in the above example, port 1/49 was first configured as a VLAN Stacking network (NNI) port before it was configured as a sender port for the IPMVLAN. See the “VLAN Stacking Commands” chapter for more information.

The following command removes the port configured as sender port:

```
-> no vlan ipmvlan 1003 sender-port port 1/50
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support added for entering a range and/or multiple entries of ports and aggregates.

## Related Commands

**show vlan ipmvlan port-config** Displays the sender and receiver ports for a specific IP Multicast VLAN or all the IP Multicast VLANs.

## MIB Objects

```
alaipmvVlanPortTable
  alaipmvVlanPortIPMVlanNumber
  alaipmvVlanPortPortNumber
  alaipmvVlanPortPortType
  alaipmvVlanPortRowStatus
```

---

## vlan ipmvlan receiver-port

Configures a port, a range of ports, or an aggregate of ports as receiver ports for the IP Multicast VLAN.

**vlan ipmvlan** *ipmvlan-id* **receiver-port** {**port** *slot/port*[-*port2*] / **linkagg** *agg\_num* [-*agg\_num2*]}

**no vlan ipmvlan** *ipmvlan-id* **receiver-port** {**port** *slot/port*[-*port2*] / **linkagg** *agg\_num* [-*agg\_num2*]}

---

### Syntax Definitions

<i>ipmvlan-id</i>	Specifies the IP Multicast VLAN number to which the port will be attached as a receiver port. The valid range is 2–4094.
<i>slot/port</i>	The slot number for the module and physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	Last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<i>agg_num</i>	The link aggregate ID number to be assigned as a receiver port to the specified IPMVLAN. The valid range is 0–31.
<i>agg_num2</i>	Last link aggregate ID number in a range of aggregates you want to configure.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the port assigned as a receiver port for the IPMVLAN.
- A single port can be configured as a receiver port for multiple IPMVLANs as long as the IPMVLANs are not associated with the same address. An IPMVLAN can contain multiple receiver ports.
- In the Enterprise mode, the configuration fails if the port configured as a receiver port is an aggregated port (member port of a logical aggregate) or a VLAN Stacking port.
- In the VLAN Stacking mode, the configuration fails if the port configured as a receiver port is not a VLAN Stacking user port.

### Examples

The following commands configure the receiver port in the Enterprise mode:

```
-> vlan ipmvlan 1003 receiver-port port 1/51-60
-> vlan ipmvlan 1033 receiver-port port 1/62
```

The following commands configure the receiver port in the VLAN Stacking mode:

```
-> ethernet-service ipmvlan 1002
-> vlan ipmvlan 1002 receiver-port port 1/1
```

Note that in the above example, port 1/1 was previously configured as a VLAN Stacking user port. See the “VLAN Stacking Commands” chapter for more information.

The following command removes the port configured as a sender port:

```
-> no vlan ipmvlan 1002 receiver-port port 1/1
```

## Release History

Release 6.2.1; command was introduced.

## Related Commands

**show vlan ipmvlan port-config** Displays the sender and receiver ports for a specific IP Multicast VLAN or all the configured IP Multicast VLANs.

## MIB Objects

```
alaipmvVlanPortTable
  alaipmvVlanPortIPMVlanNumber
  alaipmvVlanPortPortNumber
  alaipmvVlanPortPortType
  alaipmvVlanPortRowStatus
```

---

## show vlan ipmvlan c-tag

Displays the customer VLAN IDs associated with a single IP Multicast VLAN or all the configured IP Multicast VLANs.

**show vlan ipmvlan** [*ipmvlan-id*] **c-tag**

---

### Syntax Definitions

*ipmvlan-id* Specifies the IP Multicast VLAN number. The valid range is 2–4094.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show vlan ipmvlan c-tag
```

```

ipmvlan      ctag
+-----+-----+
  100         10
  100         20
  200         30

```

### output definitions

---

<b>ipmvlan</b>	The numerical IPMVLAN ID.
<b>ctag</b>	The customer VLAN-ID associated with the IPMVLAN.

---

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[vlan ipmvlan ctag](#) Defines the mapping between a IPMVLAN and a customer VLAN ID (c-tag) to be used in the c-tag translation rule.

### MIB Objects

```

alaipmvVlanCtagTable
  alaipmvVlanNumber
  alaipmvVlanCtag

```

---

## show vlan ipmvlan address

Displays the IPv4 and IPv6 addresses assigned to a single IP Multicast VLAN or all the configured IP Multicast VLANs.

**show vlan ipmvlan** [*ipmvlan-id*] **address** [ipv4 | ipv6]

---

### Syntax Definitions

*ipmvlan-id* Specifies the IP Multicast VLAN number. The valid range is 2–4094.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show vlan ipmvlan 10 address
IpAddress          ipAddressType
-----+-----
224.1.1.1          Ipv4
224.1.1.2          Ipv4
224.1.1.3          Ipv4
224.1.1.7-224.1.1.9  Ipv4
ffae::1            Ipv6
ffae::2            Ipv6
ffae::3            Ipv6
ffae::7-ffae::9    Ipv6
```

```
-> show vlan ipmvlan 10 address ipv4
IpAddress          ipAddressType
-----+-----
224.1.1.1          Ipv4
224.1.1.2          Ipv4
224.1.1.3          Ipv4
224.1.1.7-224.1.1.9  Ipv4
```

```
-> show vlan ipmvlan 10 address ipv6
IpAddress          ipAddressType
-----+-----
ffae::1            Ipv6
ffae::2            Ipv6
ffae::3            Ipv6
ffae::7-ffae::9    Ipv6
```

```
-> show vlan ipmvlan address
```

ipmvlan	ipAddress	ipAddressType
100	224.1.2.3	Ipv4
100	225.1.1.1	Ipv4
100	ff08::3	Ipv6
200	224.1.1.2	Ipv4
200	ff09::1	Ipv6

### output definitions

<b>ipmvlan</b>	The numerical IPMVLAN ID.
<b>ipAddress</b>	The IPv4 or IPv6 address.
<b>ipAddressType</b>	The IP address type ( <b>IPv4</b> or <b>IPv6</b> ).

## Release History

Release 6.2.1; command was introduced.

## Related Commands

**vlan ipmvlan address** Assigns an IPv4 address, IPv6 address, or a range of addresses to an existing IPMVLAN.

## MIB Objects

```
alaipmvVlanIpAddrMaskTable
  alaipmvVlanIpAddrVlanNumber
  alaipmvVlanIpAddrType
  alaipmvVlanIpAddress
```



## show vlan ipmvlan port-config

Displays the sender and receiver ports for a specific IP Multicast VLAN or all the IP Multicast VLANs.

**show vlan ipmvlan** [*ipmvlan-id*] **port-config**

---

### Syntax Definitions

*ipmvlan-id* Specifies the IP Multicast VLAN number for which the sender and receiver ports will be displayed. The valid range is 2–4094.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show vlan ipmvlan port-config
ipmvlan    port    type
+-----+-----+-----+
   50       2/1    receiver
   50       2/10   sender
   51       2/2    receiver
   51       0/2    receiver
  100       2/2    receiver
  101       0/1    sender
```

```
-> show vlan ipmvlan 50 port-config
port      type
+-----+-----+
   2/1     receiver
   2/10    sender
```

```
-> show vlan ipmvlan 51 port-config
port      type
+-----+-----+
   2/2     receiver
   0/2     receiver
```

```

-> show vlan ipmvlan 100 port-config
  port      type
+-----+-----+
  2/2      receiver

-> show vlan ipmvlan 101 port-config
  port      type
+-----+-----+
  0/1      sender

```

### *output definitions*

---

<b>ipmvlan</b>	The numerical IPMVLAN ID.
<b>port</b>	Displays the slot number of the module and the physical port number on that module for which the IPMVLAN is configured.
<b>type</b>	The type ( <b>sender</b> or <b>receiver</b> ) of the IPMVLAN port.

---

### **Release History**

Release 6.2.1; command was introduced.

Release 6.3.1; command was modified.

### **Related Commands**

<b>vlan ipmvlan sender-port</b>	Configures a port or an aggregate of ports as the sender port for the IP Multicast VLAN.
<b>vlan ipmvlan receiver-port</b>	Configures a port (or a range of ports) or an aggregate of ports as the receiver port for the IP Multicast VLAN.

### **MIB Objects**

```

alaipmvVlanPortTable
  alaipmvVlanPortIPMvlanNumber
  alaipmvVlanPortPortNumber
  alaipmvVlanPortPortType

```

---

## show ipmvlan port-config

Displays the sender and receiver IPMVLANs for a specific slot or port.

**show vlan ipmvlan port-config** [*slot/port* / *agg\_num*]

---

### Syntax Definitions

*slot/port*                      The slot number for the module and physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num*                        The Link aggregate ID number. The valid range is 0–31.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show vlan ipmvlan port-config 2/1
ipmvlan      type
+-----+-----+
   50         receiver
```

```
-> show vlan ipmvlan port-config 2/2
ipmvlan      type
+-----+-----+
   51         receiver
  100         receiver
```

```
-> show vlan ipmvlan port-config 1
ipmvlan      type
+-----+-----+
  101         sender
```

### output definitions

---

<b>ipmvlan</b>	The numerical IPMVLAN ID.
<b>type</b>	The type ( <b>sender</b> or <b>receiver</b> ) of the IPMVLAN port.

---

### Release History

Release 6.2.1; command was introduced.  
 Release 6.3.1; command was modified.

## Related Commands

### **vlan ipmvlan sender-port**

Configures a port or an aggregate of ports as the sender port for the IP Multicast VLAN.

### **vlan ipmvlan receiver-port**

Configures a port (or a range of ports) or an aggregate of ports as the receiver port for the IP Multicast VLAN.

## MIB Objects

alaipmvVlanPortTable

  alaipmvVlanPortIPMVlanNumber

  alaipmvVlanPortPortNumber

  alaipmvVlanPortPortType

---

# 29 DVMRP Commands

This chapter includes CLI command descriptions for Distance Vector Multicast Routing Protocol (DVMRP), version 3.

DVMRPv3 is a dense-mode multicast routing protocol that enables routers to efficiently propagate IP multicast traffic through a network. Multicast traffic consists of a data stream that originates from a single source and is sent to hosts that have subscribed to that stream. Live video broadcasts, video conferencing, corporate communications, distance learning, and distribution of software, stock quotes, and news services are examples of multicast traffic.

For more information about configuring DVMRP, see the *OmniSwitch AOS Release 6 Advanced Routing Configuration Guide Advanced*.

MIB information for the DVMRP commands is as follows:

*Filename:* AlcatelIND1Dvmrp.MIB  
*Module:* ALCATEL-IND1-DVMRP-MIB

*Filename:* IETF\_DVMRP\_STD\_DRAFT.MIB  
*Module:* DVMRP-STD-MIB

A summary of the available commands is listed here:

---

**ip load dvmrp**  
**ip dvmrp status**  
**ip dvmrp flash-interval**  
**ip dvmrp graft-timeout**  
**ip dvmrp interface**  
**ip dvmrp interface metric**  
**ip dvmrp neighbor-interval**  
**ip dvmrp neighbor-timeout**  
**ip dvmrp prune-lifetime**  
**ip dvmrp prune-timeout**  
**ip dvmrp report-interval**  
**ip dvmrp route-holddown**  
**ip dvmrp route-timeout**  
**ip dvmrp subord-default**  
**ip dvmrp tunnel**  
**ip dvmrp tunnel ttl**  
**ip dvmrp debug-level**  
**ip dvmrp debug-type**  
**show ip dvmrp**  
**show ip dvmrp interface**  
**show ip dvmrp neighbor**  
**show ip dvmrp nexthop**  
**show ip dvmrp prune**  
**show ip dvmrp route**  
**show ip dvmrp tunnel**  
**show ip dvmrp debug**

---

## ip load dvmrp

Dynamically loads DVMRP to memory.

**ip load dvmrp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command must be executed before DVMRP can be configured on the switch. In addition, DVMRP must be administratively enabled before you can run the protocol on the switch. For more information, refer to the [ip dvmrp status command on page 29-3](#).
- The advanced routing image must be loaded before the DVMRP feature starts working on the switch.

### Examples

```
-> ip load dvmrp
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip dvmrp status](#) Globally enables or disables DVMRP protocol on the switch.

### MIB Objects

```
alaDrcTmConfig  
  alaDrcTmIPDvmrpStatus
```

---

## ip dvmrp status

Globally enables or disables DVMRP protocol on the switch.

**ip dvmrp status** {enable | disable}

---

### Syntax Definitions

<b>enable</b>	Administratively enables DVMRP on the switch.
<b>disable</b>	Administratively disables DVMRP on the switch.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command must be set to **enable** before DVMRP can run on the switch. In addition, the **ip load dvmrp** command must be issued. For more information, refer to the [ip load dvmrp command on page 29-2](#).
- The advanced routing image must be loaded before the DVMRP feature starts working on the switch.
- To enable or disable DVMRP for a particular interface, refer to the [ip dvmrp interface command on page 29-7](#).

### Examples

```
-> ip dvmrp status enable
-> ip dvmrp status disable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">ip dvmrp interface</a>	Enables or disables the DVMRP protocol on a specified interface.
<a href="#">ip load dvmrp</a>	Dynamically loads DVMRP to memory.
<a href="#">show ip dvmrp</a>	Displays global DVMRP parameters, including current status.

## MIB Objects

```
alaDvmrpGlobalConfig  
  alaDvmrpAdminStatus
```

---



## ip dvmrp flash-interval

Configures the minimum flash update interval value. The flash update interval defines how often routing table change messages are sent to neighboring DVMRP routers.

**ip dvmrp flash-interval** *seconds*

---

### Syntax Definitions

*seconds* Specifies the interval value, in seconds (5–86400).

### Defaults

---

parameter	default
<i>seconds</i>	5

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Because routing table change messages are sent between the transmission of complete routing tables, the flash update interval value must be lower than the route report interval.

### Examples

```
-> ip dvmrp flash-interval 5
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip dvmrp](#) Displays global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpFlashUpdateInterval

---

---

## ip dvmrp graft-timeout

Configures the graft message retransmission value. The graft message retransmission value is the duration of time that the routing switch will wait before retransmitting a graft message if it has not received an acknowledgement from its neighbor.

**ip dvmrp graft-timeout** *seconds*

---

### Syntax Definitions

*seconds* Specifies the graft message retransmission value, in seconds (5–86400).

### Defaults

parameter	default
<i>seconds</i>	5

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp graft-timeout 5
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip dvmrp](#) Displays global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpGraftRetransmission

---

## ip dvmrp interface

Enables or disables the DVMRP protocol on a specified interface.

**ip dvmrp interface** {*interface\_name*}

**no ip dvmrp interface** {*interface\_name*}

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

Use the **no** form of this command to delete an interface.

### Examples

```
-> ip dvmrp interface vlan-10  
-> no ip dvmrp interface vlan-10
```

### Release History

Release 6.1; command was introduced.

Release 6.1.1; *ip\_address* parameter deprecated.

### Related Commands

- |                                           |                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------|
| <a href="#">ip dvmrp status</a>           | Globally enables or disables the DVMRP protocol on the switch.                                |
| <a href="#">ip dvmrp interface metric</a> | Configures the distance metric for an interface, which is used to calculate distance vectors. |
| <a href="#">show ip dvmrp interface</a>   | Displays information for all multicast-capable interfaces.                                    |

### MIB Objects

dvmrpInterfaceTable  
    dvmrpInterfaceLocalAddress  
    dvmrpInterfaceStatus

---

## ip dvmrp interface metric

Configures the distance metric for an interface, which is used to calculate distance vectors. DVMRP uses the distance metric value to determine the most cost-effective way to pass data through the network.

**ip dvmrp interface** *{interface\_name}* **metric** *value*

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>value</i>	Specifies the metric value (1–31).

### Defaults

parameter	default
<i>value</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

DVMRP uses the distance metric value to determine the most cost-effective way to pass data through the network. The higher the distance metric value, the higher the cost.

### Examples

```
-> ip dvmrp interface vlan-2 metric 1
```

### Release History

Release 6.1; command was introduced.  
Release 6.1.1; *ip\_address* parameter deprecated.

### Related Commands

<a href="#">ip dvmrp interface</a>	Enables or disables the DVMRP protocol on a specified interface.
<a href="#">show ip dvmrp interface</a>	Displays the DVMRP interface table.

### MIB Objects

```
dvmrpInterfaceTable
  dvmrpInterfaceLocalAddress
  dvmrpInterfaceMetric
```

---

## ip dvmrp neighbor-interval

Configures the neighbor probe interval time. The neighbor probe interval time specifies how often probes are transmitted on DVMRP-enabled interfaces.

**ip dvmrp neighbor-interval** *seconds*

---

### Syntax Definitions

*seconds* Specifies the probe interval time, in seconds (5–30).

### Defaults

parameter	default
<i>seconds</i>	10

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp neighbor-interval 10
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip dvmrp neighbor-timeout](#) Configures the neighbor timeout.
- [show ip dvmrp neighbor](#) Displays the DVMRP neighbor table.
- [show ip dvmrp](#) Displays the global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpNeighborProbeInterval

---

## ip dvmrp neighbor-timeout

Configures the neighbor timeout. This value specifies how long the switch will wait for activity from a neighboring DVMRP router before assuming that the inactive router is down.

**ip dvmrp neighbor-timeout** *seconds*

---

### Syntax Definitions

*seconds* Specifies the neighbor timeout, in seconds (5–86400).

### Defaults

parameter	default
<i>seconds</i>	35

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp neighbor-timeout 35
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [ip dvmrp neighbor-interval](#) Configures the neighbor probe interval time.
- [show ip dvmrp neighbor](#) Displays the DVMRP neighbor table.
- [show ip dvmrp](#) Displays the global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpNeighborTimeout

---

## ip dvmrp prune-lifetime

Indicates the length of time a prune will be in effect—i.e., its *lifetime*. When the prune lifetime expires, the interface is joined back onto the multicast delivery tree. If unwanted multicast datagrams continue to arrive, the prune mechanism will be re-initiated and the cycle will continue.

**ip dvmrp prune-lifetime** *seconds*

---

### Syntax Definitions

*seconds* Specifies the prune lifetime, in seconds (180–86400).

### Defaults

parameter	default
<i>seconds</i>	7200

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp prune-lifetime 7200
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                        |                                                                            |
|----------------------------------------|----------------------------------------------------------------------------|
| <a href="#">ip dvmrp prune-timeout</a> | Configures the prune packet retransmission value.                          |
| <a href="#">show ip dvmrp prune</a>    | Displays DVMRP prune entries, including the router's upstream prune state. |
| <a href="#">show ip dvmrp</a>          | Displays the global DVMRP parameters.                                      |

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpPruneLifetime

---

## ip dvmrp prune-timeout

Configures the prune packet retransmission value. This value is the duration of time that the routing switch will wait if it continues to receive unwanted multicast traffic before retransmitting a prune message.

**ip dvmrp prune-timeout** *seconds*

---

### Syntax Definitions

*seconds* Specifies retransmission time, in seconds (30–86400).

### Defaults

parameter	default
<i>seconds</i>	30

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp prune-timeout 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip dvmrp prune-lifetime</a>	Indicates the length of time a prune will be in effect.
<a href="#">show ip dvmrp prune</a>	Displays DVMRP prune entries, including the router's upstream prune state.
<a href="#">show ip dvmrp</a>	Displays the global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpPruneRetransmission

---



## ip dvmrp report-interval

Configures the route report interval. This value defines how often the switch will send its complete routing table to neighboring routers running DVMRP.

**ip dvmrp report-interval** *seconds*

---

### Syntax Definitions

*seconds* Specifies the report interval, in seconds (10–2000).

### Defaults

parameter	default
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp report-interval 60
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [show ip dvmrp route](#) Displays the DVMRP routes that are being advertised to other routers.
- [show ip dvmrp](#) Displays the global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
  alaDvmrpRouteReportInterval

---

---

## ip dvmrp route-holddown

Configures the time during which DVMRP routes are kept in a hold down state. A holddown state refers to the time that a route to an inactive network continues to be advertised.

**ip dvmrp route-holddown** *seconds*

---

### Syntax Definitions

*seconds* Specifies the holddown time, in seconds (1–86400).

### Defaults

parameter	default
<i>seconds</i>	120

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp route-holddown 120
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip dvmrp route-timeout</a>	Configures the route expiration timeout value.
<a href="#">show ip dvmrp</a>	Displays the global DVMRP parameters.
<a href="#">show ip dvmrp route</a>	Displays the DVMRP routes that are being advertised to other routers.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpRouteHoldDown

---

## ip dvmrp route-timeout

Configures the route expiration timeout value. The route expiration timeout value specifies how long the switch will wait before aging out a route. When the route expiration timeout expires, the route is advertised as being in holddown until either its activity resumes or it is deleted from the route table.

**ip dvmrp route-timeout** *seconds*

---

### Syntax Definitions

*seconds* Specifies the timeout value, in seconds (20–4000).

### Defaults

parameter	default
<i>seconds</i>	140

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip dvmrp route-timeout 140
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip dvmrp route-holddown](#) Configures the time during which DVMRP routes are kept in a hold down state.

[show ip dvmrp](#) Displays the global DVMRP parameters.

### MIB Objects

alaDvmrpGlobalConfig  
alaDvmrpRouteExpirationTimeout

---

## ip dvmrp subord-default

Changes the initial default assumption on a neighbor's subordinate or non-subordinate status. When the status value is true, DVMRP neighbors are assumed to be subordinate and traffic is automatically forwarded to the neighbor upon initial discovery. When the value is false, traffic is not forwarded to the neighbor until route reports have been exchanged and the neighbor has explicitly expressed dependency.

**ip dvmrp subord-default {true | false}**

---

### Syntax Definitions

<b>true</b>	DVMRP neighbors are assumed subordinate; traffic is automatically forwarded to the neighbor on initial discovery.
<b>false</b>	DVMRP neighbors are <i>not</i> assumed to be subordinate; traffic is not forwarded until route reports have been exchanged and the neighbor has explicitly expressed dependency.

### Defaults

parameter	default
true   false	true

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- However, if neighbors in the DVMRP domain have difficulty handling large initial bursts of traffic, it is recommended that the neighbor's default status as a subordinate be changed to false.
- To view the current subordinate neighbor status, use the [show ip dvmrp](#) command. For more information, refer to [page 29-25](#).

### Examples

```
-> ip dvmrp subord-default false
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show ip dvmrp](#)

Displays the global DVMRP parameters.

## MIB Objects

alaDvmrpGlobalConfig

alaDvmrpInitNbrASSubord

---

## ip dvmrp tunnel

Adds or deletes a DVMRP tunnel.

```
ip dvmrp tunnel {local_name} {remote_address}
```

```
no ip dvmrp tunnel {local_name} {remote_address}
```

---

### Syntax Definitions

<i>local_name</i>	The name of the local router interface.
<i>remote_address</i>	The 32-bit IP address of the remote router interface. The remote router interface IP address serves as an identifier for the remote end of the DVMRP tunnel.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a tunnel.
- The local IP address of the tunnel must match the IP address of an existing DVMRP interface.
- Routing (via RIP, OSPF, etc.) must first be set up in order for the remote tunnel endpoint to be accessible.

### Examples

```
-> ip dvmrp tunnel vlan-2 168.22.2.120  
-> no ip dvmrp tunnel vlan-2 168.22.2.120
```

### -Release History

Release 6.1; command was introduced.

Release 6.1.1; *local\_address* and *remote\_name* parameters deprecated.

## Related Commands

<b>ip dvmrp tunnel ttl</b>	Configures the TTL value for the tunnel defined for the specified local address and remote address.
<b>show ip dvmrp interface</b>	Displays the DVMRP interface table.
<b>show ip dvmrp tunnel</b>	Displays the DVMRP tunnel entries.

## MIB Objects

```
tunnelConfigTable
  tunnelConfigLocalAddress
  tunnelConfigRemoteAddress
  tunnelConfigStatus
```

---

## ip dvmrp tunnel ttl

Configures the TTL value for the tunnel defined for the specified local address and remote address. The TTL value is added to the TTL field of the IP header for outgoing packets destined for the remote tunnel endpoint.

**ip dvmrp tunnel** {*interface\_name* *remote\_address*} **ttl** *value*

---

### Syntax Definitions

<i>interface_name</i>	The name of the interface.
<i>remote_address</i>	Remote IP address of the tunnel.
<i>value</i>	The Time to Live (TTL) value (0–255).

### Defaults

parameter	default
<i>value</i>	255

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The local IP address for the tunnel must match the IP address of an existing DVMRP tunnel.
- A value of 0 indicates that the value is copied from the payload's header.

### Examples

```
-> ip dvmrp tunnel vlan-2 172.22.2.120 ttl 0
```

### Release History

Release 6.1; command was introduced.  
Release 6.1.1; *local\_address* deprecated.

### Related Commands

<a href="#">ip dvmrp tunnel</a>	Adds or deletes a DVMRP tunnel for the specified local and remote addresses.
<a href="#">show ip dvmrp tunnel</a>	Displays the DVMRP tunnel entries.



## **MIB Objects**

tunnelIfTable

    tunnelIfLocalAddress

    tunnelIfRemoteAddress

    tunnelIfHopLimit

---

## ip dvmrp debug-level

Defines the level of debugging for DVMRP protocol on the switch.

**ip dvmrp debug-level** *level*

---

### Syntax Definitions

*level*

Specifies the DVMRP debug level (0–255). Higher debug-levels will include all messages that correspond to a lower value. For example, a debug level of 2 will display all messages for level 1 and level 2. As a rule of thumb, higher levels will display more detailed messages; lower levels will display more basic messages.

### Defaults

parameter	default
<i>level</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

When the debug level is set to 0, DVMRP debug logging is turned off.

### Examples

```
-> ip dvmrp debug-level 2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ip dvmrp debug-type](#)

Enables or disables DVMRP debugging for a specified message type, or for all message types.

[show ip dvmrp debug](#)

Displays the current level of debugging for DVMRP protocol on the switch, as well as the current status for all debugging types.

### MIB Objects

N/A

---

## ip dvmrp debug-type

Enables or disables DVMRP debugging for a specified message type, or for all message types.

---

**Note.** Debugging for a specified message type will only be enabled if its debug level is a value greater than zero (i.e., 1–255). For information on specifying the debug level, refer to the [ip dvmrp debug-level command on page 29-22](#).

---

**ip dvmrp debug-type** *message\_type*

**no ip dvmrp debug-type** *message\_type*

---

### Syntax Definitions

*message\_type* Enables or disables DVMRP debugging for the specified item. Select from the list below. You may enter multiple message types in any order. For example, **ip dvmrp debug-type time flash init**.

---

supported message types	descriptions
<b>all</b>	Enables or disables DVMRP debugging for all items listed below. The syntax <b>all</b> can be used to easily turn debugging for all message types on or off.
<b>error</b>	Enables or disables debugging for DVMRP Error messages.
<b>flash</b>	Enables or disables debugging for DVMRP Flash processing.
<b>graft</b>	Enables or disables debugging for DVMRP Graft processing.
<b>igmp</b>	Enables or disables debugging for DVMRP Internet Group Management Protocol (IGMP) packet processing.
<b>ipmrm</b>	Enables or disables debugging for DVMRP IP Multicast Routing Manager (IPMRM) interaction.
<b>init</b>	Enables or disables debugging related to DVMRP initialization code.
<b>mip</b>	Enables or disables debugging for MIP (Management Internal Protocol) processing. Includes CLI and SNMP.
<b>misc</b>	Enables or disables miscellaneous debugging of DVMRP.
<b>nbr</b>	Enables or disables debugging for DVMRP Neighbor processing.
<b>probes</b>	Enables or disables debugging for DVMRP Probe processing.
<b>prunes</b>	Enables or disables debugging for DVMRP Prune processing.
<b>routes</b>	Enables or disables debugging for DVMRP Route processing.
<b>time</b>	Enables or disables debugging for DVMRP Timer processing.
<b>tm</b>	Enables or disables debugging for DVMRP Task Manager interaction.

---

---

## Defaults

parameter	default
<i>message_type</i>	error

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to disable debugging for the specified item.
- Reminder: Debugging for a specified message type will only be enabled if its debug level is a value greater than zero (i.e., 1–255). For information on specifying the debug level, refer to the [ip dvmrp debug-level](#) command on page 29-22.
- The syntax **all** can be used to easily turn debugging for all message types on or off (e.g., **ip dvmrp debug-type all** or **no ip dvmrp debug-type all**).

## Examples

```
-> ip dvmrp debug-type all
-> ip dvmrp debug-type tm igmp flash
-> no ip dvmrp debug-type misc
-> no ip dvmrp debug-type all
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[ip dvmrp debug-level](#)

Defines the level of debugging for DVMRP protocol on the switch.

[show ip dvmrp debug](#)

Displays the current level of debugging for DVMRP protocol on the switch, as well as the current status for all debugging types.

## MIB Objects

N/A

---

## show ip dvmrp

Displays the global DVMRP parameters.

**show ip dvmrp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip dvmrp
```

```
DVMRP Admin Status = enabled,  
Flash Interval      = 5,  
Graft Timeout      = 5,  
Neighbor Interval  = 10,  
Neighbor Timeout   = 35,  
Prune Lifetime     = 7200,  
Prune Timeout      = 30,  
Report Interval    = 60,  
Route Holddown     = 120,  
Route Timeout      = 140,  
Subord Default     = true,
```

```
Number of Routes          = 2,  
Number of Reachable Routes = 2
```

### *output definitions*

---

**DVMRP Admin Status**

The current global (i.e., switch-wide) status of DVMRP, which can be **enabled** or **disabled**. To change the current DVMRP global status, refer to the [ip dvmrp status command on page 29-3](#).

**Flash Interval**

The current minimum flash update interval value, in seconds. The flash interval defines how often routing table change messages are sent to neighboring DVMRP routers. Because routing table change messages are sent between the transmission of complete routing tables, the flash update interval must be shorter than the route report interval. The default value is 5.

---

*output definitions (continued)*

---

<b>Graft Timeout</b>	The graft message retransmission value, in seconds. The graft message retransmission value defines the duration of time that the routing switch will wait before retransmitting a graft message if it has not received an acknowledgement from its neighbor. Values may range from 5–86400. The default value is 5.
<b>Neighbor Interval</b>	The current neighbor probe interval time, in seconds. The neighbor probe interval time specifies how often probes are transmitted to interfaces with attached DVMRP neighbors. Values may range from 5–30. The default value is 10.
<b>Neighbor Timeout</b>	The current neighbor timeout value, in seconds. This value specifies how long the routing switch will wait for activity from a neighboring DVMRP router before assuming the inactive router is down. Values may range from 5–86400. The default value is 35.
<b>Prune Lifetime</b>	The length of time, in seconds, a prune will be in effect. When the prune lifetime expires, the interface is joined back onto the multicast delivery tree. If unwanted multicast datagrams continue to arrive, the prune mechanism will be re-initiated and the cycle will continue. Values may range from 180–86400. The default value is 7200.
<b>Prune Timeout</b>	The current prune packet retransmission value, in seconds. This value indicates the duration of time that the routing switch will wait if it continues to receive unwanted multicast traffic before retransmitting a prune message. Values range from 30–86400. The default value is 30.
<b>Report Interval</b>	The current route report interval, in seconds. The route report interval defines how often routers will send their complete routing tables to neighboring routers running DVMRP. Values may range from 10–2000. The default value is 60.
<b>Route Holddown</b>	The current holddown time, in seconds. This value indicates the time during which DVMRP routes are kept in a holddown state. A holddown state refers to the time that a route to an inactive network continues to be advertised. Values may range from 1–120. The default value is 120.
<b>Route Timeout</b>	The current route expiration timeout value, in seconds. The route expiration timeout value specifies how long the routing switch will wait before aging out a route. Values may range from 20–4000. The default value is 140.
<b>Subord Default</b>	Displays the initial default assumption on a neighbor's subordinate or non-subordinate status. When the status value is true, DVMRP neighbors are assumed to be subordinate and traffic is automatically forwarded to the neighbor upon initial discovery. When the value is false, traffic is not forwarded to the neighbor until route reports have been exchanged and the neighbor has explicitly expressed dependency. To change the current subordinate neighbor status, refer to the <a href="#">ip dvmrp subord-default command on page 29-16</a> . Options include true and false. The default value is true.

*output definitions (continued)*


---

<b>Number of Routes</b>	The number of entries in the routing table. This number can be used to monitor the routing table size and detect illegal advertisements of unicast routes.
<b>Number of Reachable Routes</b>	The total number of reachable routes. The number of entries in the routing table with non-infinite metrics. This number can be used to detect network partitions by observing the ratio of reachable routes to total routes. Routes with unreachable metrics, routes in a holddown state, and routes that have aged out are not considered reachable.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>ip dvmrp status</b>	Globally enables or disables DVMRP protocol on the switch.
<b>ip dvmrp flash-interval</b>	Configures the minimum flash update interval value.
<b>ip dvmrp graft-timeout</b>	Configures the graft message retransmission value.
<b>ip dvmrp neighbor-timeout</b>	Configures the neighbor timeout.
<b>ip dvmrp prune-lifetime</b>	Indicates the length of time a prune will be in effect.
<b>ip dvmrp prune-timeout</b>	Configures the prune packet retransmission value.
<b>ip dvmrp report-interval</b>	Configures the route report interval.
<b>ip dvmrp route-holddown</b>	Configures the time during which DVMRP routes are kept in a hold down state.
<b>ip dvmrp route-timeout</b>	Configures the route expiration timeout value.
<b>ip dvmrp subord-default</b>	Configures the neighbor probe interval time.

**MIB Objects**

```

alaDvmrpConfigMIBGroup
  alaDvmrpAdminStatus
  alaDvmrpRouteReportInterval
  alaDvmrpFlashUpdateInterval
  alaDvmrpNeighborTimeout
  alaDvmrpRouteExpirationTimeout
  alaDvmrpRouteHoldDown
  alaDvmrpNeighborProbeInterval
  alaDvmrpPruneLifetime
  alaDvmrpPruneRetransmission
  alaDvmrpGraftRetransmission
  alaDvmrpInitNbrAsSubord

dvmrpGeneralGroup
  dvmrpNumRoutes
  dvmrpReachableRoutes

```

---

## show ip dvmrp interface

Displays information for all multicast-capable interfaces *or* for a specified interface. This command also provides options to display only DVMRP-enabled or DVMRP-disabled interfaces.

**show ip dvmrp interface** [*ip\_address* | *interface\_name* | **enabled** | **disabled**]

---

### Syntax Definitions

<i>ip_address</i>	Specifies a particular interface IP address.
<i>interface_name</i>	The name of the interface.
<b>enabled</b>	Displays a list of all interfaces (i.e., VLAN router ports) on which DVMRP is currently <i>enabled</i> .
<b>disabled</b>	Displays a list of all interfaces (i.e., VLAN router ports) on which DVMRP is currently <i>disabled</i> .

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If no optional syntax is specified in the command line, the entire interface table is displayed.
- For an interface to show as *enabled* in the **show ip dvmrp interface** or **show ip dvmrp interface enabled** output, the interface must be both administratively *and* operationally enabled. Although the interface does not have to be passing traffic, at least one VLAN router port must be operational on the corresponding DVMRP-enabled VLAN.
- To view the Generation ID being used on a particular interface, you must include the interface IP address in the command line.

### Examples

```
-> show ip dvmrp interface
Interface Name      Vlan  Metric  Admin-Status  Oper-Status
-----+-----+-----+-----+-----
vlan-1              1      1      Disabled      Disabled
vlan-2              2      1      Enabled       Enabled

-> show ip dvmrp interface enabled
Interface Name      Vlan  Metric  Admin-Status  Oper-Status
-----+-----+-----+-----+-----
vlan-2              2      1      Enabled       Enabled
```



*output definitions*

---

<b>Interface Name</b>	The name of the interface.
<b>Vlan</b>	The associated VLAN ID.
<b>Tunnel</b>	Indicates whether there is a DVMRP tunnel currently configured on the interface. This field is not relevant for Release 5.3.1 and later.
<b>Metric</b>	The current metric value. A metric is essentially used to determine the most cost-effective way to pass data through the network. The higher the metric value, the higher the cost.
<b>Admin-Status</b>	The current administrative status of the corresponding interface. Options include <b>Enabled</b> or <b>Disabled</b> . An interface can be configured for DVMRP without being operational. To change the DVMRP Admin-status for an individual interface, refer to the <a href="#">ip dvmrp interface command on page 29-7</a> .
<b>Oper-Status</b>	The current operational status of the corresponding multicast-capable interface. Options include <b>Enabled</b> or <b>Disabled</b> . For an interface to be DVMRP-operational, the global DVMRP status must be enabled and the individual interface must be DVMRP-enabled. To change the global DVMRP status, refer to the <a href="#">ip dvmrp status command on page 29-3</a> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip dvmrp interface](#) Enables or disables the DVMRP protocol on a specified interface.

**MIB Objects**

```
dvmrpInterfaceGroup
  dvmrpInterfaceLocalAddress
  dvmrpInterfaceMetric
  dvmrpInterfaceStatus
```

---

## show ip dvmrp neighbor

Displays the DVMRP neighbor table. The DVMRP neighbor table displays either all neighboring DVMRP routers, or a specified neighboring DVMRP router.

```
show ip dvmrp neighbor [ip_address]
```

---

### Syntax Definitions

*ip\_address* Specifies a particular IP address for a neighboring DVMRP router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If a neighbor IP address is not specified, the entire DVMRP Neighbor Table is displayed.

### Examples

```
-> show ip dvmrp neighbor
```

```
Neighbor Address   Intf Name      Uptime        Expires        GenID        Vers  State
-----+-----+-----+-----+-----+-----+-----
143.209.92.214    vlan-2        00h:09m:12s  00h:00m:06s  546947509   3.255  active
```

#### *output definitions*

---

<b>Neighbor Address</b>	The 32-bit IP address of the DVMRP neighbor's router interface.
<b>Intf Name</b>	The interface name of the neighbor's router.
<b>Uptime</b>	The amount of time the neighbor has been running, displayed in hours, minutes, and seconds.
<b>Expires</b>	The amount of time remaining before the neighbor expires, displayed in hours, minutes, and seconds.
<b>GenID</b>	The generation ID for the DVMRP neighbor. This value is used by neighboring routers to detect whether the DVMRP routing table should be resent.
<b>Version</b>	The DVMRP version number for the neighbor.
<b>State</b>	The current state of the DVMRP neighbor. Options include <b>active</b> and <b>down</b> .

---

### Release History

Release 6.1; command was introduced.

## Related Commands

- ip dvmrp neighbor-interval** Configures the neighbor probe interval time.
- ip dvmrp neighbor-timeout** Configures the neighbor timeout.

## MIB Objects

```
dvmrpNeighborTable  
  dvmrpNeighborAddress  
  dvmrpNeighborIfIndex  
  dvmrpNeighborUpTime  
  dvmrpNeighborExpiryTime  
  dvmrpNeighborGenerationId  
  dvmrpNeighborMajorVersion  
  dvmrpNeighborMinorVersion  
  dvmrpNeighborState
```

---

## show ip dvmrp nexthop

Displays DVMRP next hop entries. This command is used to show the list of next hops on outgoing interfaces to which IP multicast datagrams from particular sources are routed.

**show ip dvmrp nexthop** [*ip\_address ip\_mask*]

---

### Syntax Definitions

<i>ip_address</i>	Specifies a source IP address for which DVMRP next hop entries will be displayed.
<i>ip_mask</i>	Specifies a source IP mask for which DVMRP next hop entries will be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If an IP address and IP mask are not specified, the entire DVMRP Next Hop table is displayed.

### Examples

```
-> show ip dvmrp nexthop 172.22.2.115 255.255.255.0
```

Src Address/Mask	Interface Name	Vlan	Hop Type
-----+-----+-----			
172.22.2.115/24	vlan-22	22	branch

#### *output definitions*

---

<b>Src Address/Mask</b>	The 32-bit source IP address, along with the mask length, shown in bits. The source IP address and mask are separated by a slash (/).
<b>Interface Name</b>	The name of the interface.
<b>Vlan</b>	The associated VLAN ID.
<b>Hop Type</b>	The hop type of the associated entry. Options include <b>leaf</b> or <b>branch</b> . If the next hop VLAN has a DVMRP neighbor attached to it, the hop type will be displayed as <b>branch</b> .

---

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

## **MIB Objects**

dvmrpRouteNextHopTable  
    dvmrpRouteNextHopSource  
    dvmrpRouteNextHopSourceMask  
    dvmrpRouteNextHopIfIndex  
    dvmrpRouteNextHopType

---

## show ip dvmrp prune

Displays DVMRP prune entries that have been sent upstream.

**show ip dvmrp prune** [*group\_address source\_address source\_mask*]

---

### Syntax Definitions

<i>group_address</i>	Specifies a pruned group address.
<i>source_address</i>	Specifies a source IP address.
<i>source_mask</i>	Specifies a source IP mask.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If a group address, source address, and source mask are not specified, the entire Prune table is displayed.

### Examples

```
-> show ip dvmrp prune
```

Group Address	Source Address/Mask	Expires
-----+-----+-----		
224.0.0.4	143.209.92.14/24	00h:00m:30s

#### output definitions

---

<b>Group Address</b>	The 32-bit multicast group address.
<b>Source Address/Mask</b>	The 32-bit source IP address, along with the mask length, shown in bits. The source IP address and mask are separated by a slash (/).
<b>Expires</b>	The amount of time remaining before the current prune state expires, displayed in hours, minutes, and seconds.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

[ip dvmrp prune-lifetime](#)

Indicates the length of time a prune will be in effect.

[ip dvmrp prune-timeout](#)

Configures the prune packet retransmission value.

## MIB Objects

dvmrpPruneTable

    dvmrpPruneGroup

    dvmrpPruneSource

    dvmrpPruneSourceMask

    dvmrpPruneExpiryTime

---

## show ip dvmrp route

Displays the DVMRP routes that are being advertised to other routers.

**show ip dvmrp route** [*ip\_address ip\_mask*]

---

### Syntax Definitions

*ip\_address*                      The 32-bit source IP address representing route(s).

*ip\_mask*                            A 32-bit number that determines the subnet mask for the IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If a source IP address and IP mask are not specified, the entire DVMRP route table is displayed.

### Examples

-> show ip dvmrp route

Legends:    Flags:    L = Local, R = Remote, F = Flash, H = Holddown, I = Invalid

Address/Mask	Gateway	Metric	Age	Expires	Flags
11.0.0.0/8	55.0.0.5	2	00h:13m:14s	02m:07s	R
22.0.0.0/8	44.0.0.4	2	00h:33m:14s	02m:15s	R
44.0.0.0/8	-	1	05h:24m:59s	-	L
55.0.0.0/8	-	1	05h:24m:59s	-	L
66.0.0.0/8	44.0.0.4	2	00h:03m:11s	02m:15s	R

### output definitions

---

<b>Address/Mask</b>	The 32-bit IP address for the router interface, along with the corresponding subnet mask. The interface's subnet mask is shown using the CIDR prefix length: 255.0.0.0 equals /8; 255.255.0.0 equals /16; 255.255.255.0 equals /24, etc.
<b>Gateway</b>	The corresponding 32-bit gateway address. Because it is not applicable, no gateway address is displayed for local routes.
<b>Metric</b>	The current metric value. A metric is essentially used to determine the most cost-effective way to pass data through the network. The higher the metric value, the higher the cost.
<b>Age</b>	The current age of the DVMRP route, displayed in hours, minutes, and seconds.



*output definitions (continued)*

---

<b>Expires</b>	The expiration time for the corresponding route. Because it is not applicable, no expiration time is displayed for local routes.
<b>Flags</b>	The flag type of a particular DVMRP route. Options include <b>L</b> (Local), <b>R</b> (Remote), <b>F</b> (Flash), <b>H</b> (Holddown), and <b>I</b> (Invalid).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">ip dvmrp report-interval</a>	Configures the route report interval.
<a href="#">ip dvmrp route-holddown</a>	Configures the time during which DVMRP routes are kept in a hold down state.
<a href="#">ip dvmrp route-timeout</a>	Configures the route expiration timeout value.

**MIB Objects**

```
dvmrpRouteTable
  dvmrpRouteSource
  dvmrpRouteSourceMask
  dvmrpRouteMetric
  dvmrpRouteExpiryTime
  dvmrpRouteUpTime
```

---

## show ip dvmrp tunnel

Displays DVMRP tunnel entries.

**show ip dvmrp tunnel** [*local\_address remote\_address*]

---

### Syntax Definitions

*local\_address*

The IP address of a particular local router interface. The local router interface IP address is an identifier for the local end of the DVMRP tunnel.

*remote\_mask*

The IP address of a particular remote router interface. The remote router interface IP address is an identifier for the remote end of the DVMRP tunnel.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If optional local and remote IP address information is not specified, entire DVMRP Tunnels table is displayed.
- The local IP address of the tunnel must match the IP address of an existing DVMRP-enabled IP interface.

### Examples

-> show ip dvmrp tunnel

Interface Name	Local Address	Remote Address	TTL	Status
vlan-2	143.209.92.203	12.0.0.1	255	Enabled

#### *output definitions*

---

<b>Interface Name</b>	The interface name. This field is only displayed on OmniSwitch 6850E switch.
<b>Local Address</b>	The 32-bit local IP address for the DVMRP tunnel.
<b>Remote Address</b>	The 32-bit remote IP address for the DVMRP tunnel.

*output definitions (continued)*

---

<b>TTL</b>	The current Time to Live (TTL) value. A value of 0 indicates that the value is copied from the payload's header. Values may range from 0–255.
<b>Status</b>	The corresponding interface status. Options include <b>Enabled</b> or <b>Disabled</b> . If the interface specified by the local address has been configured and is operationally enabled, the status is <b>Enabled</b> . If the interface is down, the value displayed is <b>Disabled</b> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">ip dvmrp tunnel</a>	Adds or deletes a DVMRP tunnel.
<a href="#">ip dvmrp tunnel ttl</a>	Configures the TTL value for the tunnel defined for the specified local address and remote address.

**MIB Objects**

```
tunnelIfTable
  tunnelIfLocalAddress
  tunnelIfRemoteAddress
  tunnelIfHopLimit
dvmrpInterfaceGroup
  dvmrpInterfaceStatus
```

---

## show ip dvmrp debug

Displays the current level of debugging for DVMRP protocol on the switch, as well as the current status for all debugging types.

**show ip dvmrp debug**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The administrative debugging status for message types displayed in the table are determined by the [ip dvmrp debug-type](#) command on page 29-23.
- To configure debug levels, refer to the [ip dvmrp debug-level](#) command on page 29-22.

### Examples

```
-> show ip dvmrp debug
```

```
Debug Level = 1,
Error       = on,
Flash      = off,
Grafts     = off,
IGMP       = off,
IPMRM      = off,
Init       = off,
MIP        = off,
Misc       = off
Nbr        = on,
Probes     = off,
Prunes     = off,
Routes     = on,
Time       = off,
TM         = off,
```

#### *output definitions*

---

<b>Debug Level</b>	The current debug level value. For information on setting this parameter, see the <a href="#">ip dvmrp debug-level</a> command on page 29-22.
<b>error</b>	The current debugging status for DVMRP Error messages. Options include <b>on</b> or <b>off</b> .
<b>Flash</b>	The current debugging status for DVMRP Flash processing. Options include <b>on</b> or <b>off</b> .

*output definitions (continued)*

---

<b>Grafts</b>	The current debugging status for DVMRP Graft processing. Options include <b>on</b> or <b>off</b> .
<b>IGMP</b>	The current debugging status for DVMRP Internet Group Management Protocol (IGMP) packet processing. Options include <b>on</b> or <b>off</b> .
<b>IPMRM</b>	The current debugging status for DVMRP IP Multicast Routing Manager (IPMRM) interaction. Options include <b>on</b> or <b>off</b> .
<b>Init</b>	The current debugging status for DVMRP Initialization. Options include <b>on</b> or <b>off</b> .
<b>MIP</b>	The current debugging status for DVMRP MIP (Management Internal Protocol) processing. Includes CLI and SNMP. Options include <b>on</b> or <b>off</b> .
<b>Misc</b>	The current status of miscellaneous DVMRP debugging. Options include <b>on</b> or <b>off</b> .
<b>Nbr</b>	The current debugging status for DVMRP Neighbor processing. Options include <b>on</b> or <b>off</b> .
<b>Probes</b>	The current debugging status for DVMRP Probe processing. Options include <b>on</b> or <b>off</b> .
<b>Prunes</b>	The current debugging status for DVMRP Prune processing. Options include <b>on</b> or <b>off</b> .
<b>Routes</b>	The current debugging status for DVMRP Route processing. Options include <b>on</b> or <b>off</b> .
<b>Time</b>	The current debugging status for DVMRP Timer processing. Options include <b>on</b> or <b>off</b> .
<b>TM</b>	The current debugging status for DVMRP Task Manager interaction. Options include <b>on</b> or <b>off</b> .

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[ip dvmrp debug-level](#)

Defines the level of debugging for DVMRP protocol on the switch.

[ip dvmrp debug-type](#)

Enables or disables DVMRP debugging for a specified message type, or for all message types.

## MIB Objects

alaDvmrpDebugMIBGroup

  alaDvmrpDebugLevel

  alaDvmrpDebugError

  alaDvmrpDebugFlash

  alaDvmrpDebugGrafts

  alaDvmrpDebugIcmp

  alaDvmrpDebugIpirm

  alaDvmrpDebugInit

  alaDvmrpDebugMip

  alaDvmrpDebugMisc

  alaDvmrpDebugNbr

  alaDvmrpDebugProbes

  alaDvmrpDebugPrunes

  alaDvmrpDebugRoutes

  alaDvmrpDebugTime

  alaDvmrpDebugTm

---

# 30 PIM Commands

Protocol-Independent Multicast (PIM) is an IP multicast routing protocol that uses routing information provided by unicast routing protocols, such as RIP and OSPF. Note that PIM is not dependent on any particular unicast routing protocol. Sparse mode PIM (PIM-SM) contrasts with flood-and-prune dense mode multicast protocols, such as DVMRP and PIM Dense Mode (PIM-DM), in that multicast forwarding in PIM-SM is initiated only via specific requests.

Downstream routers must explicitly join PIM-SM distribution trees to receive multicast streams on behalf of directly connected receivers or other downstream PIM-SM routers. This paradigm of receiver-initiated forwarding makes PIM ideal for network environments where receiver groups are thinly populated and bandwidth conservation is a concern, such as in wide area networks (WANs). PIM-DM uses RPF (Reverse Path Forwarding) to prevent looping of multicast datagrams while flooding. If some areas of the network do not have group members, PIM-DM will prune the forwarding branch by instantiating the prune state.

PIM-DM differs from PIM-SM in two essential ways:

- There are no periodic joins transmitted, only explicitly triggered prunes and grafts.
- There is no Rendezvous Point (RP). This is particularly important in networks that cannot tolerate a single point of failure.

Alcatel-Lucent implementation of PIM can also be configured in an IPv6 environment.

MIB information for the PIM commands is as follows:

*Filename:* AlcatelIND1Pim\_mib.htm  
*Module:* ALCATEL-IND1-PIM-MIB

*Filename:* IETF\_PIM\_BSR.mib  
*Module:* PIM-BSR-MIB

*Filename:* IETF\_PIM\_STD.mib  
*Module:* PIM-STD-MIB

---

A summary of the available commands is listed here:

---

<b>ip load pim</b>	<b>ipv6 pim sparse status</b>
<b>ip pim sparse status</b>	<b>ipv6 pim dense status</b>
<b>ip pim dense status</b>	<b>ipv6 pim ssm group</b>
<b>ip pim ssm group</b>	<b>ipv6 pim dense group</b>
<b>ip pim dense group</b>	<b>ipv6 pim cbsr</b>
<b>ip pim cbsr</b>	<b>ipv6 pim static-rp</b>
<b>ip pim static-rp</b>	<b>ipv6 pim candidate-rp</b>
<b>ip pim candidate-rp</b>	<b>ipv6 pim rp-switchover</b>
<b>ip pim rp-threshold</b>	<b>ipv6 pim spt status</b>
<b>ip pim keepalive-period</b>	<b>ipv6 pim interface</b>
<b>ip pim max-rps</b>	<b>show ipv6 pim sparse</b>
<b>ip pim probe-time</b>	<b>show ipv6 pim dense</b>
<b>ip pim register checksum</b>	<b>show ipv6 pim ssm group</b>
<b>ip pim register-suppress-timeout</b>	<b>show ipv6 pim dense group</b>
<b>ip pim spt status</b>	<b>show ipv6 pim interface</b>
<b>ip pim state-refresh-interval</b>	<b>show ipv6 pim neighbor</b>
<b>ip pim state-refresh-limit</b>	<b>show ipv6 pim static-rp</b>
<b>ip pim state-refresh-ttl</b>	<b>show ipv6 pim group-map</b>
<b>ip pim interface</b>	<b>show ipv6 pim candidate-rp</b>
<b>ip pim neighbor-loss-notification-period</b>	<b>show ipv6 pim cbsr</b>
<b>ip pim invalid-register-notification-period</b>	<b>show ipv6 pim bsr</b>
<b>ip pim invalid-joinprune-notification-period</b>	<b>show ipv6 pim groute</b>
<b>ip pim rp-mapping-notification-period</b>	<b>show ipv6 pim sgroute</b>
<b>ip pim interface-election-notification-period</b>	
<b>show ip pim sparse</b>	
<b>show ip pim dense</b>	
<b>show ip pim ssm group</b>	
<b>show ip pim dense group</b>	
<b>show ip pim neighbor</b>	
<b>show ip pim candidate-rp</b>	
<b>show ip pim group-map</b>	
<b>show ip pim interface</b>	
<b>show ip pim static-rp</b>	
<b>show ip pim cbsr</b>	
<b>show ip pim bsr</b>	
<b>show ip pim notifications</b>	
<b>show ip pim groute</b>	
<b>show ip pim sgroute</b>	

---



## ip load pim

Dynamically loads PIM to memory.

**ip load pim**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command must be executed before PIM can run on the switch.
- This command is supported in both IPv4 and IPv6 PIM.
- The advanced routing image must be loaded to flash before the feature will start to work on the switch.

### Examples

```
-> ip load pim
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

<b>ip pim sparse status</b>	Globally enables or disables the PIM-SM protocol on the switch.
<b>show ip pim sparse</b>	Displays the status of the various global parameters for the PIM sparse mode.
<b>ip pim dense status</b>	Globally enables or disables PIM-DM protocol on the switch.
<b>show ip pim dense</b>	Displays the status of the various global parameters for the PIM Dense mode.
<b>ipv6 pim sparse status</b>	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
<b>show ipv6 pim sparse</b>	Displays the status of the various global parameters for the IPv6 PIM sparse mode.
<b>ipv6 pim dense status</b>	Enables or disables the IPv6 PIM-DM (dense mode) globally for IPv6.
<b>show ipv6 pim dense</b>	Displays the status of the various global parameters for the IPv6 PIM dense mode.

## MIB Objects

alaDrcTmConfig  
alaDrcTmIPpimStatus

---

## ip pim sparse status

Globally enables or disables PIM-SM protocol on the switch.

`ip pim sparse status {enable | disable}`

---

### Syntax Definitions

<b>enable</b>	Globally enables PIM-SM on the switch.
<b>disable</b>	Globally disables PIM-SM on the switch.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command must be set to **enable** before PIM-SM can run on the switch. In addition, the **ip load pim** command must be executed. Refer to [page 30-3](#) for more information.
- The advanced routing image must be loaded to flash before the feature will start to work on the switch.

### Examples

```
-> ip pim sparse status enable
-> ip pim sparse status disable
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

<a href="#">ip pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ip load pim</a>	Dynamically loads PIM to memory.
<a href="#">show ip pim sparse</a>	Displays the status of the various global parameters for the PIM sparse mode.

### MIB Objects

```
alaPimsmGlobalConfig
  alaPimsmAdminStatus
```

---

## ip pim dense status

Globally enables or disables PIM-DM protocol on the switch.

**ip pim dense status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Globally enables PIM-DM on the switch.
<b>disable</b>	Globally disables PIM-DM on the switch.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command must be set to **enable** before PIM-DM can run on the switch. In addition, the **ip load pim** command must be executed. Refer to [page 30-3](#) for more information.
- The advanced routing image must be loaded to flash before the feature will start to work on the switch.

### Examples

```
-> ip pim dense status enable
-> ip pim dense status disable
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

<a href="#">ip pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ip load pim</a>	Dynamically loads PIM to memory.
<a href="#">show ip pim dense</a>	Displays the status of the various global parameters for the PIM dense mode.

### MIB Objects

```
alaPimdmGlobalConfig
  alaPimdmAdminStatus
```

---

## ip pim ssm group

Statically maps the specified IP multicast group(s) to the PIM Source Specific Multicast mode (SSM).

**ip pim ssm group** *group\_address/prefix\_length* [[**no**] **override**] [**priority** *priority*]

**no ip pim ssm group** *group\_address/prefix\_length*

---

### Syntax Definitions

<i>group_address</i>	Specifies a 32-bit group address.
<i>/prefix_length</i>	Specifies the prefix length of the multicast group.
<b>override</b>	Specifies the static SSM mode mapping configuration to override the dynamically learned group mapping information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for this static SSM mode configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static configuration of a SSM mode group mapping.
- The PIM Source-Specific Multicast (SSM) mode for the default SSM address range (232.0.0.0 through 232.255.255.255) reserved by the Internet Assigned Numbers Authority is not enabled automatically and needs to be configured manually to support SSM.
- You can also map additional multicast address ranges for the SSM group using this command. However, the multicast groups in the reserved address range can be mapped only to the SSM mode.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.
- Specifying the priority value obsoletes the **override** option.
- Note that once the priority option has been defined, a value of 65535 can be used to un-set the priority

### Examples

```
-> ip pim ssm group 224.0.0.0/4 priority 50
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<b>show ip pim sparse</b>	Displays the status of the various global parameters for the PIM sparse mode.
<b>show ip pim ssm group</b>	Displays the static configuration of multicast group mappings for the PIM-Source Specific Multicast (SSM) mode.
<b>show ip pim group-map</b>	Displays the PIM group mapping table.

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPRowStatus
```

---

## ip pim dense group

Statically maps the specified IP multicast group(s) to the PIM Dense mode (DM).

**ip pim dense group** *group\_address/prefix\_length* [[**no**] **override**] [**priority** *priority*]

**no ip pim dense group** *group\_address/prefix\_length*

---

### Syntax Definitions

<i>group_address</i>	Specifies a 32-bit group address.
<i>/prefix_length</i>	Specifies the prefix length of the multicast group.
<b>override</b>	Specifies this static Dense mode mapping configuration to override the dynamically learned group mapping information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for this static configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static configuration of a dense mode group mapping.
- This command specifies the mode as Dense (PIM-DM) for the specified multicast group address.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range
- Specifying the priority value obsoletes the **override** option and once the priority option has been defined, a value of 65535 can be used to un-set the priority.

### Examples

```
-> ip pim dense group 224.0.0.0/4 priority 50
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

- |                                |                                                                                        |
|--------------------------------|----------------------------------------------------------------------------------------|
| <b>show ip pim dense</b>       | Displays the status of the various global parameters for the PIM dense mode.           |
| <b>show ip pim dense group</b> | Displays the static configuration of multicast group mappings for PIM-Dense Mode (DM). |
| <b>show ip pim group-map</b>   | Displays the PIM group mapping table.                                                  |

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPRowStatus
```

---



## ip pim cbsr

Configures the local router as the Candidate-BSR for the PIM domain.

**ip pim cbsr** *ip\_address* [**priority** *priority*] [**mask-length** *bits*]

**no ip pim cbsr** *ip\_address*

---

### Syntax Definitions

<i>ip_address</i>	Specifies the 32-bit address that the local router uses to advertise itself as a Candidate-BSR.
<i>priority</i>	Specifies the priority value of the local router as a Candidate-BSR. The higher the value, the higher the priority. Values may range from 0 to 255.
<i>bits</i>	Specifies a 32-bit mask length that is advertised in the Bootstrap messages (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for a multicast group). Values may range from 1 to 32.

### Defaults

---

parameter	default
<i>priority</i>	64
<i>bits</i>	30

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the local routers candidature as the BSR.
- This command is supported only in the sparse mode.
- The information configured using this command is used in the Bootstrap messages.
- Candidate-BSRs also avoid a single point of failure in a PIM domain.

### Examples

```
-> ip pim cbsr 50.1.1.1 priority 100 mask-length 4
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### `show ip pim cbsr`

Displays the Candidate-BSR information that is used in the Bootstrap messages.

## MIB Objects

```
alaPimBSrCandidateBSRTable  
  alaPimBsrCandidateBSRAddress  
  alaPimBsrCandidateBSRPriority  
  alaPimBsrCandidateBSRHashMaskLength  
  alaPimBsrCandidateBSRRowStatus
```

---

## ip pim static-rp

Adds, modifies, or deletes a static RP for a group (“modifies” applies only to the RP address, since the table is indexed from group address and mask parameters).

```
ip pim static-rp group_address/prefix_length rp_address [[no] override] [priority priority]
```

```
no ip pim static-rp group_address/prefix_length rp_address
```

---

### Syntax Definitions

<i>group_address</i>	Specifies a 32-bit group address.
<i>/prefix_length</i>	Specifies the prefix length of the multicast group.
<i>rp_address</i>	Specifies a 32-bit Rendezvous Point (RP) address.
<b>override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for the static RP configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a static RP configuration.
- Specifying the priority value obsoletes the **override** option.
- The PIM Source-Specific Multicast (SSM) mode for the default SSM address range (232.0.0.0 through 232.255.255.255) reserved by the Internet Assigned Numbers Authority is not enabled automatically and must be configured manually to support SSM. You can also map additional multicast address ranges for the SSM group. However, the multicast groups in the reserved address range can be mapped only to the SSM mode.
- This command is supported only in the sparse mode.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range
- Note that once the priority option has been defined, a value of 65535 can be used to un-set the priority
- To view current static RP configuration settings, use the [show ip pim static-rp](#) command.

### Examples

```
-> ip pim static-rp 224.0.0.0/4 10.1.1.1 priority 10
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **override** and **priority** options added.

## Related Commands

<b>show ip pim sparse</b>	Displays the status of the various global parameters for the PIM sparse mode.
<b>show ip pim static-rp</b>	Displays the PIM static RP table for ASM mode, which includes group address/prefix length, the static Rendezvous Point (RP) address, and the current status of static RP configuration (i.e., enabled or disabled).
<b>show ip pim group-map</b>	Displays the PIM group mapping table.

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPRPAddress  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPRowStatus
```

---

## ip pim candidate-rp

Configures the local router as the Candidate-Rendezvous Point (C-RP) for a specified IP multicast group(s).

**ip pim candidate-rp** *rp\_address* *group-address/prefix\_length* [**priority** *priority*] [**interval** *seconds*]

**no ip pim candidate-rp** *rp\_address* *group-address/prefix\_length*

---

### Syntax Definitions

<i>rp_address</i>	Specifies a 32-bit address that will be advertised as a Candidate-RP.
<i>group_address</i>	Specifies a 32-bit group address for which the local router will advertise itself as a Candidate-RP.
<i>/prefix_length</i>	Specifies the prefix length of the multicast group.
<i>priority</i>	Specifies the priority value of the Candidate-RP. Values may range from 0 to 192. The lower the value, the higher the priority.
<i>seconds</i>	Specifies the interval at which the C-RP advertisements are sent to the Bootstrap router, in seconds. Values may range from 1 to 300.

### Defaults

parameter	default
<i>priority</i>	192
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the association of the device as a C-RP for a particular multicast group.
- The specified *rp\_address* must belong to a PIM enabled interface.
- Only one RP address is supported per switch. If multiple candidate-RP entries are defined, they must specify the same *rp-address*.
- The priority and the interval values are used by the switch. If they are modified for one entry, the switch will modify these for all the candidate-rp entries.
- This command is supported only in the sparse mode.

### Examples

```
-> ip pim candidate-rp 50.1.1.1 224.0.0.0/4 priority 100 interval 100
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ip pim candidate-rp**      Displays the IP multicast groups for which the local router will advertise itself as a Candidate-RP.

## MIB Objects

```
alaPimBsrCandidateRPTable
  alaPimBsrCandidateRPAddress
  alaPimBsrCandidateRPGroupAddress
  alaPimBsrCandidateRPGroupPrefixLength
  alaPimBsrCandidateRPPriority
  alaPimBsrCandidateRPAdvInterval
  alaPimBsrCandidateRPRowStatus
```

---

## ip pim rp-threshold

Specifies the data rate, in bits per second (bps), at which the Rendezvous Point (RP) will attempt to switch to native forwarding by issuing a source-specific (S, G) Join message toward the source.

**ip pim rp-threshold** *bps*

---

### Syntax Definitions

*bps* The data rate value, in bits per second, at which the RP will attempt to switch to native forwarding (0–2147483647).

### Defaults

parameter	default
<i>bps</i>	1

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the sparse mode.
- To disable the RP threshold feature, specify a bits per second value of 0. When the RP threshold is disabled, the RP will never initiate an (S, G) Join message toward the source; the packets will be register-encapsulated to the RP. It will issue a (S, G) Join message upon receiving the first data packet, if its bits per second value is 1.
- To view the current RP threshold, use the [show ip pim sparse](#) command.

### Examples

```
-> ip pim rp-threshold 131072
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[show ip pim sparse](#) Displays the global parameters for PIM sparse mode.

### MIB Objects

alaPimsmGlobalConfig  
  alaPimsmRPThreshold

---

## ip pim keepalive-period

Configures the period during which the (S,G) Join state will be maintained in the absence of (S,G) Join messages or explicit (S,G) local membership.

**ip pim keepalive-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the timeout value, in seconds (0-65535).

### Defaults

parameter	default
<i>seconds</i>	210

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This timer is called the Keepalive Period in the PIM-SM specification and the Source Lifetime in the PIM-DM specification.
- This command includes support for both IPv4 PIM and IPv6 PIM.

### Examples

```
-> ip pim keepalive-period 500
```

### Release History

Release 6.3.1; command was introduced.



## Related Commands

<b>show ip pim sparse</b>	Displays the status of the various global parameters for the PIM sparse mode.
<b>show ip pim dense</b>	Displays the status of the various global parameters for the PIM dense mode.
<b>show ipv6 pim sparse</b>	Displays the status of the various global parameters for the IPv6 PIM sparse mode.
<b>show ipv6 pim dense</b>	Displays the status of the various global parameters for the IPv6 PIM dense mode.

## MIB Objects

alaPim  
alaPimKeepalivePeriod

---

## ip pim max-rps

Configures the maximum number of C-RP routers allowed in the PIM-SM domain.

**ip pim max-rps** *number*

---

### Syntax Definitions

*number* The maximum number of C-RP routers allowed in the PIM-SM domain (1–100).

### Defaults

parameter	default
<i>number</i>	32

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the sparse mode.
- This command is used with both IPv4 and IPv6 PIM-SM. The PIM-SM must be disabled before changing **max-rps** value.
- PIM-SM must be globally disabled before changing the maximum number of C-RP routers. To globally disable PIM-SM, refer to the [ip pim sparse status command on page 30-5](#).

### Examples

```
-> ip pim max-rps 32
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

<b>ip pim sparse status</b>	Globally enables or disables the PIM-SM protocol on the switch.
<b>ipv6 pim sparse status</b>	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
<b>show ip pim sparse</b>	Displays the status of the various global parameters for the PIM sparse mode.
<b>show ipv6 pim sparse</b>	Displays the status of the various global parameters for the IPv6 PIM sparse mode.

## MIB Objects

alaPimsmGlobalConfig  
alaPimsmMaxRPs

---



## ip pim register checksum

Configures the application of the checksum function on sent and received register messages in the domain.

**ip pim register checksum {header | full}**

---

### Syntax Definitions

<b>header</b>	Specifies that the checksum for registers is done only on the PIM header.
<b>full</b>	Specifies that the checksum is done over the entire PIM register message.

### Defaults

---

parameter	default
header   full	header

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The **full** option may be required for compatibility with older implementations of PIM-SM v2.
- This parameter setting must be consistent across the PIM domain.
- This command is supported only in the sparse mode.

### Examples

```
-> ip pim register checksum header
-> ip pim register checksum full
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[show ip pim sparse](#) Displays the status of the various global parameters for the PIM sparse mode.

### MIB Objects

```
alaPimsmGlobalConfig
  alaPimsmOldRegisterMessageSupport
```

---



## ip pim spt status

Enables or disables last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). If enabled, last hop DR switching to the SPT begins once the first data packet is received.

**ip pim spt status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables last hop DR switching to the SPT.
<b>disable</b>	Disables last hop DR switching to the SPT.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the sparse mode.
- As mentioned above, if SPT status is enabled, last hop DR switching to the SPT begins once the first data packet is received.
- To view whether SPT status is currently enabled (default) or disabled, use the [show ip pim sparse](#) command.

### Examples

```
-> ip pim spt status enable
-> ip pim spt status disable
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[show ip pim sparse](#) Displays the status of the various global parameters for the PIM sparse mode.

### MIB Objects

```
alaPimsmGlobalConfig
  alaPimsmAdminSPTConfig
```

---

## ip pim state-refresh-interval

Sets the interval between successive State Refresh messages originated by a router.

**ip pim state-refresh-interval** *seconds*

---

### Syntax Definitions

*seconds*                      The interval between successive State Refresh messages, in seconds. Values may range from 0 to 65535.

### Defaults

parameter	default
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the dense mode.
- This value is used with both IPv4 PIM-DM and IPv6 PIM-DM.

### Examples

```
-> ip pim state-refresh-interval 80
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

<a href="#">ip pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ipv6 pim interface</a>	Enables IPv6 PIM and configures the statistics.
<a href="#">show ip pim dense</a>	Displays the status of the various global parameters for the PIM dense mode.
<a href="#">show ipv6 pim dense</a>	Displays the status of the various global parameters for the IPv6 PIM dense mode.

### MIB Objects

alaPim  
alaPimRefreshInterval

---



## ip pim state-refresh-limit

Sets the limit at which a router will not forward successive State Refresh messages if they are received at less than the interval.

**ip pim state-refresh- limit** *ticks*

---

### Syntax Definitions

*ticks*

The limit at which the received State Refresh messages will not be forwarded, if the messages are received at less than the interval. Values may range from 0 to 65535.

### Defaults

parameter	default
<i>ticks</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the dense mode.
- This value is used with both IPv4 and IPv6.

### Examples

```
-> ip pim state-refresh-limit 2
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

<a href="#">ip pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ipv6 pim interface</a>	Enables IPv6 PIM and configures the statistics.
<a href="#">show ip pim dense</a>	Displays the status of the various global parameters for the PIM dense mode.
<a href="#">show ipv6 pim dense</a>	Displays the status of the various global parameters for the IPv6 PIM dense mode.

### MIB Objects

```
alaPimdmGlobalConfig  
alaPimdmStateRefreshLimitInterval
```

---



## ip pim interface

Enables PIM and configures PIM-related statistics such as hello-interval, triggered-hello, hello-holdtime, joinprune, prune-delay, override-interval, dr-priority, stub interface, prune limit interval, and graft retry interval on the interface.

**ip pim interface** *if\_name* [**hello-interval** *seconds*] [**triggered-hello** *seconds*] [**joinprune-interval** *seconds*] [**hello-holdtime** *seconds*] [**joinprune-holdtime** *seconds*] [**prune-delay** *milliseconds*] [**override-interval** *milliseconds*] [**dr-priority** *priority*] [[**no**] **stub**] [**prune-limit-interval** *seconds*] [**graft-retry-interval** *seconds*]

**no ip pim interface** *if\_name*

---

### Syntax Definitions

<i>if_name</i>	The interface name on which PIM is being enabled or disabled.
<b>hello-interval</b> <i>seconds</i>	The frequency at which PIM Hello messages are transmitted on a specified interface, in seconds. Values may range from 0 to 18000.
<b>triggered-hello</b> <i>seconds</i>	Specifies the maximum time, in seconds, before a triggered PIM Hello message is sent on this interface. Values may range from 0 to 60.
<b>joinprune-interval</b> <i>seconds</i>	The frequency at which periodic Join/Prune messages are sent on this interface, in seconds. Values may range from 0 to 18000.
<b>hello-holdtime</b> <i>seconds</i>	Specifies the value set in the Holdtime field of PIM Hello messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>joinprune-holdtime</b> <i>seconds</i>	Specifies the value inserted into the Holdtime field of the Join/Prune messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>prune-delay</b> <i>milliseconds</i>	Specifies the value of the expected propagation delay between PIM routers on this network, inserted into the LAN prune-delay option of the Hello messages sent on this interface, in milliseconds. Values may range from 0 to 32767.
<b>override-interval</b> <i>milliseconds</i>	Specifies the value inserted into the Override Interval field of the LAN prune-delay option of the Hello messages sent on this interface, in <i>milliseconds</i> . Values may range from 0 to 65535.
<b>dr-priority</b> <i>priority</i>	Specifies the Designated Router priority inserted into the DR priority option on a specified interface. The DR priority option value can range between 1 to 192. A higher numeric value denotes a higher priority.
<b>prune-limit-interval</b> <i>seconds</i>	Specifies the minimum interval that must elapse between two successive prune messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>graft-retry-interval</b> <i>seconds</i>	Specifies the minimum interval that must elapse between two successive graft messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>stub</b>	Specifies the interface not to send any PIM packets via this interface, and to ignore received PIM packets.

## Defaults

parameter	default
<b>hello-interval</b> <i>seconds</i>	30
<b>triggered-hello</b> <i>seconds</i>	5
<b>joinprune-interval</b> <i>seconds</i>	60
<b>hello-holdtime</b> <i>seconds</i>	105
<b>joinprune-holdtime</b> <i>seconds</i>	210
<b>prune-delay</b> <i>milliseconds</i>	500
<b>override-interval</b> <i>milliseconds</i>	2500
<b>dr-priority</b> <i>priority</i>	1
<b>prune-limit-interval</b> <i>seconds</i>	60
<b>graft-retry-interval</b> <i>seconds</i>	3
<b>stub</b>	Disabled.

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete a PIM interface.
- PIM must be enabled globally on the switch before it runs on the interface. To globally enable or disable PIM-SM on the switch, refer to the [ip pim sparse status command on page 30-5](#). To enable or disable PIM-DM on the switch, refer to the [ip pim dense status command on page 30-6](#).
- Specifying zero for the hello-interval represents an infinite time, in which case periodic PIM Hello messages are not sent.
- Specifying zero for the joinprune-interval represents an infinite time, in which case periodic PIM Join/Prune messages are not sent.
- Specifying the value of 65535 for hello-holdtime represents an infinite time. If a PIM router gets Hello packet from a neighbor with its hello-holdtime value as infinite time, then the PIM router will not time out the sender(neighbor). It is recommended that you should use a hello-holdtime interval that is 3.5 times the value of the hello-interval, or 65535 seconds if the hello-interval is set to zero.
- Specifying the value of 65535 for joinprune-holdtime represents an infinite time. The receipt of Join/Prune messages with its joinprune-holdtime value as infinite time, then this specifies an infinite hold-time for the particular join/prune message. It is recommended that you use a joinprune-holdtime interval that is 3.5 times the value of the Join/Prune interval defined for the interface, or 65535 seconds if the joinprune-interval is set to zero.
- The interface configured as a **stub** will not send any PIM packets via that interface, and any received PIM packets are also ignored. By default, a PIM interface is not set to be a stub one.
- The **graft-retry-interval** and **prune-limit-interval** options can be used only with the PIM-DM mode.

## Examples

```
-> ip pim interface vlan-2 hello-interval 100 triggered-hello 10 joinprune-inter-  
val 100 hello-holdtime 350 joinprune-holdtime 400  
-> no ip pim interface vlan-2
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **mode**, **cbsr-preference**, **genid**, **max-graft-retries**, and **sr-ttl-threshold** options removed.

## Related Command

### [show ip pim interface](#)

Displays detailed PIM settings for a specific interface. In general, it displays PIM settings for all the interfaces if no argument is specified.

## MIB Objects

```
alaPimInterfaceTable  
  alaPimInterfaceIfIndex  
  alaPimInterfaceStatus  
  alaPimInterfaceHelloInterval  
  alaPimInterfaceTrigHelloInterval  
  alaPimInterfaceJoinPruneInterval  
  alaPimInterfaceHelloHoldtime  
  alaPimInterfaceJoinPruneHoldtime  
  alaPimInterfacePropagationDelay  
  alaPimInterfaceOverrideInterval  
  alaPimInterfaceDRPriority  
  alaPimInterfaceStubInterface  
  alaPimInterfacePruneLimitInterval  
  alaPimInterfaceGraftRetryInterval
```

---

## ip pim neighbor-loss-notification-period

Specifies the minimum time that must elapse between PIM neighbor loss notifications originated by the router.

**ip pim neighbor-loss-notification-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the time value that must elapse between neighbor loss notifications, in seconds (0–65535).

### Defaults

parameter	default
<i>seconds</i>	0

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The maximum value of 65535 represents an infinite time. The PIM neighbor loss notifications are never sent in case of infinite time.
- This command is used with both IPv4 and IPv6 PIM.

### Examples

```
-> ip pim neighbor-loss-notification-period 100
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ip pim notifications](#) Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

### MIB Objects

alaPim  
alaPimNeighborLossNotificationPeriod

---

## ip pim invalid-register-notification-period

Specifies the minimum time that must elapse between the PIM invalid register notifications originated by the router.

**ip pim invalid-register-notification-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the minimum time value that must elapse between invalid register notifications, in seconds (10–65535).

### Defaults

parameter	default
<i>seconds</i>	65535

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of 65535 represents an infinite time. The PIM invalid register notifications are never sent in case of infinite time.
- The non-zero minimum allowed value provides resilience against the propagation of denial-of-service attacks from the data and control planes to the network management plane.
- This value is used with both IPv4 and IPv6 PIM.
- This command is supported only in the sparse mode.

### Examples

```
-> ip pim invalid-register-notification-period 100
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ip pim notifications](#) Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

### MIB Objects

alaPim  
alaPimInvalidRegisterNotificationPeriod

---

## ip pim invalid-joinprune-notification-period

Specifies the minimum time that must elapse between the PIM invalid joinprune notifications originated by the router.

**ip pim invalid-joinprune-notification-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the minimum time value that must elapse between invalid joinprune notifications, in seconds (10–65535).

### Defaults

parameter	default
<i>seconds</i>	65535

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of 65535 represents an infinite time. The PIM invalid joinprune notifications are never sent in case of infinite time.
- The non-zero minimum allowed value provides resilience against the propagation of denial-of-service attacks from the control plane to the network management plane.
- This value is used with both IPv4 and IPv6 PIM.

### Examples

```
-> ip pim invalid-joinprune-notification-period 100
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**show ip pim notifications** Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

### MIB Objects

alaPim  
alaPimInvalidJoinPruneNotificationPeriod

---



## ip pim rp-mapping-notification-period

Specifies the minimum time that must elapse between the PIM RP mapping notifications originated by the router.

**ip pim rp-mapping-notification-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the minimum time value that must elapse between RP mapping notifications, in seconds (0–65535).

### Defaults

parameter	default
<i>seconds</i>	65535

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of 65535 represents an infinite time. The RP mapping notifications are never sent in case of infinite time.
- This value is used with both IPv4 and IPv6 PIM.
- This command is supported only in the sparse mode.

### Examples

```
-> ip pim rp-mapping-notification-period 100
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ip pim notifications](#) Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

### MIB Objects

alaPim  
alaPimRPMappingNotificationPeriod

---

## ip pim interface-election-notification-period

Specifies the minimum time that must elapse between the PIM interface election notifications originated by the router.

**ip pim interface-election-notification-period** *seconds*

---

### Syntax Definitions

*seconds* Specifies the minimum time value that must elapse between interface election notifications, in seconds (0–65535).

### Defaults

parameter	default
<i>seconds</i>	65535

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- The default value of 65535 represents an infinite time. The interface election notifications are never sent in case of infinite time.
- This value is used with both IPv4 and IPv6 PIM.
- This command is supported only in the sparse mode.

### Examples

```
-> ip pim interface-election-notification-period 100
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ip pim notifications](#) Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

### MIB Objects

alaPim  
alaPimInterfaceElectionNotificationPeriod

---

## show ip pim sparse

Displays the status of the various global parameters for the PIM sparse mode.

**show ip pim sparse**

---

### Syntax Definitions

N/A.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip pim sparse
Status                = enabled,
Keepalive Period      = 210,
Max RPs                = 32,
Probe Time            = 5,
Register Checksum     = header,
Register Suppress Timeout = 60,
RP Threshold          = 1,
SPT Status            = enabled,
```

*output definitions*


---

<b>Status</b>	The current global (i.e., switch-wide) status of PIM-SM. Options include <b>enabled</b> and <b>disabled</b> .
<b>Keepalive Period</b>	The duration of the Keepalive timer. The default value is 210.
<b>Max RPs</b>	The maximum number of Rendezvous Points (RPs) allowed in the PIM-SM domain (1–100). The default value is 32.
<b>Probe Time</b>	The amount of time before the Register Suppression timer expires, at which point the Designated Router (DR) sends a Null Register message to the Rendezvous Point (RP). This allows the RP to refresh the Register-Stop. If the Register Suppression timer expires, the DR will resume encapsulating packets from the source to the RP. Values may range from 1 to 300. The default value is 5.
<b>Register Checksum</b>	The current application of the checksum function on register messages in the domain. Options include <b>header</b> and <b>full</b> . The default setting is <b>header</b> .
<b>Register Suppress Timeout</b>	The amount of time, in seconds, the Designated Router (DR) will stop sending registers to the Rendezvous Point (RP) once a Register-Stop is received (1–300). The default value is 60.
<b>RP Threshold</b>	Displays the current RP data rate threshold. This value indicates the rate, in bits per second (bps), at which the Rendezvous Point (RP) will attempt to switch to native forwarding by issuing an (S, G) Join message toward the source. Values may range from 0 to 2147483647. The default value is 1. A value of 0 indicates that the feature is currently disabled.
<b>SPT Status</b>	The current status of last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). Options include <b>enabled</b> and <b>disabled</b> . The default setting is <b>enabled</b> .

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; Keepalive Period field added; BSR Address, BSR Expiry Time, CBSR Address, CBSR Priority, CBSR Mask Length, CRP Address, CRP Hold Time, CRP Expiry Time, CRP Interval, CRP Priority, Data Timeout, and Join/Prune Interval fields removed.

## Related Commands

<b>ip pim sparse status</b>	Globally enables or disables PIM-SM protocol on the switch.
<b>ip pim interface</b>	Enables or disables the PIM protocol on a specific interface.
<b>ip pim keepalive-period</b>	Configures the period during which the (S,G) Join state will be maintained in the absence of (S,G) Join messages or explicit (S,G) local membership.
<b>ip pim max-rps</b>	Configures the maximum number of C-RP routers allowed in the PIM-SM domain.
<b>ip pim probe-time</b>	Configures the amount of time before the Register Suppression timer expires, at which point the Designated Router (DR) sends a Null Register message to the Rendezvous Point (RP). This allows the RP to refresh the Register-Stop. If the Register Suppression timer expires, the DR will resume encapsulating packets from the source to the RP.
<b>ip pim register checksum</b>	Configures the application of the checksum function on sent and received register messages in the domain.
<b>ip pim register-suppress-timeout</b>	Specifies the period during which a Designated Router (DR) stops sending Register-encapsulated packets to the Rendezvous Point (RP) after receiving a Register-Stop message.
<b>ip pim rp-threshold</b>	Specifies the data rate, in bits per second (bps), at which the Rendezvous Point (RP) will attempt to switch to native forwarding by issuing a source-specific (S, G) Join message toward the source.
<b>ip pim spt status</b>	Enables or disables last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). If enabled, last hop DR switching to the SPT begins once the first data packet is received.

## MIB Objects

```
alaPimsmGlobalConfig  
  alaPimsmAdminStatus  
  alaPimKeepalivePeriod  
  alaPimsmMaxRPS  
  alaPimsmProbeTime  
  alaPimsmOldRegisterMessageSupport  
  alaPimRegisterSuppressionTime  
  alaPimsmRPThreshold  
  alaPimsmAdminSPTConfig
```

---

---

## show ip pim dense

Displays the status of the various global parameters for the PIM dense mode.

`show ip pim dense`

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip pim dense
Status                = enabled,
Source Lifetime       = 210,
State Refresh Interval = 60,
State Refresh Limit Interval = 0,
State Refresh TTL     = 16
```

*output definitions*


---

<b>Status</b>	The current global (i.e., switch-wide) status of PIM-DM. Options include <b>enabled</b> and <b>disabled</b> .
<b>Source Lifetime</b>	The duration of the Keepalive or Source Lifetime timer. The default value is 210.
<b>State Refresh Interval</b>	The time-interval, in seconds, between successive State Refresh messages originated by the router. The default value is 60.
<b>State Refresh Limit Interval</b>	Displays the limit at which a router will not forward the State Refresh messages, if they are received at less than the interval.
<b>State Refresh TTL</b>	Displays the TTL to be used in the router's originated State Refresh messages. The default value is 16.

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; **join/prune** field was removed.

**Related Commands**

<b>ip pim dense status</b>	Globally enables or disables PIM-DM protocol on the switch.
<b>ip pim interface</b>	Enables or disables the PIM protocol on a specific interface.
<b>ip pim state-refresh-interval</b>	Sets the interval between successive State Refresh messages originated by a router.
<b>ip pim state-refresh-limit</b>	Sets the limit at which a router will not forward successive State Refresh messages if they are received at less than the interval.
<b>ip pim state-refresh-ttl</b>	Sets the Time to Live to be used in a router's originated State Refresh messages if the data packet's Time to Live is not recorded.
<b>ip pim keepalive-period</b>	Configures the period during which the (S,G) Join state will be maintained in the absence of (S,G) Join messages or explicit (S,G) local membership.

**MIB Objects**

```

alaPimdmGlobalConfig
  alaPimdmAdminStatus
  alaPimKeepalivePeriod
  alaPimRefreshInterval
  alaPimdmStateRefreshLimitInterval
  alaPimdmStateRefreshTimeToLive

```

---

## show ip pim ssm group

Displays the static configuration of multicast group mappings for the PIM-Source Specific Multicast (SSM) mode.

```
show ip pim ssm group
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.
- This command is supported only in the sparse mode.

### Examples

```
-> show ip pim ssm group
Group Address/Pref Length  Mode  Override  Precedence  Status
-----+-----+-----+-----+-----
224.0.0.0/4                ssm    false     none        enabled
```

#### *output definitions*

<b>Group Address/Pref Length</b>	The 32-bit IP address for a multicast group, along with the mask length, shown in bits. The group IP address and mask are separated by a slash (/).
<b>Mode</b>	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
<b>Override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	Specifies the precedence value to be used for this static RP configuration.
<b>Status</b>	Displays whether this entry is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> .

---

### Release History

Release 6.3.1; command was introduced.



## Related Commands

- ip pim ssm group**                      Statically maps the specified IP multicast group(s) to the PIM Source Specific Multicast mode (SSM).
- show ip pim group-map**                Displays the PIM group mapping table.

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPPimMode  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPRowStatus
```

---

## show ip pim dense group

Displays the static configuration of multicast group mappings for PIM-Dense Mode (DM).

**show ip pim dense group**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.
- This command is supported only on PIM dense mode.

### Examples

```
-> show ip pim dense group
```

```
Group Address/Pref Length  Mode  Override  Precedence  Status
-----+-----+-----+-----+-----
224.0.0.0/4                dm    false    none        enabled
```

#### *output definitions*

<b>Group Address/Pref Length</b>	The 32-bit IP address for a multicast group, along with the mask length, shown in bits. The group IP address and mask are separated by a slash (/).
<b>Mode</b>	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
<b>Override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	Specifies the precedence value to be used for this static RP configuration.
<b>Status</b>	Displays whether this entry is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> .

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

- ip pim dense group** Creates and manages the static configuration of dense mode (DM) group mappings.
- show ip pim group-map** Displays the PIM group mapping table.

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPRowStatus  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPPimMode
```

---



*output definitions*


---

<b>Neighbor (IP) Address</b>	The 32-bit IP address of the active PIM neighbor.
<b>Interface Name</b>	The name of the interface used to reach this PIM neighbor.
<b>Uptime</b>	The amount of time since this PIM neighbor last became a neighbor of the local router, displayed in hours, minutes, and seconds.
<b>Expiry time</b>	The minimum amount of time remaining before the PIM neighbor will be aged out, displayed in hours, minutes, and seconds.
<b>Lan Prune Delay Present</b>	Evaluates to TRUE if this neighbor is using the Lan Prune Delay option.
<b>Propagation Delay</b>	The expected propagation delay between PIM routers on this network.
<b>DR Priority Present</b>	Evaluates to TRUE if the neighbor is using the DR Priority option.
<b>DR Priority</b>	The value of the Designated Router Priority from the last PIM Hello message received from this neighbor. This object is always zero if the DR Priority Present value is FALSE.
<b>TBit field</b>	The value of the Tbit field of the LAN prune delay option received from this neighbor. The Tbit specifies the ability of the neighbor to disable Join suppression.
<b>Generation ID Present</b>	Evaluates to TRUE if this neighbor is using the Generation ID option.
<b>Generation ID Value</b>	The value of the Generation ID from the last PIM Hello message received from the neighbor.
<b>BiDir Capable</b>	Evaluates to TRUE if this neighbor is using the Bidirectional-PIM Capable option.
<b>State Refresh Capable</b>	Displays whether the neighbor is capable of receiving State Refresh messages. Options include <b>true</b> or <b>false</b> .
<b>Override Interval</b>	The current Override Interval. This value is used to avoid synchronization of override messages when multiple downstream routers share a multi-access link. The sending of override messages is delayed at random time intervals. The amount of randomization used by a router is dictated by this number. Values may range from 0 to 65535. The default value is 2500.

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; sparse, dense options removed; vlan (ID), mode, LAN prune delay fields removed; Interface name, LAN delay present, Propagation Delay, Generation ID present, Generation ID Value, BiDir Capable, DR Priority, Override Interval fields added.

**Related Commands**

N/A

## MIB Objects

alaPimNeighborTable  
  alaPimNeighborAddress  
  alaPimNeighborIfIndex  
  alaPimNeighborUpTime  
  alaPimNeighborExpiryTime  
  alaPimNeighborLanPruneDelayPresent  
  alaPimNeighborPropagationDelay  
  alaPimNeighborTBit  
  alaPimNeighborGenerationIDPresent  
  alaPimNeighborGenerationIDValue  
  alaPimNeighborBidirCapable  
  alaPimNeighborDRPriorityPresent  
  alaPimNeighborDRPriority  
  alaPimNeighborOverrideInterval  
  alaPimNeighborSRCapable

---

## show ip pim candidate-rp

Displays the IP multicast groups for which the local router advertises itself as a Candidate-RP.

**show ip pim candidate-rp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip pim candidate-rp
RP Address          Group Address      Priority  Interval  Status
-----+-----+-----+-----+-----
172.21.63.11       224.0.0.0/4       192      60        enabled
```

#### *output definitions*

---

<b>RP Address</b>	A 32-bit IP address that is advertised as the Candidate-Rendezvous Point (RP).
<b>Group Address</b>	The 32-bit IP address for a multicast group, along with the mask length, shown in bits. The group IP address and mask are separated by a slash (/). This is the group for which the local router advertises itself as a C-RP.
<b>Priority</b>	The C-RP router's priority. The lower the value, the higher the priority.
<b>Interval</b>	The time interval at which the C-RP advertisements are sent to the BSR.
<b>Status</b>	The current status of this entry. The status is shown as enabled only if the PIM-SM is globally enabled and the PIM interface is enabled.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **ip pim candidate-rp**

Configures the local router as the Candidate-Rendezvous Point (C-RP) for a specified IP multicast group(s).

## MIB Objects

```
alaPimBsrCandidateRPTable  
  alaPimBsrCandidateRPAddress  
  alaPimBsrCandidateRPGroupAddress  
  alaBsrCandidateRPGroupPrefixLength  
  alaPimBsrCandidateRPPriority  
  alaPimBsrCandidateRPInterval  
  alaPimBsrCandidateRPStatus
```

---



## show ip pim group-map

Displays the PIM group mapping table.

```
show ip pim group-map [bsr | static-rp | ssm | dense]
```

---

### Syntax Definitions

N/A

### Defaults

If the keywords **bsr**, **static-rp**, **ssm**, or **dense** are included in the command line, then only the entries that were created by the specified origin are displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If static RP configuration is being used, this information is obtained from those static RP addresses that are defined via the **ip pim static-rp** command. As long as the RP addresses defined in the static RP set are reachable, they will be added to the group mapping table.
- If the IP multicast groups are mapped to the mode SSM or DM, then the entries created by local SSM address range configuration using the **ip pim ssm group** command and local Dense Mode address range configuration using the **ip pim dense group** command are displayed.
- If the Bootstrap mechanism is being used, this information is obtained from received Candidate-RP advertisements (when the local router is the BSR; when the local router is not the BSR, this information is obtained from received Bootstrap messages).

### Examples

```
-> show ip pim group-map
```

Origin	Group Address/Pref Length	RP Address	Mode	Precedence
BSR	224.0.0.0/4	172.21.63.11	asm	192
BSR	224.0.0.0/4	214.0.0.7	asm	192
Static	232.0.0.0/8		ssm	

```
-> show ip pim group-map bsr
```

Origin	Group Address/Pref Length	RP Address	Mode	Precedence
BSR	224.0.0.0/4	172.21.63.11	asm	192
BSR	224.0.0.0/4	214.0.0.7	asm	192

```
-> show ip pim group-map static
```

Origin	Group Address/Pref Length	RP Address	Mode	Precedence
Static	232.0.0.0/8		ssm	

*output definitions*


---

<b>Origin</b>	The mechanism by which the PIM mode and RP for the group were learned. The possible values include 'static RP' for local static RP configuration, 'static SSM' for both SSM group configuration and Dense Mode Group configuration, and 'BSR' for the PIM Bootstrap Router mechanism.
<b>Group Address/Prefix Length</b>	The 32-bit IP address for a multicast group, along with the mask length, shown in bits. The group IP address and mask are separated by a slash (/).
<b>RP Address</b>	The IP address of the Rendezvous Point to be used for groups within the group prefix. There is no RP address if the PIM mode is either SSM or DM.
<b>Mode</b>	The PIM mode to be used for groups in this prefix.
<b>Mapping Precedence</b>	The precedence value of a particular row, which determines which row applies to a given group address. Numerically higher values for this object indicate lower precedences, with the value zero denoting the highest precedence.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

<b>ip pim ssm group</b>	Creates and manages the static configuration of a Source Specific Multicast mode group mappings.
<b>ip pim dense group</b>	Creates and manages the static configuration of dense mode (DM) group mappings.
<b>ip pim static-rp</b>	Adds, modifies, or deletes a static RP for a group (“modifies” applies only to the RP address, since the table is indexed from group address and mask parameters).

**MIB Objects**

```

alaPimGroupMappingTable
  alaPimGroupMappingOrigin
  alaPimGroupMappingGrpAddress
  alaPimGroupMappingPrecedence
  alaPimGroupMappingRPAddress
  alaPimGroupMappingPimMode
  alaPimGroupMappingGrpPrefixLength

```

---

## show ip pim interface

Displays detailed PIM settings for a specific interface. In general, it displays PIM settings for all the interfaces if no argument is specified.

**show ip pim interface** [*if\_name*]

---

### Syntax Definitions

*if\_name*                                      The interface name.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

To view more detailed information about a particular interface, specify the interface name in the command line. Additional information includes Triggered Hello Interval, Hello Holdtime, Prune Delay status and value, Override Interval, LAN Delay status, Generation ID status, and Join/Prune Holdtime.

### Examples

```
-> show ip pim interface
Total 1 Interfaces
```

Interface Name	IP Address	Designated Router	Hello Interval	J/P Interval	Oper Status
tesvl	50.1.1.1	50.1.1.1	100	10	disabled

```
-> show ip pim interface tesvl
Interface Name           = tesvl,
IP Address               = 50.1.1.1,
Designated Router       = 50.1.1.1,
Hello Interval          = 30,
Triggered Hello Interval = 5,
Hello HoldTime          = 105,
Join/Prune Interval     = 60,
Join/Prune HoldTime     = 210,
Propagation (Prune) Delay = 500,
Override Interval      = 2500,
Generation ID           = 0x46e68b13,
DR Priority              = 1,
DR Priority Enabled     = true,
Lan Delay Enabled       = true,
Effective Propagation Delay = 500,
Effective Override Interval = 2500,
Suppression Enabled     = true,
```

---

```

Stub Interface           = false,
Prune Limit Interval    = 60,
Graft Retry Interval    = 3,
State Refresh Enabled   = true,
Operational Status     = disabled

```

*output definitions*


---

<b>Interface Name</b>	The name of the interface on which PIM is enabled.
<b>IP address</b>	Specifies the IP address of the specified interface.
<b>Designated Router</b>	The 32-bit IP address for the Designated Router (DR). The DR acts on behalf of any directly-connected hosts with respect to the PIM-SM protocol. Only one router in the LAN will act as the DR.
<b>Hello Interval</b>	The frequency at which PIM Hello messages are transmitted on a specified interface. Values may range from 1 to 18000. The default value is 30.
<b>Join/Prune Interval</b>	The Join/Prune interval for the associated interface. The Join/Prune interval is the interval at which periodic PIM-SM Join/Prune messages are sent. Values may range from 1 to 18000.
<b>Triggered Hello Interval</b>	The current Triggered Hello Interval. This value indicates the maximum time, in seconds, before a triggered PIM Hello message is transmitted on the corresponding interface. Values may range from 1 to 60. The default value is 5.
<b>Hello Holdtime</b>	The current Hello Holdtime value. This value indicates the maximum amount of time, in seconds, Hello messages will be held before they are considered invalid. Values may range from 0 to 65535. The default value is 105.
<b>Join/Prune Holdtime</b>	The current Join/Prune Holdtime value. This value indicates the maximum amount of time, in seconds, Join/Prune messages will be held before they are considered invalid. Values may range from 0 to 65535. The default value is 210.
<b>Propagation Delay</b>	The expected propagation delay between PIM routers on this network.
<b>Override Interval</b>	The current Override Interval. This value is used to avoid synchronization of override messages when multiple downstream routers share a multi-access link. The sending of override messages is delayed at random time intervals. The amount of randomization used by a router is dictated by this number. Values may range from 0 to 65535. The default value is 2500.
<b>Generation ID Option</b>	The value of the Generation ID this router inserted in the last PIM Hello message it sent on this interface.
<b>DR Priority</b>	Displays the Designated Router priority for each interface. This value is used in determining the Designated Router on an interface. Values may range from 1 to 192. A higher numeric value denotes a higher priority. Note that priority-based election is used only if all routers on the interface are using the DR priority option. The default value is 1.
<b>Lan Delay Enabled</b>	Options include <b>true</b> and <b>false</b> . The value will be true if all neighbors on the interface are using the LAN Prune Delay option. Otherwise, the setting will be false.
<b>Effective Propagation Delay</b>	The Effective Propagation Delay on this interface.

*output definitions (continued)*


---

<b>Effective Override Interval</b>	The Effective Override Interval on this interface.
<b>Suppression Enabled</b>	Specifies whether the Join suppression is enabled on this interface.
<b>DR Priority Enabled</b>	Evaluates to TRUE if all routers on this interface are using the DR Priority option.
<b>Stub Interface</b>	Specifies whether this interface is a 'stub interface'. If this is TRUE, then no PIM packets are sent out on this interface, and any received PIM packets are ignored.
<b>Prune Limit Interval</b>	The minimum interval that must transpire between two successive Prunes sent by a router. This is used only with PIM-DM.
<b>Graft Retry Interval</b>	Displays the time-interval a router waits for a Graft acknowledgment before resending a Graft on the interface. This is used only with PIM-DM. Values may range from 1 to 65535. The default value is 3.
<b>SR Priority Enabled</b>	Evaluates to TRUE if all routers on this interface are using the State Refresh option. This is used only by PIM-DM.
<b>Operational Status</b>	The current operational status of the corresponding interface. Options include <b>enabled</b> and <b>disabled</b> . This value indicates whether the IP interface is operationally up. For example, if PIM is enabled on the interface, but the IP interface is currently down, this field will display as disabled. The default setting is <b>disabled</b> . To globally enable or disable PIM on the switch, refer to the <a href="#">ip pim sparse status command</a> on page 30-5 and <a href="#">ip pim dense status command</a> on page 30-6.

---

**Release History**

Release 6.1.1; command was introduced.

Release 6.3.1; **sparse** and **dense** options removed; Mode, Prune Delay Value, Prune Delay Option, CBSR Preference fields removed; Propagation Delay, Effective Propagation Delay, Effective Override Interval, Suppression Enabled, DR Priority Enabled, and Stub Interface fields added.

**Related Commands**

[ip pim interface](#) Enables or disables the PIM protocol on a specific interface.

**MIB Objects**

```

alaPimInterfaceTable
  alaPimInterfaceIfIndex
  alaPimInterfaceDR
  alaPimInterfaceHelloInterval
  alaPimInterfaceJoinPruneInterval
  alaPimInterfaceStatus
  alaPimInterfaceAddress
  alaPimInterfaceTrigHelloInterval
  alaPimInterfaceHelloHoldtime
  alaPimInterfaceJoinPruneHoldtime
  alaPimInterfacePropagationDelay
  alaPimInterfaceOverrideInterval
  alaPimInterfaceGenerationIDValue
  alaPimInterfaceDRPriority
  alaPimInterfaceLanDelayEnabled

```

alaPimInterfaceEffectPropagDelay  
alaPimInterfaceEffectOverrideIvl  
alaPimInterfaceSuppressionEnabled  
alaPimInterfaceDRPriorityEnabled  
alaPimInterfaceStubInterface  
AlaPimInterfacePruneLimitInterval  
alaPimInterfaceGraftRetryInterval  
alaPimInterfaceSRPriorityEnabled

---

## show ip pim static-rp

Displays the PIM Static RP table for the ASM mode, which includes group address/prefix length, the static Rendezvous Point (RP) address, and the current status of the Static RP configuration (i.e., enabled or disabled).

```
show ip pim static-rp
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range

### Examples

```
-> show ip pim static-rp
Group Address/Pref Length  RP Address      Mode  Override Precedence Status
-----+-----+-----+-----+-----+-----
224.0.0.0/4                172.21.63.11  asm   false    none     enabled
```

#### *output definitions*

<b>Group Address/Pref Length</b>	The 32-bit IP address for a multicast group, along with the mask length, shown in bits. The group IP address and mask are separated by a slash (/). To change the current multicast group address and mask, refer to the <a href="#">ip pim static-rp command on page 30-13</a> .
<b>RP Address</b>	A 32-bit IP address of the Rendezvous Point (RP). To change the current RP address, refer to the <a href="#">ip pim static-rp command on page 30-13</a> .
<b>Mode</b>	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
<b>Override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	Specifies the precedence value to be used for this static RP configuration.
<b>Status</b>	Displays whether static RP configuration is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> . To change the current status, refer to the <a href="#">ip pim static-rp command on page 30-13</a> .

---

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **Mode**, **Override**, and **Precedence** fields added.

## Related Commands

### [ip pim static-rp](#)

Adds, modifies, or deletes a static RP for a group (“modifies” applies only to the RP address, since the table is indexed from group address and mask parameters).

## MIB Objects

alaPimStaticRPTable

- alaPimStaticRPGrpAddress
- alaPimStaticRPGrpPrefixLength
- alaPimStaticRPAddress
- alaPimStaticRPPimMode
- alaPimStaticRPOverrideDynamic
- alaPimStaticRPPrecedence
- alaPimStaticRPRowStatus

---



## show ip pim cbsr

Displays the Candidate-BSR information that is used in the Bootstrap messages.

**show ip pim cbsr**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip pim cbsr
CBSR Address           = 214.0.0.7,
Status                 = enabled,
CBSR Priority           = 0,
Hash Mask Length      = 30,
Elected BSR           = False,
Timer                  = 00h:00m:00s
```

### *output definitions*

---

<b>CBSR Address</b>	The 32-bit address that the local router uses to advertise itself as a Candidate-BSR.
<b>Status</b>	The current status of this entry. The status is shown as enabled only if the PIM-SM is globally enabled and the PIM interface is enabled.
<b>CBSR Priority</b>	The value for the local router as a Candidate-BSR. The higher the value, the higher the priority.
<b>Hash Mask Length</b>	The 32-bit mask length that is advertised in the Bootstrap messages (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for a multicast group.
<b>Elected BSR</b>	Specifies whether the local router is the elected BSR.
<b>Timer</b>	The time value that is remaining before the local router originates the next Bootstrap message. This value is zero if this router is not the elected BSR.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### `ip pim cbsr`

Configures the Candidate-BSR information that is used in the Bootstrap messages.

## MIB Objects

```
alaPimBSrCandidateBSRTable  
  alaPimBsrCandidateBSRAddress  
  alaPimBsrCandidateBSRPriority  
  alaPimBsrCandidateBSRHashMaskLength  
  alaPimBsrCandidateBSRElectedBSR  
  alaPimBsrCandidateBSRBootstrapTimer  
  alaPimBsrCandidateBSRStatus
```

---

## show ip pim bsr

Displays information about the elected BSR.

**show ip pim bsr**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip pim bsr
BSR Address           = 214.0.0.7
BSR Priority           = 192,
Hash Mask Length      = 30,
Expiry Time           = 00h:01m:35s
```

### *output definitions*

---

<b>BSR Address</b>	The 32-bit address of the elected BSR.
<b>BSR Priority</b>	The priority value of the elected BSR. The higher the value, the higher the priority.
<b>Hash Mask Length</b>	The 32-bit mask length that is advertised in the Bootstrap messages by the elected BSR (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for a multicast group).
<b>Expiry Time</b>	The minimum time remaining before the elected BSR will be declared down.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### [ip pim cbsr](#)

Configures the Candidate-BSR information that is used in the Bootstrap messages.

## MIB Objects

```
alaPimBsrElectedBSRTable  
  alaPimBsrElectedBSRAddress  
  alaPimBsrElectedBSRPriority  
  alaPimBsrElectedBSRHashMaskLength  
  alaPimBsrElectedBSRExpiryTime
```

---

## show ip pim notifications

Displays the configuration of the configured notification periods as well as information on the events triggering the notifications.

**show ip pim notifications**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

The outputs from this command includes both IPv4 and IPv6 information.

### Examples

```
-> show ip pim notifications
Neighbor Loss Notifications
  Period      = 0
  Count       = 0
Invalid Register Notifications
  Period      = 65535
  Msgs Rcvd   = 0
  Origin      = None
  Group       = None
  RP          = None
Invalid Join Prune Notifications
  Period      = 65535
  Msgs Rcvd   = 0
  Origin      = None
  Group       = None
  RP          = None
RP Mapping Notifications
  Period      = 65535
  Count       = 0
Interface Election Notifications
  Period      = 65535
  Count       = 0
```

*output definitions*


---

<b>Neighbor Loss Notification</b>	<p><b>Period:</b> Minimum time interval that must elapse between the PIM neighbor loss notification originated by the device.</p> <p><b>Count:</b> The number of neighbor loss events that have occurred. This counter is incremented whenever a neighbor loss notification is generated.</p>
<b>Invalid Register Notification</b>	<p><b>Period:</b> Minimum time interval that must elapse between the PIM invalid register notifications originated by the device.</p> <p><b>Msgs Rcvd:</b> The number of invalid PIM register notification messages that have been received by the device.</p> <p><b>Group:</b> The multicast group address to which the last unexpected Register message received by the device was addressed.</p> <p><b>RP:</b> The RP address to which the last unexpected Register message received by the device was delivered.</p> <p><b>Origin:</b> The source address of the last unexpected Register message received by the device.</p>
<b>Invalid Join/Prune Notification</b>	<p><b>Period:</b> Minimum time that must elapse between PIM invalid join-prune notifications originated by the device.</p> <p><b>Msgs Rcvd:</b> The number of invalid PIM join/prune messages that have been received by the device.</p> <p><b>Origin:</b> The source address of the last unexpected join/prune message received by the device.</p> <p><b>Group:</b> The multicast group address carried in the last unexpected join-prune message received by the device.</p> <p><b>RP:</b> The RP address carried in the last unexpected join/prune message received by the device.</p>
<b>RP Mapping Notifications</b>	<p><b>Period:</b> Minimum time that must elapse between PIM RP mapping change notifications originated by the device.</p> <p><b>Count:</b> The number of changes to active RP mappings on this device.</p>
<b>Interface Election Notifications</b>	<p><b>Period:</b> Minimum time that must elapse between PIM Interface Election traps originated by the router.</p> <p><b>Count:</b> The number of times this device has been elected DR on any interface.</p>

---

**Release History**

Release 6.3.1; command was introduced.

## Related Commands

### **ip pim neighbor-loss-notification-period**

Specifies the minimum time that must elapse between PIM neighbor loss notifications originated by the router.

### **ip pim invalid-register-notification-period**

Specifies the minimum time that must elapse between PIM invalid register notifications originated by the router.

### **ip pim invalid-joinprune-notification-period**

Specifies the minimum time that must elapse between PIM invalid joinprune notifications originated by the router.

### **ip pim rp-mapping-notification-period**

Specifies the minimum time that must elapse between PIM RP mapping notifications originated by this router.

### **ip pim interface-election-notification-period**

Specifies the minimum time that must elapse between the PIM interface election notifications originated by the router.

## MIB Objects

alaPim

```
alaPimNeighborLossNotificationPeriod
alaPimNeighborLossCount
alaPimInvalidRegisterNotificationPeriod
alaPimInvalidRegisterMsgsRcvd
alaPimInvalidRegisterGroup
alaPimInvalidRegisterRp
alaPimInvalidJoinPruneNotificationPeriod
alaPimInvalidJoinPruneMsgsRcvd
alaPimInvalidJoinPruneOrigin
alaPimInvalidJoinPruneGroup
alaPimInvalidJoinPruneRP
alaPimRPMappingNotificationPeriod
alaPimRPMappingChangeCount
alaPimInterfaceElectionNotificationPeriod
alaPimInterfaceElectionWinCount
```

---

## show ip pim groute

Displays all (\*,G) state that the IPv4 PIM has.

**show ip pim groute** [*group\_address*]

---

### Syntax Definitions

*group\_address* A 32-bit multicast address. If an IP address is not specified, the current PIM status for all multicast route entries are displayed.

### Defaults

By default, entire (\*,G) routing table is displayed. To view more detailed (\*,G) state information about a particular group, specify the group address in the command line.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

When the *group\_address* is specified in the command line, the detailed information displayed also includes the detailed state of every outgoing interface.

### Examples

```
-> show ip pim groute
```

```
Total 1 (*,G)
```

Group Address	RP Address	RPF Interface	Upstream Neighbor	UpTime
225.0.0.0	212.61.60.8	vlan-30	212.61.30.7	00h:01m:43s
225.0.0.1	212.61.60.8	vlan-30	212.61.30.7	00h:01m:43s

```
-> show ip pim groute 225.0.0.0
```

```
(*,225.0.0.0)
```

```
UpTime           = 00h:01m:49s
RP Address       = 212.61.60.8,
PIM Mode        = ASM,
PIM Mode Origin = BSR,
Upstream Join State = Joined,
Upstream Join Timer = 00h:00m:11s,
Upstream Neighbor = 212.61.30.7,
RPF Interface    = vlan-30,
RPF Next Hop     = 212.61.30.7,
RPF Route Protocol = OSPF,
RPF Route Address = 212.61.60.0/24,
RPF Route Metric Pref = 110,
RPF Route Metric = 2,
Interface Specific State:
  vlan-4
    UpTime           = 00h:01m:49s,
```



```

Local Membership          = True,
Join/Prune State         = No Info,
Prune Pending Timer      = 00h:00m:00s,
Join Expiry Timer        = 00h:00m:00s,
Assert State             = No Info,
Assert Timer             = 00h:00m:00s,
vlan-5
UpTime                   = 00h:00m:00s,
Local Membership         = False,
Join/Prune State         = No Info,
Prune Pending Timer      = 00h:00m:00s,
Join Expiry Timer        = 00h:00m:00s,
Assert State             = No Info,
Assert Timer             = 00h:00m:00s,
vlan-8
UpTime                   = 00h:00m:00s,
Local Membership         = False,
Join/Prune State         = No Info,
Prune Pending Timer      = 00h:00m:00s,
Join Expiry Timer        = 00h:00m:00s,
Assert State             = No Info,
Assert Timer             = 00h:00m:00s,
vlan-9
UpTime                   = 00h:00m:00s,
Local Membership         = False,
Join/Prune State         = No Info,
Prune Pending Timer      = 00h:00m:00s,
Join Expiry Timer        = 00h:00m:00s,
Assert State             = No Info,
Assert Timer             = 00h:00m:00s,
vlan-30
UpTime                   = 00h:00m:00s,
Local Membership         = False,
Join/Prune State         = No Info,
Prune Pending Timer      = 00h:00m:00s,
Join Expiry Timer        = 00h:00m:00s,
Assert State             = No Info,
Assert Timer             = 00h:00m:00s,

```

### *output definitions*

---

<b>Group-address</b>	The IPv4 Multicast Group Address.
<b>RP Address</b>	The address of the Rendezvous Point (RP) for the group.
<b>RPF Interface</b>	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
<b>Upstream Neighbor</b>	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (*,G) join messages to.
<b>UpTime</b>	The time since this entry was created.
<b>Pim Mode Origin</b>	The mechanism by which the PIM mode and RP for the group were learned.
<b>Upstream Join State</b>	Whether the local router should join the RP tree for the group.
<b>Upstream Join Timer</b>	The time remaining before the local router next sends a periodic (*,G) Join message on the RPF IfIndex.
<b>RPF Next Hop</b>	The address of the RPF next hop towards the RP.

*output definitions (continued)*


---

<b>RPF Route Protocol</b>	The routing mechanism via which the route used to find the RPF interface towards the RP was learned.
<b>RPF Route Address/Prefix Length</b>	The IPv6 address combined with the prefix length identifies the route used to find the RPF interface towards the RP.
<b>Route Metric Pref</b>	The metric preference of the route used to find the RPF interface towards the RP.
<b>Route Metric</b>	The routing metric of the route used to find the RPF interface towards the RP.
<b>Interface Name</b>	The interface name that corresponds to the ifIndex.
<b>Local Membership</b>	Whether the local router has (*,G) local membership on this interface.
<b>Join Prune State</b>	The state resulting from (*,G) Join/Prune messages received on this interface.
<b>Prune Pending Timer</b>	The time remaining before the local router acts on a (*,G) Prune message received on this interface, during which the router is waiting to see whether another downstream router will override the Prune message.
<b>Join Expiry Timer</b>	The time remaining before (*,G) Join state for this interface expires.
<b>Assert State</b>	The (*,G) Assert state for this interface. The possible values are No Info, Winner or Loser.
<b>Assert Timer</b>	If Assert State is 'Winner', this is the time remaining before the local router next sends a (*,G) Assert message on this interface. If the Assert State is 'Loser', this is the time remaining before the (*,G) assert state expires.
<b>Assert Winner Address</b>	If the Assert State is 'Loser', this is the address of the assert winner.
<b>Assert Winner Metric Pref</b>	If the Assert State is 'Loser', this is the metric preference of the route to the RP advertised by the assert winner; otherwise, this is zero.
<b>Assert Winner Metric</b>	If the Assert State is 'Loser', this is the routing metric of the route to the RP advertised by the assert winner; otherwise, this is zero.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

```

alaPimStarGTable
  alaPimStarGGrpAddress
  alaPimStarGRPAddress
  alaPimStarGRPFIfIndex
  alaPimStarGUpstreamNeighbor
  alaPimStarGUpTime
  alaPimStarGPimModeOrigin
  alaPimStarGUpstreamJoinState
  alaPimStarGUpstreamJoinTimer
  alaPimStarGRPNextHop

```

```
alaPimStarGRPFRouteProtocol
alaPimStarGRPFRouteAddress
alaPimStarGRPFRoutePrefixLength
alaPimStarGRPFRouteMetricPref
alaPimStarGRPFRouteMetric
alaPimStarGITable
alaPimStarGIIfIndex
alaPimStarGILocalMembership
alaPimStarGIJoinPruneState
alaPimStarGIPrunePendingTimer
alaPimStarGIPrunePendingTimer
alaPimStarGIAssertState
alaPimStarGIAssertTimer
alaPimStarGIAssertWinnerAddress
alaPimStarGIAssertWinnerAddress
alaPimStarGIAssertWinnerMetric
```

---

## show ip pim sgroute

Displays all (S,G) state that the IPv4 PIM has.

**show ip pim sgroute** [*source\_address group\_address*]

---

### Syntax Definitions

*source\_address*                      The 32-bit IP address for a specific multicast source.

*group\_address*                        A 32-bit multicast address.

### Defaults

By default, entire (S,G) routing table is displayed. To view the detailed information for a particular (S,G) entry, use the *source\_address* and *group\_address* associated with that entry.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When the *source\_address* and *group\_address* is specified in the command line, the detailed information displayed also includes the detailed state of every outgoing interface.
- If an IP address is not specified, the current PIM status for all multicast route entries are displayed.

### Examples

```
-> show ip pim sgroute
```

```
Legend: Flags: D = Dense, S = Sparse, s = SSM Group,
          L = Local, R = RPT, T = SPT, F = Register,
          P = Pruned, O = Originator
```

```
Total 1 (S,G)
```

Source Address	Group Address	RPF Interface	Upstream Neighbor	UpTime	Flags
172.21.63.2	225.0.0.0	vlan-30	212.61.30.7	00h:02m:09s	ST
172.21.63.2	225.0.0.1	vlan-30	212.61.30.7	00h:02m:09s	ST

```
-> show ip pim sgroute 172.21.63.2 225.0.0.0
(172.21.63.2,225.0.0.0)
```

```
UpTime                                = 00h:02m:16s
PIM Mode                              = ASM,
Upstream Join State                  = Joined,
Upstream RPT State                   = Not Pruned,
Upstream Join Timer                  = 00h:00m:44s,
Upstream Neighbor                   = 212.61.30.7,
RPF Interface                        = vlan-30,
RPF Next Hop                         = 212.61.30.7,
RPF Route Protocol                   = OSPF,
RPF Route Address                    = 172.21.63.0/24,
RPF Route Metric Pref                = 110,
RPF Route Metric                     = 2,
```

```

SPT Bit                = True,
DR Register State      = No Info,
DR Register Stop Timer = 00h:00m:00s,
Interface Specific State:
  vlan-4
    UpTime              = 00h:02m:16s,
    Local Membership    = True,
    Join/Prune State    = No Info,
    RPT State           = No Info,
    Prune Pending Timer = 00h:00m:00s,
    Join Expiry Timer   = 00h:00m:00s,
    Assert State        = No Info,
    Assert Timer        = 00h:00m:00s,
  vlan-5
    UpTime              = 00h:00m:00s,
    Local Membership    = False,
    Join/Prune State    = No Info,
    RPT State           = No Info,
    Prune Pending Timer = 00h:00m:00s,
    Join Expiry Timer   = 00h:00m:00s,
    Assert State        = No Info,
    Assert Timer        = 00h:00m:00s,
  vlan-8
    UpTime              = 00h:00m:00s,
    Local Membership    = False,
    Join/Prune State    = No Info,
    RPT State           = No Info,
    Prune Pending Timer = 00h:00m:00s,
    Join Expiry Timer   = 00h:00m:00s,
    Assert State        = No Info,
    Assert Timer        = 00h:00m:00s,
  vlan-9
    UpTime              = 00h:00m:00s,
    Local Membership    = False,
    Join/Prune State    = No Info,
    RPT State           = No Info,
    Prune Pending Timer = 00h:00m:00s,
    Join Expiry Timer   = 00h:00m:00s,
    Assert State        = No Info,
    Assert Timer        = 00h:00m:00s,
  vlan-30
    UpTime              = 00h:00m:00s,
    Local Membership    = False,
    Join/Prune State    = No Info,
    RPT State           = No Info,
    Prune Pending Timer = 00h:00m:00s,
    Join Expiry Timer   = 00h:00m:00s,
    Assert State        = No Info,
    Assert Timer        = 00h:00m:00s,

```

***output definitions***


---

<b>Source-address</b>	The IPv4 Source address.
<b>Group-address</b>	The IPv4 Multicast Group Address.
<b>RPF Interface</b>	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.

*output definitions (continued)*

<b>Upstream Neighbor</b>	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (S,G) join messages to.
<b>UpTime</b>	The time since this entry was created.
<b>Flags</b>	Flags indicating SPTBit, Prune State, Join State, etc.
<b>Pim Mode</b>	Whether the Group Address is SSM, ASM or DM.
<b>Upstream Join State</b>	Whether the local router should join the SPT for the source and group represented by this entry.
<b>Upstream Join Timer</b>	The time remaining before the local router next sends a periodic (S,G) Join message.
<b>RPF Next Hop</b>	The address of the RPF next hop towards the source.
<b>RPF Route Protocol</b>	The routing mechanism via which the route used to find the RPF Interface towards the source was learned.
<b>RPF Route Address/Prefix Length</b>	The IP address which when combined with the Route Prefix length identifies the route used to find the RPF interface towards the source.
<b>RPF Route Metric Pref</b>	The metric preference of the route used to find the RPF interface towards the source.
<b>RPF Route Metric</b>	The metric preference of the route used to find the RPF interface towards the source.
<b>DR Register State</b>	Whether the local router should encapsulate (S,G) data packets in Register messages and send them to the RP. The possible values include No Info, Join, Join Pending, or Prune.
<b>DR Register Stop Timer</b>	The value of the Register Stop Timer. If the Register State is 'prune', this is the time remaining before the local router sends a Null-Register message to the RP. If the State is 'joinPending', this is the time remaining before the local router resumes encapsulating data packets and sending them to the RP.
<b>Upstream Prune State</b>	Whether the local router has pruned itself from the tree. This is only used by PIM-DM. The possible values include forwarding, Ack Pending, or Pruned.
<b>Upstream Prune Limit Timer</b>	The time remaining before the local router may send a (S,G) prune message on alaPimSGRPFifIndex. This is only used by PIM-DM.
<b>Originator State</b>	Whether this router is an originator for the (S,G) message flow. This is only used by PIM-DM. The possible values include Not Originator or Originator.
<b>Source Active Timer</b>	If this router is the Originator, this is the time remaining before the local router reverts to notOriginator state. Otherwise, this is zero. This is only used by PIM-DM.
<b>State Refresh Timer</b>	If Originator state is 'originator', this is the time remaining before the local router sends a State Refresh Message. Otherwise, this is zero. This is only used by PIM-DM.
<b>Interface Name</b>	The interface name corresponding to the ifIndex that corresponds to this entry.
<b>Uptime</b>	The time since this entry was created.
<b>Local Membership</b>	Whether the local router has (S,G) local membership on this interface.

*output definitions (continued)*


---

<b>Join Prune State</b>	The state resulting from (S,G) Join/Prune messages received on this interface. The possible values include No Info, Join, or Prune Pending.
<b>Prune Pending Timer</b>	The time remaining before the local router acts on an (S,G) Prune message received on this interface, during which the router is waiting to see whether another downstream router will override the Prune message.
<b>Join Expiry Timer</b>	The time remaining before (S,G) Join state for this interface expires.
<b>Assert State</b>	The (S,G) Assert state for this interface. The possible values include No Info, Winner, or Loser.
<b>Assert Timer</b>	If Assert State is Winner, this is the time remaining before the local router sends a (S,G) Assert message on this interface. If the Assert State is Loser, this is the time remaining before the (S,G) Assert state expires.
<b>Assert Winner</b>	If the Assert State is Loser, this is the address of the assert winner.
<b>Assert Winner Metric Pref</b>	If the Assert State is Loser, this is the metric preference of the route to the source advertised by the assert winner.
<b>Assert Winner Metric Metric</b>	If the Assert State is Loser, this is the routing metric of the route to the source advertised by the assert winner.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

alaPimSGTable

```

alaPimSGSrcAddress
alaPimSGGrpAddress
alaPimSGRPFFifIndex
alaPimSGUpstreamNeighbor
alaPimSGUpTime
alaPimSGSPTBit
alaPimSGUpstreamPruneState
alaPimSGUpstreamJoinState
alaPimSGPimMode
alaPimSGUpstreamJoinState
alaPimSGUpstreamJoinTimer
alaPimSGRPFNextHop
alaPimSGRPFRouteProtocol
alaPimSGRPFRouteAddress
alaPimSGRPFRoutePrefixLength
alaPimSGRPFRouteMetricPref
alaPimSGRPFRouteMetric
alaPimSGDRRegisterState
alaPimSGDRRegisterStopTimer
alaPimSGUpstreamPruneState
alaPimSGUpstreamPruneLimitTimer
alaPimSGOriginatorState
alaPimSGSourceActiveTimer

```

```
    alaPimSGStateRefreshTimer
alaPimSGITable
    alaPimSGIIfIndex
    alaPimSGIUpTime
    alaPimSGILocalMembership
    alaPimSGIJoinPruneState
    alaPimSGIPrunePendingTimer
    alaPimSGIJoinExpiryTimer
    alaPimSGIAssertState
    alaPimSGIAssertTimer
    alaPimSGIAssertWinnerAddress
    alaPimSGIAssertWinnerMetricPref
    alaPimSGIAssertWinnerMetric
```

---



## ipv6 pim sparse status

Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.

**ipv6 pim sparse status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables PIM-SM globally for IPv6.
<b>disable</b>	Disables PIM-SM globally for IPv6.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command must be set to **enable** before PIM-SM can run on the switch. In addition, the **ip load pim** command must be executed. Refer to [page 30-3](#) for more information.

### Examples

```
-> ipv6 pim sparse status enable
-> ipv6 pim sparse status disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">ipv6 pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ip load pim</a>	Dynamically loads PIM to memory.
<a href="#">show ipv6 pim sparse</a>	Displays the status of the various global parameters for the IPv6 PIM sparse mode.

### MIB Objects

```
alaPimsmGlobalConfig
  alaPimsmV6AdminStatus
```

---

## ipv6 pim dense status

Enables or disables the IPv6 PIM-DM (dense mode) globally for IPv6.

**ipv6 pim dense status {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables PIM-DM globally for IPv6.
<b>disable</b>	Disables PIM-DM globally for IPv6.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

This command must be set to **enable** before PIM-DM can run on the switch. In addition, the **ip load pim** command must be executed. Refer to [page 30-3](#) for more information.

### Examples

```
-> ipv6 pim dense-status enable
-> ipv6 pim dense-status disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">ipv6 pim interface</a>	Enables or disables the PIM protocol on a specific interface.
<a href="#">ip load pim</a>	Dynamically loads PIM to memory.
<a href="#">show ipv6 pim dense</a>	Displays the status of the various global parameters for the IPv6 PIM dense mode.

### MIB Objects

```
alaPimdmGlobalConfig
  alaPimdmV6AdminStatus
```

---

## ipv6 pim ssm group

Statically maps the specified IPv6 multicast group(s) to the PIM Source Specific Multicast mode (SSM).

**ipv6 pim ssm group** *group\_address/prefix\_length* [[no] **override**] [**priority** *priority*]

**no ipv6 pim ssm group** *group\_address/prefix\_length*

---

### Syntax Definitions

<i>group_address</i>	Specifies the IPv6 multicast group address.
<i>/prefix_length</i>	Specifies the prefix length of the IPv6 multicast group. Values may range from 4 to 128.
<b>override</b>	Specifies the static SSM mode mapping configuration to override the dynamically learned group mapping information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for this static SSM mode configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static configuration of a Source Specific Multicast mode group mapping.
- The IPv6 PIM Source-Specific Multicast (SSM) mode for the default SSM address range (FF3x::/32) reserved by the Internet Assigned Numbers Authority is not enabled automatically and must be configured manually to support SSM.
- You can also map additional IPv6 multicast address ranges for the SSM group using this command. However, the IPv6 multicast groups in the reserved address range can be mapped only to the SSM mode.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range
- Specifying the priority value obsoletes the **override** option and once the priority option has been defined, a value of 65535 can be used to un-set the priority.

### Examples

```
-> ipv6 pim ssm group ff30::1234:abcd/128 priority 50
-> no ipv6 pim ssm group ff30::1234:abcd/128
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ipv6 pim group-map**

Displays the IPv6 PIM group mapping table.

**show ipv6 pim ssm group**

Displays the static configuration of IPv6 multicast group mappings for PIM-Source Specific Multicast (SSM).

## MIB Objects

alaPimStaticRPTable

alaPimStaticRPGrpAddress

alaPimStaticRPGrpPrefixLength

alaPimStaticRPOverrideDynamic

alaPimStaticRPPrecedence

alaPimStaticRPProwStatus

---

## ipv6 pim dense group

Statically maps the specified IPv6 multicast group(s) to the PIM Dense mode (DM).

**ipv6 pim dense group** *group\_address/prefix\_length* [[**no**] **override**] [**priority** *priority*]

**no ipv6 pim dense group** *group\_address/prefix\_length*

---

### Syntax Definitions

<i>group_address</i>	Specifies the IPv6 multicast group address.
<i>/prefix_length</i>	Specifies the prefix length of the IPv6 multicast group.
<b>override</b>	Specifies the static dense mode mapping configuration to override the dynamically learned group mapping information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for this static configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a static configuration of a dense mode group mapping.
- This command specifies the mode as Dense (PIM-DM) for the specified IPv6 multicast group addresses.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.
- Specifying the priority value obsoletes the **override** option and once the priority option has been defined, a value of 65535 can be used to un-set the priority.

### Examples

```
-> ipv6 pim dense group ff0e::1234/128 priority 50
-> no ipv6 pim dense group ff0e::1234/128
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ipv6 pim group-map**

Displays the IPv6 PIM group mapping table.

**show ipv6 pim dense group**

Displays the static configuration of IPv6 multicast group mappings for PIM Dense Mode (DM).

## MIB Objects

alaPimStaticRPTable

alaPimStaticRPGrpAddress

alaPimStaticRPGrpPrefixLength

alaPimStaticRPOverrideDynamic

alaPimStaticRPPrecedence

alaPimStaticRPRowStatus

---

## ipv6 pim cbsr

Configures the local router as the candidate Bootstrap router (C-BSR) for the PIM IPv6 domain of the specified scope zone.

**ipv6 pim cbsr** *bsr\_address* [**priority** *bsr\_priority*] [**mask-length** *masklen*] [**scope** *scope\_value*]

**no ipv6 pim cbsr** *bsr\_address* [**priority** *bsr\_priority*] [**mask-length** *masklen*] [**scope** *scope\_value*]

---

### Syntax Definitions

<i>bsr_address</i>	The IPv6 unicast address that the local router will use to advertise itself as a Candidate-BSR for PIM IPv6. The specified address must be a domain-wide reachable address.
<i>bsr_priority</i>	The priority value of the local router as a Candidate-BSR. Values may range from 0 to 255. A numerically higher value indicates higher priority.
<i>masklen</i>	The hash mask length that is advertised in the Bootstrap messages for IPv6 PIM (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for a multicast group). Values may range from 1 to 128.
<i>scope_value</i>	The scope value to which this entry applies. The values 3-15 are used to indicate the particular scope to which this BSR applies. If scope value is not used then the C-BSR will be a global (non-scoped) BSR.

### Defaults

parameter	default
<i>bsr-priority</i>	64
<i>masklen</i>	126

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the association of the device as a Candidate-BSR for a PIM domain.
- This command is supported only if PIM is loaded in the system.
- This command is supported only in the sparse mode.
- The information configured using this command is used in the Bootstrap messages.
- Candidate-BSRs also avoid a single point of failure in a PIM domain.

## Examples

```
-> ipv6 pim cbsr 2000::1 priority 100 mask-length 4 scope 6
-> no ipv6 pim cbsr 2000::1 scope 6
-> no ipv6 pim cbsr 2000::1
```

## Release History

Release 6.3.1; command was introduced.  
Release 6.3.4; **scope** parameter was added.

## Related Commands

### **show ipv6 pim cbsr**

Displays the IPv6 Candidate-BSR information that is used in the Bootstrap messages.

## MIB Objects

```
pimBsrCandidateBSRTable
  pimBsrCandidateBSRAddress
  pimBsrCandidateBSRPriority
  pimBsrCandidateBSRHashMaskLength
  pimBsrCandidateBSRZoneIndex
```

---



## ipv6 pim static-rp

Adds, modifies, or deletes a static RP for an IPv6 multicast group (“modifies” applies only to the RP address, since the table is indexed from group address and prefix length parameters).

**ipv6 pim static-rp** *group\_address/prefix\_length rp\_address* [[**no**] **override**] [**priority** *priority*]

**no ipv6 pim static-rp** *group\_address/prefix\_length rp\_address*

---

### Syntax Definitions

<i>group_address</i>	Specifies the IPv6 multicast group address.
<i>/prefix_length</i>	Specifies the prefix length of the IPv6 multicast group.
<i>rp_address</i>	Specifies the IPv6 unicast address of the Rendezvous Point (RP). This must be a domain-wide reachable address.
<b>override</b>	Specifies the static RP configuration to override the dynamically learned RP information for the specified group(s).
<i>priority</i>	Specifies the preference value to be used for this static RP configuration and provides fine control over which configuration is overridden by this static configuration. Values may range from 0 to 128.

### Defaults

By default, the priority option is not set and the override option is set to false.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a static RP configuration.
- Specifying the priority value obsoletes the **override** option.
- The IPv6 PIM Source-Specific Multicast (SSM) mode for the default SSM address range (FF3x::/32) reserved by the Internet Assigned Numbers Authority is not enabled automatically and must be configured manually to support SSM. You can also map additional IPv6 multicast address ranges for the SSM group. However, the IPv6 multicast groups in the reserved address range can be mapped only to the SSM mode.
- If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.
- Note that once the priority option has been defined, a value of 65535 can be used to un-set the priority.
- This command is supported only in the sparse mode.

### Examples

```
-> ipv6 pim static-rp ff0e::1234/128 2000::1 priority 10
-> no ipv6 pim static-rp ff0e::1234/128 2000::1
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ipv6 pim group-map**

Displays the IPv6 PIM group mapping table.

**show ipv6 pim static-rp**

Displays the IPv6 PIM Static RP table, which includes IPv6 multi-cast group address/prefix length, the static Rendezvous Point (RP) address, and the current status of the Static RP configuration (i.e., enabled or disabled).

## MIB Objects

alaPimStaticRPTable

```
alaPimStaticRPGrpAddress  
alaPimStaticRPGrpPrefixLength  
alaPimStaticRPRPAddress  
alaPimStaticRPOverrideDynamic  
alaPimStaticRPPrecedence  
alaPimStaticRPRowStatus
```

---

## ipv6 pim candidate-rp

Configures the local router as the Candidate-Rendezvous Point (C-RP) for a specified IPv6 multicast group(s).

**ipv6 pim candidate-rp** *rp\_address group\_address/prefix\_length* [**priority** *priority*] [**interval** *seconds*]

**no ipv6 pim candidate-rp** *rp\_address group\_address/prefix\_length*

---

### Syntax Definitions

<i>rp_address</i>	Specifies the IPv6 unicast address that will be advertised as a Candidate-RP. This must be a domain-wide reachable address.
<i>group_address</i>	Specifies the IPv6 multicast group address for which the local router will advertise itself as a Candidate-RP.
<i>/prefix_length</i>	Specifies the prefix length of the specified IPv6 multicast group address.
<i>priority</i>	Specifies the priority value of the Candidate-RP. Values may range from 0 to 192. The lower the value, the higher the priority.
<i>seconds</i>	Specifies the interval at which the C-RP advertisements are sent to the Bootstrap router, in seconds. Values may range from 1 to 300.

### Defaults

parameter	default
<i>priority</i>	192
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the association of the device as a C-RP for a particular multicast group.
- Only one RP address is supported per switch. If multiple candidate-RP entries are defined, they must specify the same *rp-address*.
- This command is supported only in the sparse mode.

### Examples

```
-> ipv6 pim candidate-rp 2000::1 ff0e::1234/128 priority 100 interval 100
-> no ipv6 pim candidate-rp 2000::1 ff0e::1234/128
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ipv6 pim candidate-rp** Displays the IPv6 multicast groups for which the local router will advertise itself as a Candidate-RP.

## MIB Objects

```
alaPimBsrCandidateRPTable  
  alaPimBsrCandidateRPAddress  
  alaPimBsrCandidateRPGroupAddress  
  alaPimBsrCandidateRPGroupPrefixLength  
  alaPimBsrCandidateRPPriority  
  alaPimBsrCandidateRPAdvInterval  
  alaPimBsrCandidateRPRowStatus
```

---

## ipv6 pim rp-switchover

Enables or disables an RP to attempt switching to native forwarding upon receiving the first register-encapsulated packet in the IPv6 PIM domain.

**ipv6 pim rp-switchover {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the RP to switch to native forwarding.
<b>disable</b>	Disables the RP from switching to native forwarding.

### Defaults

---

parameter	default
enable   disable	enable

---

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- You cannot specify a pre-configured threshold, such as the RP threshold, as you would do for IPv4 PIM.
- This command is supported only in the sparse mode.

### Examples

```
-> ipv6 pim rp-switchover enable
-> ipv6 pim rp-switchover disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**show ipv6 pim sparse** Displays the status of the various global parameters for the IPv6 PIM sparse mode.

### MIB Objects

```
alaPismGlobalConfig
  alaPismV6RPSwitchover
```

---

## ipv6 pim spt status

Enables or disables last hop Designated Router (DR) switching to the Shortest Path Tree (SPT).

```
ipv6 pim spt status {enable | disable}
```

---

### Syntax Definitions

<b>enable</b>	Enables last hop DR switching to the SPT.
<b>disable</b>	Disables last hop DR switching to the SPT.

### Defaults

parameter	default
enable   disable	enable

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- This command is supported only in the sparse mode.
- If the SPT status is enabled, last hop DR switching to the SPT begins once the first data packet is received.

### Examples

```
-> ipv6 pim spt status enable
-> ipv6 pim spt status disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ipv6 pim sparse](#) Displays the status of the various global parameters for the IPv6 PIM sparse mode.

### MIB Objects

```
alaPimsmGlobalConfig
  alaPimsmV6SPTConfig
```

---

## ipv6 pim interface

Enables IPv6 PIM and configures the statistics such as hello-interval, triggered-hello, hello-holdtime, join-prune, prune-delay, override-interval, dr-priority, stub interface, prune limit interval, and graft retry interval on the IPv6 interface.

**ipv6 pim interface** *if\_name* [**hello-interval** *seconds*] [**triggered-hello** *seconds*] [**joinprune-interval** *seconds*] [**hello-holdtime** *seconds*] [**joinprune-holdtime** *seconds*] [**prune-delay** *milliseconds*] [**override-interval** *milliseconds*] [**dr-priority** *priority*] [[**no**] **stub**] [**prune-limit-interval** *seconds*] [**graft-retry-interval** *seconds*]

**no ipv6 pim interface** *if\_name*

---

### Syntax Definitions

<i>if_name</i>	The interface name on which the IPv6 PIM is being enabled or disabled.
<b>hello-interval</b> <i>seconds</i>	The frequency at which IPv6 PIM Hello messages are transmitted on this interface, in seconds. Values may range from 0 to 18000.
<b>triggered-hello</b> <i>seconds</i>	Specifies the maximum time, in seconds, before a triggered IPv6 PIM Hello message is sent on this interface. Values may range from 0 to 60.
<b>joinprune-interval</b> <i>seconds</i>	The frequency at which periodic IPv6 PIM Join/Prune messages are sent on this interface, in seconds. Values may range from 0 to 18000.
<b>hello-holdtime</b> <i>seconds</i>	Specifies the value of the IPv6 PIM hello-holdtime for this interface. This value is set in the Holdtime field of IPv6 PIM Hello messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>joinprune-holdtime</b> <i>seconds</i>	Specifies the value that is set in the Holdtime field of the IPv6 PIM Joinprune messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>prune-delay</b> <i>milliseconds</i>	Specifies the value of the expected propagation delay between IPv6 PIM routers on this network, inserted into the LAN prune-delay option of the IPv6 PIM Hello messages sent on this interface, in milliseconds. Values may range from 0 to 32767.
<b>override-interval</b> <i>milliseconds</i>	Specifies the value set in the Override Interval field of the LAN prune-delay option of the IPv6 PIM Hello messages sent on this interface, if the prune-delay status is enabled, in <i>milliseconds</i> . Values may range from 0 to 65535.
<b>dr-priority</b> <i>priority</i>	Specifies the Designated Router priority set in the DR priority option on this interface. The DR priority option value (1–192). A higher numeric value denotes a higher priority.
<b>prune-limit-interval</b> <i>seconds</i>	Specifies the minimum interval that must elapse between two successive IPv6 PIM prune messages sent on this interface, in seconds. Values may range from 0 to 65535.
<b>graft-retry-interval</b> <i>seconds</i>	Specifies the minimum interval that must elapse between two successive IPv6 PIM graft messages sent on this interface, in seconds. Values may range from 0 to 65535.

**stub** Specifies the interface not to send any IPv6 PIM packets via this interface, and to ignore received IPv6 PIM packets.

## Defaults

parameter	default
<b>hello-interval</b> <i>seconds</i>	30
<b>triggered-hello</b> <i>seconds</i>	5
<b>joinprune-interval</b> <i>seconds</i>	60
<b>hello-holdtime</b> <i>seconds</i>	105
<b>joinprune-holdtime</b> <i>seconds</i>	210
<b>prune-delay</b> <i>milliseconds</i>	500
<b>override-interval</b> <i>milliseconds</i>	2500
<b>dr-priority</b> <i>priority</i>	1
<b>prune-limit-interval</b> <i>seconds</i>	60
<b>graft-retry-interval</b> <i>seconds</i>	3
<b>stub</b>	Disabled

## Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete an IPv6 PIM interface.
- IPv6 PIM must be enabled globally on the switch before IPv6 PIM will begin running on the interface. To globally enable or disable IPv6 PIM-SM on the switch, refer to the [ipv6 pim sparse status command on page 30-75](#). To enable or disable IPv6 PIM-DM on the switch, refer to the [ipv6 pim dense status command on page 30-76](#).
- Specifying zero for IPv6 PIM hello-interval represents an infinite time, in which case the periodic IPv6 PIM hello messages are not sent.
- Specifying zero for IPv6 PIM joinprune-interval represents an infinite time, in which case the periodic IPv6 PIM joinprune messages are not sent.
- Specifying the value of 65535 for IPv6 PIM hello-holdtime represents an infinite time. If an IPv6 PIM router gets IPv6 PIM Hello packet from a neighbor with its hello-holdtime value as infinite time, then the router will not time out the sender(neighbor). It is recommended that you use an IPv6 PIM hello-holdtime interval that is 3.5 times the value of the IPv6 PIM hello-interval, or 65535 seconds if the IPv6 PIM hello-interval is set to zero
- Specifying the value of 65535 for IPv6 PIM joinprune-holdtime represents an infinite time. The receipt of IPv6 Join/Prune messages with its joinprune-holdtime value as infinite time, then this specifies an infinite holdtime for the particular IPv6 join/prune message. It is recommended that you use a join-prune- holdtime interval that is 3.5 times the value of the IPv6 PIM Join/Prune interval defined for the interface, or 65535 seconds if the IPv6 PIM joinprune-interval is set to zero.



- The interface configured as a **stub** will not send any IPv6 PIM packets via that interface, and any received IPv6 PIM packets are also ignored. By default, an IPv6 PIM interface is not set to be a stub one.
- The IPv6 PIM **graft-retry-interval** and **prune-limit-interval** options can be used only with the IPv6 PIM-DM mode.

## Examples

```
-> ipv6 pim interface vlan-2 hello-interval 100 triggered-hello 10 joinprune-interval 100 hello-holdtime 350 joinprune-holdtime 400
-> no ipv6 pim interface vlan-2
```

## Release History

Release 6.3.1; command was introduced.

## Related Command

[show ipv6 pim interface](#)      Displays detailed IPv6 PIM settings for a specific interface.

## MIB Objects

alaPimInterfaceTable

```
alaPimInterfaceIfIndex
alaPimInterfaceStatus
alaPimInterfaceHelloInterval
alaPimInterfaceTrigHelloInterval
alaPimInterfaceJoinPruneInterval
alaPimInterfaceHelloHoldtime
alaPimInterfaceJoinPruneHoldtime
alaPimInterfacePropagationDelay
alaPimInterfaceOverrideInterval
alaPimInterfaceDRPriority
alaPimInterfaceStubInterface
alaPimInterfacePruneLimitInterval
alaPimInterfaceGraftRetryInterval
```

---

## show ipv6 pim sparse

Displays the status of the various global parameters for the IPv6 PIM sparse mode.

**show ipv6 pim sparse**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pim sparse
Status                = enabled,
Keepalive Period      = 210,
Max RPs                = 32,
Probe Time            = 5,
Register Suppress Timeout = 60,
RP Switchover         = enabled,
SPT Status            = enabled,
```

### *output definitions*

---

<b>Status</b>	The current global (i.e., switch-wide) status of the IPv6 PIM sparse mode. Options include <b>enabled</b> and <b>disabled</b> .
<b>Keepalive Period</b>	The duration of the Keepalive timer. The default value is 210.
<b>Max RPs</b>	The maximum number of Rendezvous Points (RPs) allowed in the IPv6 PIM-SM domain (1–100). The default value is 32.
<b>Probe Time</b>	The amount of time before the Register Suppression timer expires, at which point the Designated Router (DR) sends a Null Register message to the Rendezvous Point (RP). This allows the RP to refresh the Register-Stop. If the Register Suppression timer expires, the DR will resume encapsulating packets from the source to the RP. Values may range from 1 to 300. The default value is 5.
<b>Register Suppress Timeout</b>	The amount of time, in seconds, the Designated Router (DR) will stop sending registers to the Rendezvous Point (RP) once a Register-Stop is received (1–300). The default value is 60.

*output definitions*


---

<b>RP switchover</b>	The current status of the RP Switchover capability. RP switchover enables or disables an RP to attempt switching to native forwarding upon receiving the first register-encapsulated data packet. Options include <b>enabled</b> and <b>disabled</b> . The default setting is <b>enabled</b> .
<b>SPT Status</b>	The current status of last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). Options include <b>enabled</b> and <b>disabled</b> . The default setting is <b>enabled</b> .

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

<b>ipv6 pim rp-switchover</b>	Enables or disables an RP to attempt switching to native forwarding upon receiving the first register-encapsulated packet in the IPv6 PIM domain.
<b>ipv6 pim spt status</b>	Enables or disables last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). If enabled, last hop DR switching to the SPT begins once the first multicast data packet is received.
<b>ipv6 pim sparse status</b>	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
<b>ipv6 pim interface</b>	Enables IPv6 PIM and configures statistics such as hello-interval, triggered-hello, hello-holdtime, joinprune, prune-delay, override-interval, dr-priority, stub interface, prune limit interval, and graft retry interval on the interface.
<b>ip pim max-rps</b>	Configures the maximum number of C-RP routers allowed in the PIM-SM domain.
<b>ip pim probe-time</b>	Configures the amount of time before the Register Suppression timer expires, at which point the Designated Router (DR) sends a Null Register message to the Rendezvous Point (RP). This allows the RP to refresh the Register-Stop. If the Register Suppression timer expires, the DR will resume encapsulating packets from the source to the RP.
<b>ip pim register-suppress-timeout</b>	Specifies the period during which a Designated Router (DR) stops sending Register-encapsulated packets to the Rendezvous Point (RP) after receiving a Register-Stop message.

**MIB Objects**

```

alaPismGlobalConfig
  alaPismV6AdminStatus
  alaPimKeepalivePeriod
  alaPismMaxRPS
  alaPismProbeTime
  alaPimRegisterSuppressionTime
  alaPismV6RPSwitchover
  alaPismV6AdminSPTConfig

```

---

## show ipv6 pim dense

Displays the status of the various global parameters for the IPv6 PIM dense mode.

```
show ipv6 pim dense
```

---

### Syntax Definitions

N/A.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pim dense
Status                = enabled,
Source Lifetime       = 210,
State Refresh Interval = 60,
State Refresh Limit Interval = 0,
State Refresh TTL     = 16
```

*output definitions*

---

<b>Status</b>	The current global (i.e., switch-wide) status of the IPv6 PIM dense mode. Options include <b>enabled</b> and <b>disabled</b> .
<b>Source Lifetime</b>	The duration of the Keepalive or Source Lifetime timer. The default value is 210.
<b>State Refresh Interval</b>	The time-interval, in seconds, between successive State Refresh messages originated by the router. The default value is 60.
<b>State Refresh Limit Interval</b>	Displays the limit at which a router will not forward the State Refresh messages, if they are received at less than the interval. The default value is 0.
<b>State Refresh TTL</b>	Displays the TTL to be used in the router's originated State Refresh messages. The default value is 16.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

<a href="#">ip6 pim dense status</a>	Enables or disables IPv6 PIM-DM (dense mode) globally on the switch.
<a href="#">ip pim keepalive-period</a>	Configures the period during which the (S,G) Join state will be maintained in the absence of (S,G) Join messages or explicit (S,G) local membership.
<a href="#">ip pim state-refresh-interval</a>	Sets the interval between successive State Refresh messages originated by a router.
<a href="#">ip pim state-refresh-limit</a>	Sets the limit at which a router will not forward successive State Refresh messages if they are received at less than the interval.
<a href="#">ip pim state-refresh-ttl</a>	Sets the Time to Live to be used in a router's originated State Refresh messages if the data packet's Time to Live is not recorded.

**MIB Objects**

```
alaPimdmGlobalConfig
  alaPimdmV6AdminStatus
  alaPimKeepalivePeriod
  alaPimRefreshInterval
  alaPimdmStateRefreshLimitInterval
  alaPimdmStateRefreshTimeToLive
```

---

## show ipv6 pim ssm group

Displays the static configuration of IPv6 multicast group mappings for PIM-Source Specific Multicast (SSM).

```
show ipv6 pim ssm group
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.

### Examples

```
-> show ipv6 pim ssm group
```

```
Group Address/Pref Length  Mode  Override Precedence Status
-----+-----+-----+-----+-----
ff00::/8                   ssm   false   none    enabled
ff34::/32                   ssm   false   none    enabled
```

#### *output definitions*

---

<b>Group Address/Pref Length</b>	The IPv6 multicast group address along with the prefix length.
<b>Mode</b>	The IPv6 PIM mode that is used for the groups in this prefix.
<b>Override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	The precedence value that can be used for this static RP configuration.
<b>Status</b>	Displays whether this entry is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> .

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### [ipv6 pim ssm group](#)

Statically maps the specified IPv6 multicast group(s) to the PIM Source Specific Multicast mode (SSM).

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPPimMode  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPRowStatus
```

---

## show ipv6 pim dense group

Displays the static configuration of IPv6 multicast group mappings for PIM Dense Mode (DM).

**show ipv6 pim dense group**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.

### Examples

```
-> show ipv6 pim dense group
Group Address/Pref Length  Mode  Override  Precedence  Status
-----+-----+-----+-----+-----
ff00::/8                   dm    false    none        enabled
ff34::/32                   dm    false    none        enabled
```

#### *output definitions*

---

<b>Group Address/Pref Length</b>	The IPv6 multicast group address along with the prefix length.
<b>Mode</b>	The IPv6 PIM mode that is used for the groups in this prefix.
<b>Override</b>	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	The precedence value that can be used for this static RP configuration.
<b>Status</b>	Displays whether this entry is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> .

---

### Release History

Release 6.3.1; command was introduced.



## Related Commands

### [ipv6 pim dense group](#)

Statically maps the specified IPv6 multicast group(s) to the PIM Dense mode (DM).

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPRowStatus  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPPimMode  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPPrecedence  
  alaPimStaticRPGrpAddress
```

---

## show ipv6 pim interface

Displays detailed IPv6 PIM settings for a specific interface. In general, it displays IPv6 PIM settings for all the interfaces if no argument is specified.

**show ipv6 pim interface** [*if\_name*]

---

### Syntax Definitions

*if\_name*                                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

To view more detailed information about a particular interface, specify the interface name in the command line. Additional information includes Triggered Hello Interval, Hello Holdtime, Prune Delay status and value, Override Interval, LAN Delay status, Generation ID status, and Join/Prune Holdtime.

### Examples

```
-> show ipv6 pim interface
```

Interface Name	Designated Router	Hello Interval	Join/Prune Interval	Oper Status
vlan-5	fe80::2d0:95ff:feac:a537	30	60	enabled
vlan-30	fe80::2d0:95ff:feac:a537	30	60	disabled
vlan-40	fe80::2d0:95ff:fee2:6eec	30	60	enabled

```
-> show ipv6 pim interface vlan-5
```

```
Interface Name          = vlan-5,
IP Address              = fe80::2d0:95ff:fee2:6eec,
Designated Router      = fe80::2d0:95ff:fee2:a537,
Hello Interval         = 30,
Triggered Hello Interval = 5,
Hello HoldTime        = 105,
Join/Prune Interval    = 60,
Join/Prune HoldTime    = 210,
Propagation (Prune) Delay = 500,
Override Interval      = 2500,
Generation ID          = 0x4717be4d,
DR Priority             = 1,
DR Priority Enabled     = true,
Lan Delay Enabled      = true,
Effective Propagation Delay = 500,
Effective Override Interval = 2500,
Suppression Enabled    = true,
Stub Interface         = false,
```

```

Prune Limit Interval      = 60,
Graft Retry Interval     = 3,
State Refresh Enabled    = true,
Operational Status      = enabled

```

*output definitions*


---

<b>Interface Name</b>	The name of the IPv6 PIM interface.
<b>IPv6 address</b>	Specifies the IPv6 address of the specified interface.
<b>Designated Router</b>	The primary IP address for the Designated Router (DR). The DR acts on behalf of any directly-connected hosts with respect to the PIM-SM protocol. Only one router in the LAN will act as the DR.
<b>Hello Interval</b>	The frequency at which PIM Hello messages are transmitted on a specified interface. Values may range from 1 to 18000. The default value is 30.
<b>Join/Prune Interval</b>	The Join/Prune interval for the associated interface. The Join/Prune interval is the interval at which periodic PIM-SM Join/Prune messages are sent. Values may range from 0 to 18000. The default value is 60.
<b>Triggered Hello Interval</b>	The current Triggered Hello Interval. This value indicates the maximum time, in seconds, before a triggered PIM Hello message is transmitted on the corresponding interface. Values may range from 0 to 60. The default value is 5.
<b>Hello Holdtime</b>	The current Hello Holdtime value. This value indicates the maximum amount of time, in seconds, Hello messages will be held before they are considered invalid. Values may range from 0 to 65535. The default value is 105.
<b>Join/Prune Holdtime</b>	The current Join/Prune Holdtime value. This value indicates the maximum amount of time, in seconds, Join/Prune messages will be held before they are considered invalid. Values may range from 0 to 65535. The default value is 210.
<b>Propagation Delay</b>	The expected propagation delay between PIM routers on the network. Values may range from 0 to 32767. The default value is 500.
<b>Override Interval</b>	The current Override Interval. This value is used to avoid synchronization of override messages when multiple downstream routers share a multi-access link. The sending of override messages is delayed at random time intervals. The amount of randomization used by a router is dictated by this number. Values may range from 0 to 65535. The default value is 2500.
<b>Generation ID Option</b>	The value of the Generation ID this router inserted in the last PIM Hello message it sent on this interface.
<b>DR Priority</b>	Displays the Designated Router priority for each interface. This value is used in determining the Designated Router on an interface. Values may range from 1 to 192. A higher numeric value denotes a higher priority. Note that priority-based election is used only if all routers on the interface are using the DR priority option. The default value is 1.
<b>Lan Delay Enabled</b>	Options include <b>true</b> and <b>false</b> . The value will be true if all neighbors on the interface are using the LAN Prune Delay option. Otherwise, the setting will be false.
<b>Effective Propagation Delay</b>	The Effective Propagation Delay on this interface.

*output definitions (continued)*


---

<b>Effective Override Interval</b>	The Effective Override Interval on this interface.
<b>Suppression Enabled</b>	Specifies whether the Join suppression is enabled on this interface.
<b>DR Priority Enabled</b>	Evaluates to TRUE if all routers on this interface are using the DR Priority option.
<b>Stub Interface</b>	Specifies whether this interface is a 'stub interface'. If this is TRUE, then no PIM packets are sent out on this interface, and any received PIM packets are ignored.
<b>Prune Limit Interval</b>	The minimum interval that must transpire between two successive Prunes sent by a router. This is used only with PIM-DM. Values may range from 0 to 65535. The default value is 60.
<b>Graft Retry Interval</b>	Displays the time-interval a router waits for a Graft acknowledgment before resending a Graft on the interface. This is only used with PIM-DM. Values may range from 0 to 65535. The default value is 3.
<b>SR Priority Enabled</b>	Evaluates to TRUE if all routers on this interface are using the State Refresh option. This is used only by PIM-DM.
<b>Operational Status</b>	The current operational status of the corresponding interface. Options include <b>enabled</b> and <b>disabled</b> . This value indicates whether the IPv6 interface is operationally up. For example, if PIM is enabled on the interface, but the interface is currently down, this field will display as disabled. The default setting is <b>disabled</b> . To enable or disable PIM on an interface, refer to the <a href="#">ipv6 pim interface command on page 30-89</a> . To globally enable or disable PIM on the switch, refer to the <a href="#">ipv6 pim sparse status command on page 30-75</a> and <a href="#">ipv6 pim dense status command on page 30-76</a> .

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

[ipv6 pim interface](#) Enables IPv6 PIM and configures statistics such as hello-interval, triggered-hello, hello-holdtime, joinprune, prune-delay, override-interval, dr-priority, stub interface, prune limit interval, and graft retry interval on the interface.

**MIB Objects**

```

alaPimInterfaceTable
  alaPimInterfaceIfIndex
  alaPimInterfaceDR
  alaPimInterfaceHelloInterval
  alaPimInterfaceJoinPruneInterval
  alaPimInterfaceStatus
  alaPimInterfaceAddress
  alaPimInterfaceTrigHelloInterval
  alaPimInterfaceHelloHoldtime
  alaPimInterfaceJoinPruneHoldtime
  alaPimInterfacePropagationDelay
  alaPimInterfaceOverrideInterval
  alaPimInterfaceGenerationIDValue

```

```
alaPimInterfaceDRPriority  
alaPimInterfaceLanDelayEnabled  
alaPimInterfaceEffectPropagDelay  
alaPimInterfaceEffectOverrideIvl  
alaPimInterfaceSuppressionEnabled  
alaPimInterfaceDRPriorityEnabled  
alaPimInterfaceStubInterface  
AlaPimInterfacePruneLimitInterval  
alaPimInterfaceGraftRetryInterval  
alaPimInterfaceSRPriorityEnabled
```

---

## show ipv6 pim neighbor

Displays a list of active IPv6 PIM neighbors.

```
show ipv6 pim neighbor [ipv6_address] [if_name]
```

---

### Syntax Definitions

*ipv6\_address*                      The IPv6 address for the PIM neighbor.

*if\_name*                              The name of the interface.

### Defaults

If the neighbor's IPv6 address or interface name is not specified, the entire IPv6 PIM neighbor table is displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

To view more detailed information about a particular neighbor, specify the neighbor's IPv6 address or the associated interface name in the command line. Additional information will be displayed, which includes LAN Prune Delay, Override Interval, TBit field, State Refresh capable, and Designated Router option status.

### Examples

```
-> show ipv6 pim neighbor
Neighbor Address                      Interface Name                      Uptime                      Expires                      DR Pri
-----+-----+-----+-----+-----
fe80::2d0:95ff:feac:a537              vlan-30                              02h:56m:51s                      00h:01m:28s                      1
```

If a specific neighbor address is specified in the command line, *detailed information for the corresponding neighbor only* displays:

```
-> show ipv6 pim neighbor fe80::2d0:95ff:feac:a537
vlan-30
Neighbor IPv6 Address                      = fe80::2d0:95ff:feac:a537,
Uptime                                      = 02h:57m:09s,
Expires                                      = 00h:01m:40s,
Lan Prune Delay Present                      = True,
Propagation Delay                              = 500,
Override Interval                              = 2500,
TBit Field                                      = True,
Gen ID Present                                      = True,
Gen ID Value                                      = 0x7720c123,
BiDir Capable                                      = False,
DR Priority Present                              = True,
DR Priority                                      = 1,
State Refresh Capable                              = True,
```

```

Secondary Addresses:
  3000::11

vlan-40
Neighbor IPv6 Address      = fe80::2d0:95ff:feac:a537,
Uptime                    = 03h:57m:03s,
Expires                   = 00h:01m:20s,
Lan Prune Delay Present   = True,
Propagation Delay         = 500,
Override Interval         = 2500,
TBit Field                 = True,
Gen ID Present            = True,
Gen ID Value               = 0x7720c123,
BiDir Capable             = False,
DR Priority Present        = True,
DR Priority                 = 1,
State Refresh Capable     = True,
Secondary Addresses:
  4000::11

```

If a specific interface name is specified in the command line, *detailed information corresponding to all neighbors on the specified interface only* displays:

```

-> show IPv6 pim neighbor vlan-30
vlan-30
Neighbor IPv6 Address      = fe80::2d0:95ff:feac:a537,
Uptime                    = 02h:57m:09s,
Expires                   = 00h:01m:40s,
Lan Prune Delay Present   = True,
Propagation Delay         = 500,
Override Interval         = 2500,
TBit Field                 = True,
Gen ID Present            = True,
Gen ID Value               = 0x7720c123,
BiDir Capable             = False,
DR Priority Present        = True,
DR Priority                 = 1,
State Refresh Capable     = True,
Secondary Addresses:
  3000::11

```

### *output definitions*

<b>Neighbor IPv6 Address</b>	The IPv6 address of the active PIM neighbor.
<b>Interface Name</b>	The name of the IPv6 PIM interface that is used to reach the neighbor.
<b>Uptime</b>	The amount of time since this PIM neighbor last became a neighbor of the local router, displayed in hours, minutes, and seconds.
<b>Expires</b>	The minimum amount of time remaining before the PIM neighbor will be aged out, displayed in hours, minutes, and seconds.
<b>LAN Prune Delay present</b>	Specifies whether this neighbor is using the LAN Prune Delay option. Options include <b>true</b> or <b>false</b> .
<b>Propagation Delay</b>	The value of the propagation-delay field of the LAN prune-delay option received from this neighbor. A value of 0 indicates that no LAN prune-delay option was received from this neighbor.

*output definitions (continued)*


---

<b>Override Interval</b>	The current Override Interval of the LAN prune-delay option received from this neighbor. This value is used to avoid synchronization of override messages when multiple downstream routers share a multi-access link. The sending of override messages is delayed at random time intervals. The amount of randomization used by the neighboring router is dictated by this number. Values may range from 0 to 65535. A value of 0 indicates that no LAN prune-delay option was received from this neighbor.
<b>TBit field</b>	The value of the Tbit field of the LAN prune-delay option received from this neighbor. The Tbit specifies the ability of the neighbor to disable Join suppression.
<b>Gen ID present</b>	Specifies whether this neighbor is using Generation ID option. Options include <b>true</b> or <b>false</b> .
<b>Gen ID Value</b>	The value of the Generation ID in the last PIM Hello message received from this neighbor.
<b>BiDir Capable</b>	Specifies whether this neighbor is using the Bidirectional-PIM Capable option.
<b>DR Priority Present</b>	Displays whether the neighbor is using the Designated Router option. Options include <b>true</b> or <b>false</b> .
<b>DR priority</b>	The value of the Designated Router Priority in the last PIM Hello message received from this neighbor.
<b>State Refresh Capable</b>	Displays whether the neighbor is capable of receiving State Refresh messages. Options include <b>true</b> or <b>false</b> .
<b>Secondary Addresses</b>	The secondary IPv6 address of this PIM neighbor.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

```

alaPimNeighborTable
  alaPimNeighborAddress
  alaPimNeighborIfIndex
  alaPimNeighborUpTime
  alaPimNeighborExpiryTime
  alaPimNeighborLanPruneDelayPresent
  alaPimNeighborPropagationDelay
  alaPimNeighborTBit
  alaPimNeighborGenerationIDPresent
  alaPimNeighborGenerationIDValue
  alaPimNeighborBiDirCapable
  alaPimNeighborDRPriorityPresent
  alaPimNeighborDRPriority
  alaPimNeighborSRCapable

```



```
alaPimNbrSecAddressTable  
  alaPimNbrSecAddress
```

---

## show ipv6 pim static-rp

Displays the IPv6 PIM Static RP table, which includes IPv6 multicast group address/prefix length, the static Rendezvous Point (RP) address, and the current status of the static RP configuration (i.e., enabled or disabled).

```
show ipv6 pim static-rp
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

If the group prefixes configured for two or more rows in this table overlap, the row with the greatest prefix length value is used for the overlapping range.

### Examples

```
-> show ipv6 pim static-rp
```

Group Address/Pref Length	RP Address	Mode	Override	Precedence	Status
ff00::/8	3000::11	asm	false	none	enabled
ff34::/32	3000::11	asm	false	none	enabled

#### *output definitions*

<b>Group Address/Pref Length</b>	The IPv6 multicast group address along with the prefix length.
<b>RP Address</b>	The IPv6 address of the RP that is mapped for the groups within the group prefix. This field is set to zero, if the specified IPv6 PIM mode is SSM or DM.
<b>Mode</b>	The IPv6 PIM mode that is used for the groups in this prefix. The possible values include ASM, SSM, or DM.
<b>Override</b>	Specifies that this static RP configuration can override the dynamically learned RP information for the specified group(s).
<b>Precedence</b>	The precedence value that is used for this static RP configuration.
<b>Status</b>	Displays whether the static RP configuration is currently enabled or disabled. Options include <b>enabled</b> and <b>disabled</b> .

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **ipv6 pim static-rp**

Adds, modifies, or deletes a static RP for an IPv6 multicast group (“modifies” applies only to the RP address, since the table is indexed from group address and prefix length parameters).

## MIB Objects

```
alaPimStaticRPTable  
  alaPimStaticRPGrpAddress  
  alaPimStaticRPGrpPrefixLength  
  alaPimStaticRPAddress  
  alaPimStaticRPPimMode  
  alaPimStaticRPOverrideDynamic  
  alaPimStaticRPRowStatus  
  alaPimStaticRPPrecedence
```

---

## show ipv6 pim group-map

Displays the IPv6 PIM group mapping table.

**show ipv6 pim group-map** [**bsr** | **static-rp** | **ssm** | **dense**]

---

### Syntax Definitions

N/A

### Defaults

If the keywords **bsr**, **static-rp**, **ssm**, or **dense** are included in the command line, then only the entries that were created by the specified origin are displayed.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- If static RP configuration is being used, this information is obtained from those static RP addresses that are defined via the **ipv6 pim static-rp** command. As long as the RP addresses defined in the static RP set are reachable, they will be added to the group mapping table.
- If the IPv6 multicast groups are mapped to the mode DM or SSM, then the entries created by local SSM address range configuration using the **ipv6 pim ssm group** command and local Dense Mode address range configuration using the **ipv6 pim dense group** command are displayed.
- If the Bootstrap mechanism is being used, this information is obtained from received Candidate-RP advertisements (when the local router is the BSR; when the local router is not the BSR, this information is obtained from received Bootstrap messages).

### Examples

```
-> show ipv6 pim group-map
Origin      Group Address/Pref Length  RP Address  Mode  Precedence
-----+-----+-----+-----+-----
BSR         ff00::/8                    3000::11   asm   192
BSR         ff00::/8                    4000::7    asm   192
SSM         ff33::/32                    -          ssm

```

```
-> show ipv6 pim group-map bsr
Origin      Group Address/Pref Length  RP Address  Mode  Precedence
-----+-----+-----+-----+-----
BSR         ff00::/8                    3000::11   asm   192
BSR         ff00::/8                    4000::7    asm   192

```

```
-> show ipv6 pim group-map ssm
Origin      Group Address/Pref Length  RP Address  Mode  Precedence
-----+-----+-----+-----+-----

```

SSM ff33::/32

ssm

*output definitions*


---

<b>Origin</b>	The mechanism by which the PIM mode and RP for the group were learned. The possible values include 'static RP' for local static RP configuration, 'static SSM' for both static SSM group configuration and Dense Mode Group configuration, and 'BSR' for the PIM Bootstrap Router mechanism.
<b>Group Address/Prefix Length</b>	The IPv6 multicast group address along with the prefix length.
<b>RP Address</b>	The IPv6 address of the Rendezvous Point to be used for groups within the group prefix.
<b>Mode</b>	The IPv6 PIM mode to be used for groups in this prefix.
<b>Mapping Precedence</b>	The precedence value of a particular row, that determines which row applies to a given group address. Numerically higher values for this object indicate lower precedences, with the value zero denoting the highest precedence.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

<a href="#">ipv6 pim static-rp</a>	Adds, modifies, or deletes a static RP for an IPv6 multicast group (“modifies” applies only to the RP address, since the table is indexed from group address and prefix length parameters).
<a href="#">ipv6 pim ssm group</a>	Statically maps the specified IPv6 multicast group(s) to the PIM Source Specific Multicast mode (SSM).
<a href="#">ipv6 pim dense group</a>	Statically maps the specified IPv6 multicast group(s) to the PIM Dense mode (DM).

**MIB Objects**

```

alaPimGroupMappingTable
  alaPimGroupMappingOrigin
  alaPimGroupMappingGrpAddress
  alaPimGroupMappingGrpPrefixLength
  alaPimGroupMappingRPAddress
  alaPimGroupMappingPimMode
  alaPimGroupMappingPrecedence

```

---

## show ipv6 pim candidate-rp

Displays the IPv6 multicast groups for which the local router advertises itself as a Candidate-RP.

**show ipv6 pim candidate-rp**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pim candidate-rp
RP Address          Group Address      Priority  Interval  Status
-----+-----+-----+-----+-----
3000::11           FF00::/8           192      60        enabled
```

#### *output definitions*

---

<b>RP Address</b>	An IPv6 unicast address that is advertised as the Candidate-Rendezvous Point (RP).
<b>Group Address</b>	The IPv6 multicast group address along with the prefix length. This is the group for which the local router advertises itself as a C-RP.
<b>Priority</b>	The C-RP router's priority. The lower the value, the higher the priority.
<b>Interval</b>	The time interval at which the C-RP advertisements are sent to the BSR.
<b>Status</b>	The current status of this entry. The status is shown as enabled only if the IPv6 PIM-SM is globally enabled and the IPv6 PIM interface is enabled.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **ipv6 pim candidate-rp**

Configures the local router as the Candidate-Rendezvous Point (C-RP) for a specified IPv6 multicast group(s).

## MIB Objects

```
alaPimBsrCandidateRPTable  
  alaPimBsrCandidateRPAddress  
  alaPimBsrCandidateRPGroupAddress  
  alaPimBsrCandidateRPGroupPrefixLength  
  alaPimBsrCandidateRPPriority  
  alaPimBsrCandidateRPInterval  
  alaPimBsrCandidateRPStatus
```

---

## show ipv6 pim cbsr

Displays the IPv6 Candidate-BSR information that is used in the Bootstrap messages. If the scope argument is not included in the command line, then this command will display C-BSR information for all known scope zones.

**show ipv6 pim cbsr** [*scope scope\_value*]

---

### Syntax Definitions

*scope\_value* This is an optional argument used to display the C-BSR information associated with a particular scope zone.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pim cbsr
```

```
CBSR Global Scope
  CBSR Address      = 8000::7,
  Status            = enabled,
  CBSR Priority      = 0,
  Hash Mask Length  = 126,
  Elected BSR      = False,
  Timer             = 00h:00m:00s
```

```
CBSR Scope Zone:6
  CBSR Address      = 3000::7,
  Status            = enabled,
  CBSR Priority      = 0,
  Hash Mask Length  = 126,
  Elected BSR      = False,
  Timer             = 00h:00m:00s
```

```
-> show ipv6 pim cbsr scope 6
```

```
CBSR Scope Zone:6
  CBSR Address      = 3000::7,
  Status            = enabled,
  CBSR Priority      = 0,
  Hash Mask Length  = 126,
```



Elected BSR = False,  
 Timer = 00h:00m:00s

### *output definitions*

---

<b>Scope</b>	IPv6 scope value that ranges from 3-15. It is used to define Candidate BSR information associated with a particular scope zone.
<b>CBSR Address</b>	An IPv6 unicast address that the local router uses to advertise itself as a Candidate-BSR for PIM IPv6.
<b>Status</b>	The current status of this entry. The status is shown as enabled only if the IPv6 PIM-SM is globally enabled and the IPv6 PIM interface is enabled.
<b>CBSR Priority</b>	The priority value for the local router as a Candidate-BSR. The higher the value, the higher the priority.
<b>Hash Mask Length</b>	The hash mask length that is advertised in the Bootstrap messages (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for an IPv6 multicast group).
<b>Elected BSR</b>	Specifies whether the local router is the elected BSR for PIM IPv6.
<b>Timer</b>	The time that is remaining before the local router originates the next Bootstrap message. This value is zero if this router is not the elected BSR.

---

### **Release History**

Release 6.3.1; command was introduced.  
 Release 6.3.4; **scope** parameter was added.

### **Related Commands**

[ipv6 pim cbsr](#) Configures the Candidate-BSR information that is used in the Bootstrap messages.

### **MIB Objects**

```
pimBsrCandidateBSRTable
  pimBsrCandidateBSRZoneIndex
  pimBsrCandidateBSRAddress
  pimBsrCandidateBSRPriority
  pimBsrCandidateBSRHashMaskLength
  pimBsrCandidateBSRElectedBSR
  pimBsrCandidateBSRBootstrapTimer
  pimBsrCandidateBSRStatus
```

---

## show ipv6 pim bsr

Displays information about the elected BSR for PIM IPv6. If the scope argument is included in the command line, then this command will display BSR information of the specified scope zone. If the scope argument is not included in the command line then BSR information for all the known scope zones will be displayed.

**show ipv6 pim bsr** [*scope scope\_value*]

---

### Syntax Definitions

*scope\_value* This is an optional argument used to display BSR information of a particular scope zone.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 pim bsr
```

```
BSR Global Scope
  BSR Address           = 8000::7,
  BSR Priority           = 192,
  Hash Mask Length      = 126,
  Expiry Time           = 00h:01m:35s
```

```
BSR Scope Zone:6
  BSR Address           = 3000::7,
  BSR Priority           = 192,
  Hash Mask Length      = 126,
  Expiry Time           = 00h:01m:32s
```

```
->show ipv6 pim bsr scope 6
```

```
BSR Scope Zone:3
  BSR Address           = 3000::7,
  BSR Priority           = 192,
  Hash Mask Length      = 126,
  Expiry Time           = 00h:01m:32s
```

*output definitions*

---

<b>Scope</b>	IPv6 scope value that ranges from 3-15. It is used to define BSR information associated with a particular scope zone.
<b>BSR Address</b>	The IPv6 unicast address of the elected BSR.
<b>BSR Priority</b>	The priority value of the elected BSR. The higher the value, the higher the priority.
<b>Hash Mask Length</b>	The hash mask length that is advertised in the Bootstrap messages by the elected BSR (the length of the mask is used in the hash function when computing the Rendezvous Point (RP) for a multicast group.
<b>Expiry Time</b>	The minimum time remaining before the elected BSR for PIM IPv6 will be declared down.

---

**Release History**

Release 6.3.1; command was introduced.  
Release 6.3.4; **scope** parameter was added.

**Related Commands**

[ipv6 pim cbsr](#) Configures the Candidate-BSR information that is used in the Bootstrap messages.

**MIB Objects**

```
pimBsrElectedBSRTable  
  pimBsrElectedBSRZoneIndex  
  pimBsrElectedBSRAddress  
  pimBsrElectedBSRPriority  
  pimBsrElectedBSRHashMaskLength  
  pimBsrElectedBSRExpiryTime
```

---

## show ipv6 pim groute

Displays all (\*,G) state that the IPv6 PIM has.

```
show ipv6 pim groute [group_address]
```

---

### Syntax Definitions

*group\_address*                      The IPv6 address of the Multicast Group.

### Defaults

By default, entire (\*,G) routing table is displayed. To view more detailed (\*,G) state information about a particular group, specify the group address in the command line.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

When the *group\_address* is specified in the command line, the detailed information displayed also includes the detailed state of every outgoing interface.

### Examples

```
-> show ipv6 pim groute
Total 1 (*,G)
```

Group Address	RP Address	RPF Interface	UpTime
ff0e::7	5ffe::3	vlan-4	00h:01m:23s

```
-> show ipv6 pim groute ff0e::7
(*,ff0e::7)
  UpTime                = 00h:01m:28s
  RP Address             = 5ffe::3,
  PIM Mode               = ASM,
  PIM Mode Origin       = BSR,
  Upstream Join State    = Not Joined,
  Upstream Join Timer    = 00h:00m:00s,
  Upstream Neighbor     = fe80::220:fcff:fe1e:2455,
  RPF Interface         = vlan-4,
  RPF Next Hop          = fe80::220:fcff:fe1e:2455,
  RPF Route Protocol    = Static,
  RPF Route Address     = 5ffe::3/128,
  RPF Route Metric Pref = 10,
  RPF Route Metric      = 10,
  Interface Specific State:
    vlan-3
      UpTime                = 00h:01m:28s,
      Local Membership      = False,
      Join/Prune State      = Joined,
      Prune Pending Timer   = 00h:00m:00s,
```

```

Join Expiry Timer      = 00h:02m:02s,
Assert State          = Loser,
Assert Timer          = 00h:01m:32s,
Assert Winner Address = fe80::220:fcff:fe1e:2454,
Assert Winner Metric Pref = 9 (rpt),
Assert Winner Metric  = 10,
vlan-4
UpTime                = 00h:00m:00s,
Local Membership      = False,
Join/Prune State      = No Info,
Prune Pending Timer   = 00h:00m:00s,
Join Expiry Timer     = 00h:00m:00s,
Assert State          = No Info,
Assert Timer          = 00h:00m:00s,
vlan-5
UpTime                = 00h:00m:00s,
Local Membership      = False,
Join/Prune State      = No Info,
Prune Pending Timer   = 00h:00m:00s,
Join Expiry Timer     = 00h:00m:00s,
Assert State          = No Info,
Assert Timer          = 00h:00m:00s,

```

*output definitions*


---

<b>Group-address</b>	The IPv6 Multicast Group Address.
<b>RP Address</b>	The address of the Rendezvous Point (RP) for the group.
<b>RPF Interface</b>	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
<b>Upstream Neighbor</b>	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (*,G) join messages to.
<b>UpTime</b>	The time since this entry was created.
<b>Pim Mode Origin</b>	The mechanism by which the PIM mode and RP for the group were learned.
<b>Upstream Join State</b>	Whether the local router should join the RP tree for the group.
<b>Upstream Join Timer</b>	The time remaining before the local router next sends a periodic (*,G) Join message on the RPF IfIndex.
<b>RPF Next Hop</b>	The address of the RPF next hop towards the RP.
<b>RPF Route Protocol</b>	The routing mechanism via which the route used to find the RPF interface towards the RP was learned.
<b>RPF Route Address/Prefix Length</b>	The IPv6 address combined with the prefix length identifies the route used to find the RPF interface towards the RP.
<b>Route Metric Pref</b>	The metric preference of the route used to find the RPF interface towards the RP.
<b>Route Metric</b>	The routing metric of the route used to find the RPF interface towards the RP.
<b>Interface Name</b>	The interface name that corresponds to the ifIndex.
<b>Local Membership</b>	Whether the local router has (*,G) local membership on this interface.
<b>Join Prune State</b>	The state resulting from (*,G) Join/Prune messages received on this interface.

*output definitions (continued)*


---

<b>Prune Pending Timer</b>	The time remaining before the local router acts on a (*,G) Prune message received on this interface, during which the router is waiting to see whether another downstream router will override the Prune message.
<b>Join Expiry Timer</b>	The time remaining before (*,G) Join state for this interface expires.
<b>Assert State</b>	The (*,G) Assert state for this interface. The possible values are No Info, Winner or Loser.
<b>Assert Timer</b>	If Assert State is 'Winner', this is the time remaining before the local router next sends a (*,G) Assert message on this interface. If the Assert State is 'Loser', this is the time remaining before the (*,G) assert state expires.
<b>Assert Winner Address</b>	If the Assert State is 'Loser', this is the address of the assert winner.
<b>Assert Winner Metric Pref</b>	If the Assert State is 'Loser', this is the metric preference of the route to the RP advertised by the assert winner; otherwise, this is zero.
<b>Assert Winner Metric</b>	If the Assert State is 'Loser', this is the routing metric of the route to the RP advertised by the assert winner; otherwise, this is zero.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

alaPimStarGTable

```

alaPimStarGGrpAddress
alaPimStarGRPAddress
alaPimStarGRPFIIfIndex
alaPimStarGUpstreamNeighbor
alaPimStarGUpTime
alaPimStarGPimModeOrigin
alaPimStarGUpstreamJoinState
alaPimStarGUpstreamJoinTimer
alaPimStarGRPNextHop
alaPimStarGRPFRouteProtocol
alaPimStarGRPFRouteAddress
alaPimStarGRPFRoutePrefixLength
alaPimStarGRPFRouteMetricPref
alaPimStarGRPFRouteMetric

```

alaPimStarGITable

```

alaPimStarGIIfIndex
alaPimStarGILocalMembership
alaPimStarGIJoinPruneState
alaPimStarGIPrunePendingTimer
alaPimStarGIPrunePendingTimer
alaPimStarGIAssertState
alaPimStarGIAssertTimer
alaPimStarGIAssertWinnerAddress
alaPimStarGIAssertWinnerAddress

```

`alaPimStarGIAssertWinnerMetric`

---

## show ipv6 pim sgroute

Displays all (S,G) state that the IPv6 PIM has.

**show ipv6 pim sgroute** [*source\_address* *group\_address*]

---

### Syntax Definitions

*source\_address*                    The IPv6 address for a specific multicast source.

*group\_address*                    A IPv6 multicast address.

### Defaults

By default, entire (S,G) routing table is displayed. To view the detailed information for a particular (S,G) entry, use the *source\_address* and *group\_address* associated with that entry.

### Platforms Supported

OmniSwitch 6850, 6855, 6850E, 9000E

### Usage Guidelines

- When the *source\_address* and *group\_address* is specified in the command line, the detailed information displayed also includes the detailed state of every outgoing interface.
- If an IPv6 address is not specified, the current PIM status for all multicast route entries are displayed.

### Examples

```
-> show ipv6 pim sgroute
```

```
Legend: Flags: D = Dense, S = Sparse, s = SSM Group,
           L = Local, R = RPT, T = SPT, F = Register,
           P = Pruned, O = Originator
```

```
Total 1 (S,G)
```

Source Address	Group Address	RPF Interface	UpTime	Flags
8ffe::3	ff0e::7		00h:01m:34s	SR

```
-> show ipv6 pim sgroute 8ffe::3 ff0e::7
(8ffe::3,ff0e::7)
```

```
UpTime                    = 00h:01m:40s
PIM Mode                  = ASM,
Upstream Join State      = Not Joined,
Upstream RPT State       = Not Pruned,
Upstream Join Timer      = 00h:00m:00s,
Upstream Neighbor       = none,
SPT Bit                   = False,
DR Register State        = No Info,
DR Register Stop Timer   = 00h:00m:00s,
Interface Specific State:
```



```

vlan-3
  UpTime                = 00h:01m:40s,
  Local Membership      = False,
  Join/Prune State     = No Info,
  RPT State             = No Info,
  Prune Pending Timer  = 00h:00m:00s,
  Join Expiry Timer    = 00h:00m:00s,
  Assert State         = No Info,
  Assert Timer         = 00h:00m:00s,
vlan-4
  UpTime                = 00h:00m:00s,
  Local Membership      = False,
  Join/Prune State     = No Info,
  RPT State             = No Info,
  Prune Pending Timer  = 00h:00m:00s,
  Join Expiry Timer    = 00h:00m:00s,
  Assert State         = No Info,
  Assert Timer         = 00h:00m:00s,
vlan-5
  UpTime                = 00h:00m:00s,
  Local Membership      = False,
  Join/Prune State     = No Info,
  RPT State             = No Info,
  Prune Pending Timer  = 00h:00m:00s,
  Join Expiry Timer    = 00h:00m:00s,
  Assert State         = No Info,
  Assert Timer         = 00h:00m:00s,

```

**output definitions**


---

<b>Source-address</b>	The IPv6 Source address.
<b>Group-address</b>	The IPv6 Multicast Group Address.
<b>RPF Interface</b>	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
<b>Upstream Neighbor</b>	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (S,G) join messages to.
<b>UpTime</b>	The time since this entry was created.
<b>Flags</b>	Flags indicating SPTBit, Prune State, Join State, etc.
<b>Pim Mode</b>	Whether the Group Address is SSM, ASM or DM.
<b>Upstream Join State</b>	Whether the local router should join the SPT for the source and group represented by this entry.
<b>Upstream Join Timer</b>	The time remaining before the local router next sends a periodic (S,G) Join message.
<b>RPF Next Hop</b>	The address of the RPF next hop towards the source.
<b>RPF Route Protocol</b>	The routing mechanism via which the route used to find the RPF Interface towards the source was learned.
<b>RPF Route Address/Prefix Length</b>	The IP address which when combined with the Route Prefix length identifies the route used to find the RPF interface towards the source.
<b>RPF Route Metric Pref</b>	The metric preference of the route used to find the RPF interface towards the source.

*output definitions (continued)*


---

<b>RPF Route Metric</b>	The metric preference of the route used to find the RPF interface towards the source.
<b>DR Register State</b>	Whether the local router should encapsulate (S,G) data packets in Register messages and send them to the RP. The possible values include No Info, Join, Join Pending, or Prune.
<b>DR Register Stop Timer</b>	The value of the Register Stop Timer. If the Register State is 'prune', this is the time remaining before the local router sends a Null-Register message to the RP. If the State is 'joinPending', this is the time remaining before the local router resumes encapsulating data packets and sending them to the RP.
<b>Upstream Prune State</b>	Whether the local router has pruned itself from the tree. This is only used by PIM-DM. The possible values include forwarding, Ack Pending, or Pruned.
<b>Upstream Prune Limit Timer</b>	The time remaining before the local router may send a (S,G) prune message on alaPimSGRPFIfIndex. This is only used by PIM-DM.
<b>Originator State</b>	Whether this router is an originator for the (S,G) message flow. This is only used by PIM-DM. The possible values include Not Originator or Originator.
<b>Source Active Timer</b>	If this router is the Originator, this is the time remaining before the local router reverts to notOriginator state. Otherwise, this is zero. This is only used by PIM-DM.
<b>State Refresh Timer</b>	If Originator state is 'originator', this is the time remaining before the local router sends a State Refresh Message. Otherwise, this is zero. This is only used by PIM-DM.
<b>Interface Name</b>	The interface name corresponding to the ifIndex that corresponds to this entry.
<b>Uptime</b>	The time since this entry was created.
<b>Local Membership</b>	Whether the local router has (S,G) local membership on this interface.
<b>Join Prune State</b>	The state resulting from (S,G) Join/Prune messages received on this interface. The possible values include No Info, Join, or Prune Pending.
<b>Prune Pending Timer</b>	The time remaining before the local router acts on an (S,G) Prune message received on this interface, during which the router is waiting to see whether another downstream router will override the Prune message.
<b>Join Expiry Timer</b>	The time remaining before (S,G) Join state for this interface expires.
<b>Assert State</b>	The (S,G) Assert state for this interface. The possible values include No Info, Winner, or Loser.
<b>Assert Timer</b>	If Assert State is Winner, this is the time remaining before the local router sends a (S,G) Assert message on this interface. If the Assert State is Loser, this is the time remaining before the (S,G) Assert state expires.
<b>Assert Winner</b>	If the Assert State is Loser, this is the address of the assert winner.
<b>Assert Winner Metric Pref</b>	If the Assert State is Loser, this is the metric preference of the route to the source advertised by the assert winner.
<b>Assert Winner Metric Metric</b>	If the Assert State is Loser, this is the routing metric of the route to the source advertised by the assert winner.

---

## Release History

Release 6.3.1; command was introduced.

## Related Commands

N/A

## MIB Objects

alaPimSGTable

- alaPimSGSrcAddress
- alaPimSGGrpAddress
- alaPimSGRPFIIndex
- alaPimSGUpstreamNeighbor
- alaPimSGUpTime
- alaPimSGSPTBit
- alaPimSGUpstreamPruneState
- alaPimSGUpstreamJoinState
- alaPimSGPimMode
- alaPimSGUpstreamJoinState
- alaPimSGUpstreamJoinTimer
- alaPimSGRPFNextHop
- alaPimSGRPFRouteProtocol
- alaPimSGRPFRouteAddress
- alaPimSGRPFRoutePrefixLength
- alaPimSGRPFRouteMetricPref
- alaPimSGRPFRouteMetric
- alaPimSGDRRegisterState
- alaPimSGDRRegisterStopTimer
- alaPimSGUpstreamPruneState
- alaPimSGUpstreamPruneLimitTimer
- alaPimSGOriginatorState
- alaPimSGSourceActiveTimer
- alaPimSGStateRefreshTimer

alaPimSGITable

- alaPimSGIIfIndex
- alaPimSGIUpTime
- alaPimSGILocalMembership
- alaPimSGIJoinPruneState
- alaPimSGIPrunePendingTimer
- alaPimSGIJoinExpiryTimer
- alaPimSGIAssertState
- alaPimSGIAssertTimer
- alaPimSGIAssertWinnerAddress
- alaPimSGIAssertWinnerMetricPref
- alaPimSGIAssertWinnerMetric

---



# 31 Multicast Routing Commands

This chapter describes multicast routing commands. Multicast routing is used in conjunction with IP Multicast Switching (IPMS). IPMS can operate either with or without multicast routing. However, for Multicast Routing to function, IPMS must be configured.

Multicast uses Class D IP addresses in the range 224.0.0.0 to 239.255.255.255. Addresses in the range 239.0.0.0 to 239.255.255.255 are reserved for boundaries, which are used to prevent multicast traffic from being forwarded on a VLAN group or network.

IP multicast routing is a way of controlling multicast traffic across networks. The multicast router discovers which networks want to receive multicast traffic by sending out Internet Group Management Protocol (IGMP) queries and receiving IGMP reports from attached networks. The IGMP reports signal that users want to join or leave a multicast group. If there is more than one multicast router in the network, the router with the lowest IP address is elected the querier router, which is responsible for querying the subnetwork for group members.

The current release also provides support for IPv6 multicast addresses. In the IPv6 addressing scheme, multicast addresses begin with the prefix ff00::/8. Similar to IPv6 unicast addresses, IPv6 multicast addresses also have different scopes depending on their prefix, though the range of possible scopes is different.

Multicast Listener Discovery (MLD) is the protocol used by an IPv6 router to discover the nodes which request multicast packets on its directly attached links and the multicast addresses that are of interest to those neighboring nodes. MLD is derived from version 2 of IPv4's Internet Group Management Protocol, IGMPv2. MLD uses ICMPv6 message types, rather than IGMP message types.

MIB information for the multicast routing commands is as follows:

*Filename:* AlcatelIND1Iprrm.mib  
*Module:* ALCATEL-IND1-IPRRM-MIB

*Filename:* IETF\_IPMCAST.mib  
*Module:* IPMCAST-MIB

A summary of the available commands is listed here:

---

- ip mroute-boundary**
- ip mroute interface ttl**
- ipv6 mroute-boundary**
- ipv6 mroute interface ttl**
- show ip mroute-boundary**
- show ipv6 mroute-boundary**
- show ip mroute**
- show ipv6 mroute**
- show ip mroute interface**
- show ipv6 mroute interface**
- show ip mroute-nexthop**
- show ipv6 mroute-nexthop**

---

## ip mroute-boundary

Adds or deletes scoped multicast address boundaries for a router interface. When a user on the specified interface joins the multicast group as defined by the scoped address—plus the mask length—all multicast traffic will stop being forwarded on that interface. This provides a mechanism for the end user to control multicast traffic from the network.

Refer to the “Configuring Multicast Address Boundaries” chapter in the *OmniSwitch AOS Release 6 Advanced Routing Configuration Guide* for detailed information.

**ip mroute-boundary** *if\_name scoped\_address mask*

**no ip mroute-boundary** *if\_name scoped\_address mask*

---

### Syntax Definitions

<i>if_name</i>	The interface name on which the boundary is being assigned.
<i>scoped_address</i>	A scoped multicast address identifying the group range for the boundary. Scoped addresses may range from 239.0.0.0–239.255.255.255.
<i>mask</i>	A corresponding Class A, B, or C mask address (e.g. 255.0.0.0).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the scoped multicast address boundaries for a router interface.
- IPMRM must be configured on the switch

### Examples

```
-> ip mroute-boundary vlan-2 239.0.0.0 255.0.0.0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show ip mroute-boundary** Displays scoped multicast address boundaries for the switch’s router interfaces.

**MIB Objects**

IpMRouteBoundaryTable

ipMRouteBoundaryIfIndex

ipMRouteBoundaryAddress

ipMRouteBoundaryAddressMask

ipMRouteBoundaryStatus

---



## ipv6 mroute-boundary

Configures or deletes an IPv6 multicast boundary on the interface for a specified scope zone. Packets with a destination address in the associated address/mask range will not be forwarded over the boundary interface.

**ipv6 mroute-boundary** *if\_name* **scope** *scope\_value*

**no ipv6 mroute-boundary** *if\_name* **scope** *scope\_value*

---

### Syntax Definitions

<i>if_name</i>	The interface name on which the boundary is being assigned.
<i>scope_value</i>	The scope value indicates the scope of the IPv6 internetwork for which the multicast traffic is intended. Range of scope value is 3-15.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the configured IPv6 scoped multicast address boundaries for a router interface.
- IPMRM must be configured on the switch.

### Examples

```
-> ipv6 mroute-boundary vlan-2 scope 6
```

### Release History

Release 6.3.4; command was introduced.

### Related commands

**show ipv6 mroute-boundary** Displays information about the IPv6 scoped multicast boundaries that have been defined on the system.

### MIB Objects

```
ipMcastBoundaryTable  
  ipMcastBoundaryIfIndex  
  ipMcastBoundaryAddressType  
  ipMcastBoundaryAddress  
  ipMcastBoundaryAddressPrefixLength
```

---

## ip mroute interface ttl

Specifies a multicast datagram Time to Live (TTL) threshold for an existing router interface. IP multicast datagrams with a TTL value lower than the specified TTL threshold value will not be forwarded out of the interface.

**ip mroute interface** *if\_name* **ttl** *threshold*

---

### Syntax Definitions

<i>if_name</i>	The interface name that has one of the Multicast routing protocols running (either DVMRP or PIM).
<i>threshold</i>	The TTL threshold value. Values may range from 0–255. The default value of 0 allows all multicast packets to be forwarded out of the interface.

### Defaults

parameter	default
<i>threshold</i>	0

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ip mroute interface vlan-1 ttl 255
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show ip mroute interface](#) Displays IP multicast interface information.

### MIB Objects

```
alaIpMcastInterfaceTable
  alaIpMcastInterfaceIfIndex
  alaIpMcastInterfaceTtl
```

---

## ipv6 mroute interface ttl

Specifies a multicast datagram Time to Live (TTL) threshold for an existing IPv6 interface. Any IP multicast datagrams with a TTL value lower than the specified TTL threshold value will not be forwarded out of the interface.

**ipv6 mroute interface** *if\_name* **ttl** *threshold*

---

### Syntax Definitions

<i>if_name</i>	The name of the IPv6 interface.
<i>threshold</i>	The TTL threshold value. Values may range from 0–255. The default value of 0 allows all multicast packets to be forwarded out of the interface.

### Defaults

---

parameter	default
<i>threshold</i>	0

---

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ipv6 mroute interface vlan-1 ttl 255
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ipv6 mroute interface](#) Displays IPv6 multicast interface information.

### MIB Objects

```
alaIpMcastInterfaceTable  
  alaIpMcastInterfaceIfIndex  
  alaIpMcastInterfaceTtl
```

---

## show ip mroute-boundary

Displays scoped multicast address boundaries for the switch's router interfaces.

```
show ip mroute-boundary
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip mroute-boundary
```

```
Interface Name  Interface Address  Boundary Address
-----+-----+-----
vlan-4         214.0.0.7         239.1.1.1/32
```

#### *output definitions*

---

<b>Interface Name</b>	The name of the interface on which the boundary is assigned. Packets with a destination address in the associated address/mask range will not be forwarded from this interface.
<b>Interface Address</b>	The IP address of this interface where the boundary is assigned.
<b>Boundary Address</b>	The scoped multicast address that, when combined with the boundary mask, identifies the scoped boundary range. The boundary's subnet mask is shown using the CIDR prefix length: 255.0.0.0 equals /8; 255.255.0.0 equals /16; 255.255.255.0 equals /24.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**ip mroute-boundary** Adds or deletes a router's scoped multicast address boundaries.

## MIB Objects

IpMRouteBoundaryTable  
    ipMRouteBoundaryIfIndex  
    ipMRouteBoundaryAddress  
    ipMRouteBoundaryAddressMask  
    ipMRouteBoundaryStatus

---

## show ipv6 mroute-boundary

Displays IPv6 scoped multicast boundaries which are configured on the system.

**show ipv6 mroute-boundary**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

-> show ipv6 mroute-boundary

```
Interface Name                Boundary Address/Prefix Length
-----+-----
vlan-5                        ff06::/16
vlan-8                        ff08::/16
```

#### *output definitions*

---

<b>Interface Name</b>	The name of the interface on which the boundary is assigned. Packets with a destination address in the associated address/mask range will not be forwarded from this interface.
<b>Boundary Address</b>	The IPv6 group address which when combined with the prefix length identifies the group range for which the scoped boundary exists.

---

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### [ipv6 mroute-boundary](#)

Configures or deletes an IPv6 multicast boundary on the interface for a specified scope zone.

## MIB Objects

```
ipMcastBoundaryTable  
  ipMcastBoundaryIfIndex  
  ipMcastBoundaryAddressType  
  ipMcastBoundaryAddress  
  ipMcastBoundaryAddressPrefixLength
```

---

## show ip mroute

Displays multicast routing information for IP datagrams sent by particular sources to the IP multicast groups known to this router.

`show ip mroute`

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

-> `show ip mroute`

```
Total 2 Mroutes
Group Address      Src Address      Upstream Nbr      Route Address      Proto
-----+-----+-----+-----+-----
225.0.0.0          214.0.0.2/32    0.0.0.0           214.0.0.0/24      PIM-SM
225.0.0.1          214.0.0.2/32    0.0.0.0           214.0.0.0/24      PIM-DM
```

### *output definitions*

---

<b>Group Address</b>	The IP multicast group address for this entry.
<b>Src Address</b>	The network address which identifies the source for this entry.
<b>Upstream Nbr</b>	The address of the upstream neighbor from which IP datagrams from these sources to this multicast address are received.
<b>Route Address</b>	The address portion of the route used to find the upstream or parent interface for this multicast forwarding entry.
<b>Proto</b>	The multicast routing protocol through which this multicast forwarding entry was learned (i.e., DVMRP, PIM-SM or PIM-DM).

---

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A



## **MIB Objects**

```
alaIpMcastRouteTable
  alaIpMcastRouteGroup
  alaIpMcastRouteSource
  alaIpMcastRouteInIfIndex
  alaIpMcastRouteUpstreamNeighbor
  alaIpMcastRouteRtAddress
  alaIpMcastRouteRtPrefixLength
  alaIpMcastRouteProtocol
```

---

## show ipv6 mroute

Displays multicast routing information for IPv6 datagrams sent by particular sources to the IPv6 multicast groups known to this router.

**show ipv6 mroute**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 mroute
Total 2 Mroutes
Group Address Source Address Interface Upstream Neighbor Route Addr/Prefix Len
Proto
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
+-----+
ff06:7777::1 2600::7      vlan-30  fe80::2d0:95ff:feac:a537 2600::/64
PIM-SM
ff06:7777::2 2600::7      vlan-30  fe80::2d0:95ff:feac:a537 2600::/64
PIM-SM
```

#### *output definitions*

---

<b>Group Address</b>	The IPv6 multicast group address for this entry.
<b>Source Address</b>	The IPv6 multicast address, which identifies the source for this entry.
<b>Interface</b>	The name of the IPv6 interface on which the datagrams sent by these sources to this IPv6 multicast address are received.
<b>Upstream Neighbor</b>	The IPv6 address of the upstream neighbor from which the datagrams from these sources to this multicast address are received.
<b>Route Addr/Prefix len</b>	The IPv6 address portion of the route used to find the upstream or parent interface for this IPv6 multicast forwarding entry.
<b>Proto</b>	The IPv6 multicast routing protocol through which this IPv6 multicast forwarding entry was learned.

---

### Release History

Release 6.3.1; command was introduced.

## **Related Commands**

N/A

## **MIB Objects**

```
alaIpMcastRouteTable
  alaIpMcastRouteGroup
  alaIpMcastRouteSource
  alaIpMcastRouteInIfIndex
  alaIpMcastRouteUpstreamNeighbor
  alaIpMcastRouteRtAddress
  alaIpMcastRouteRtPrefixLength
  alaIpMcastRouteProtocol
```

---

## show ip mroute interface

Displays IP multicast interface information.

**show ip mroute interface** {*interface\_name*}

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

Not specifying an interface name displays all known IP multicast interfaces information.

### Examples

-> show ip mroute interface

Interface Name	IP Address	TTL	Multicast Protocol
vlan-4	214.0.0.7	0	PIM
vlan-26	172.21.63.7	0	PIM
vlan-11	212.61.11.7	0	PIM

### output definitions

---

<b>Interface Name</b>	The name configured for the interface.
<b>IP Address</b>	The IP address of this interface entry.
<b>TTL</b>	The datagram TTL threshold for the interface. Any IP multicast datagrams with a TTL less than the threshold displayed in the table will not be forwarded out of the interface. The default value, 0, specifies that <i>all</i> multicast packets are forwarded out of the interface.
<b>Multicast Protocol</b>	The multicast routing protocol currently running on this interface. Options include DVMRP and PIM.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

## **MIB Objects**

```
alaIpMcastInterfaceTable  
  alaIpMcastInterfaceIfIndex  
  alaIpMcastInterfaceTtl  
  alaIpMcastInterfaceProtocol
```

---

## show ipv6 mroute interface

Displays IPv6 multicast interface information.

**show ipv6 mroute interface** *{interface\_name}*

---

### Syntax Definitions

*interface\_name*                      The name of the interface.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

Not specifying an interface name displays all known IPv6 multicast interfaces information.

### Examples

-> show ipv6 mroute interface

Interface Name	IP Address	TTL	Multicast Protocol
vlan-4	2000::1	0	PIM
vlan-26	2000::2	0	PIM
vlan-11	2000::3	0	PIM

#### *output definitions*

---

<b>Interface Name</b>	The name configured for the IPv6 interface.
<b>IP Address</b>	The IPv6 address of this interface entry.
<b>TTL</b>	The datagram TTL threshold for the interface. Any IPv6 multicast datagrams with a TTL less than the threshold displayed in the table will not be forwarded out of the interface. The default value, 0, specifies that <i>all</i> multicast packets are forwarded out of the interface.
<b>Multicast Protocol</b>	The multicast routing protocol currently running on this interface. Options include DVMRP and PIM.

---

### Release History

Release 6.3.1; command was introduced.

### Related Commands

N/A

## **MIB Objects**

```
alaIpMcastInterfaceTable  
  alaIpMcastInterfaceIfIndex  
  alaIpMcastInterfaceTtl  
  alaIpMcastInterfaceProtocol
```

---

## show ip mroute-nexthop

Displays next-hop information on outgoing interfaces for routing IP multicast datagrams.

**show ip mroute-nexthop**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ip mroute-nexthop
```

Total 10 Nexthops

Group Address	Src Address	Interface Name	Next Hop Address	Protocol
225.0.0.0	214.0.0.2/32	vlan-26	225.0.0.0	PIM-SM
225.0.0.1	214.0.0.2/32	vlan-26	225.0.0.1	PIM-SM
225.0.0.2	214.0.0.2/32	vlan-26	225.0.0.2	PIM-SM
225.0.0.3	214.0.0.2/32	vlan-26	225.0.0.3	PIM-SM
225.0.0.4	214.0.0.2/32	vlan-26	225.0.0.4	PIM-SM
225.0.0.5	214.0.0.2/32	vlan-26	225.0.0.5	PIM-SM
225.0.0.6	214.0.0.2/32	vlan-26	225.0.0.6	PIM-SM
225.0.0.7	214.0.0.2/32	vlan-26	225.0.0.7	PIM-SM
225.0.0.8	214.0.0.2/32	vlan-26	225.0.0.8	PIM-SM
225.0.0.9	214.0.0.2/32	vlan-26	225.0.0.9	PIM-SM

#### *output definitions*

---

<b>Group Address</b>	The IP multicast group address for this entry.
<b>Src Address</b>	The network address, which identifies the source for this entry.
<b>Interface Name</b>	Generally, this is the name configured for the interface.
<b>Next Hop Address</b>	The address of the next-hop that is specific to this entry.
<b>Protocol</b>	The routing protocol by which this next-hop was learned (i.e., DVMRP or PIM-SM).

---



## Release History

Release 6.1; command was introduced.

## Related Commands

**show ipv6 mroute-boundary** Displays multicast routing information for IP datagrams sent by particular sources to the IP multicast groups known to this router.

## MIB Objects

```
alaIpMcastRouteNextHopTable
  alaIpMcastRouteNextHopGroup
  alaIpMcastRouteNextHopSource
  alaIpMcastRouteNextHopIfIndex
  alaIpMcastRouteNextHopAddress
  alaIpMcastRouteNextHopProtocol
```

---

## show ipv6 mroute-nexthop

Displays IPv6 next-hop information on outgoing interfaces for routing IP multicast datagrams.

**show ipv6 mroute-nexthop**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ipv6 mroute-nexthop
```

```
Total 2 Nexthops
```

Group Address	Source Address	Interface	Next Hop Address	Protocol
ff06:7777::1	2600::7	vlan-40	ff06:7777::1	PIM-SM
ff06:7777::2	2600::7	vlan-40	ff06:7777::2	PIM-SM

#### *output definitions*

---

<b>Group Address</b>	The IPv6 multicast group address for this entry.
<b>Src Address</b>	The IPv6 multicast address, which identifies the source for this entry.
<b>Interface Name</b>	The name of the IPv6 interface on which the datagrams sent by these sources to this IPv6 multicast address are received.
<b>Next Hop Address</b>	The IPv6 address of the next-hop that is specific to this entry.
<b>Protocol</b>	The IPv6 multicast routing protocol by which this IPv6 multicast forwarding entry was learned.

---

### Release History

Release 6.3.1; command was introduced.

### Related Commands

N/A

## **MIB Objects**

```
alaIpMcastRouteNextHopTable  
  alaIpMcastRouteNextHopGroup  
  alaIpMcastRouteNextHopSource  
  alaIpMcastRouteNextHopIfIndex  
  alaIpMcastRouteNextHopAddress  
  alaIpMcastRouteNextHopProtocol
```

---



# 32 QoS Commands

Alcatel-Lucent's QoS software provides a way to manipulate flows coming through the switch based on user-configured policies. The flow manipulation (generally referred to as *Quality of Service* or *QoS*) may be as simple as allowing/denying traffic, or as complicated as remapping 802.1p bits from a Layer 2 network to ToS values in a Layer 3 network.

This chapter provides information about configuring QoS global and port parameters through the Command Line Interface (CLI). Refer to [Chapter 33, "QoS Policy Commands,"](#) for information about commands used to configure QoS policy rules.

MIB information for the QoS commands is as follows:

*Filename:* alcatelIND1Qos.mib  
*Module* ALCATEL-IND1-QoS-MIB

---

**Important Note.** Some of the commands listed here are not currently supported on one or more platforms. See command descriptions in this chapter and check release notes for information about commands that are not supported.

---

---

The QoS commands are listed here:

---

<b>Global commands</b>	<code>qos</code> <code>qos trust ports</code> <code>qos default servicing mode</code> <code>qos forward log</code> <code>qos log console</code> <code>qos log lines</code> <code>qos log level</code> <code>qos default bridged disposition</code> <code>qos default routed disposition</code> <code>qos default multicast disposition</code> <code>qos user-port</code> <code>qos dei</code> <code>qos stats interval</code> <code>qos nms priority</code> <code>qos phones</code> <code>qos quarantine mac-group</code> <code>qos quarantine path</code> <code>qos quarantine page</code> <code>debug qos</code> <code>debug qos internal</code> <code>qos clear log</code> <code>qos apply</code> <code>qos revert</code> <code>qos flush</code> <code>qos reset</code> <code>qos stats reset</code> <code>show qos queue</code> <code>show qos slice</code> <code>show qos log</code> <code>show qos config</code> <code>show qos statistics</code>
<b>Port and Slice commands</b>	<code>qos port</code> <code>qos port reset</code> <code>qos port trusted</code> <code>qos port servicing mode</code> <code>qos port q minbw maxbw</code> <code>qos port maximum egress-bandwidth</code> <code>qos port maximum ingress-bandwidth</code> <code>qos port default 802.1p</code> <code>qos port default dscp</code> <code>qos port default classification</code> <code>qos port dei</code> <code>qos port monitor</code> <code>show qos port</code> <code>show qos port monitor</code>

---

## qos

Enables or disables QoS. This section describes the base command with a single required option (**enable** or **disable**).

In lieu of these options, the base command (**qos**) may be used with other keywords to set up global QoS configuration. These keywords are listed here and described as separate commands later in this chapter. In addition, some keywords have a **no** form to remove the parameter or return it to its default.

```
qos {enable | disable}
    [trust ports]
    [default servicing mode]
    [forward log]
    [log console]
    [log lines lines]
    [log level level]
    [clear log]
    [default bridged disposition {accept | deny | drop}]
    [default routed disposition {accept | deny | drop}]
    [default multicast disposition {accept | deny | drop}]
    [user-port {filter | shutdown} {spoof | bgp | bpdud | rip | ospf}]
    [stats interval seconds]
    [nms priority]
    [phones [priority priority_value | trusted]]
    [quarantine mac-group mac_group]
    [quarantine path url]
    [qos quarantine page]
    [dei {ingress | egress}]
```

---

### Syntax Definitions

<b>enable</b>	Enables QoS. The QoS software in the switch classifies flows coming into the switch to attempt to match them to QoS policies. If a match is found, the policy parameters are applied to the flow. The <b>enable</b> setting may be used alone or in conjunction with optional command keywords.
<b>disable</b>	Disables QoS. Flows coming into the switch are not matched to policies. The <b>disable</b> setting cannot be used with any other command keyword.

### Defaults

parameter	default
enable   disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- When QoS is disabled, flows coming into the switch are classified but not matched to a policy. Traffic is treated as best effort and assigned to default queues.
- The command keywords may be used with or without **enable**; these keywords cannot be used with **disable**.

## Examples

```
-> qos enable default disposition deny
-> qos disable
-> qos enable
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy rule</a>	Configures a policy rule on the switch.
<a href="#">show policy rule</a>	Displays information for policy rules configured on the switch.

## MIB Objects

```
alaQoSConfigTable
  alaQoSConfigEnable
  alaQoSConfigTrustedPorts
  alaQoSConfigDefaultQueues
  alaQoSConfigAppliedDefaultQueues
  alaQoSConfigLogLines
  alaQoSConfigLogLevel
  alaQoSConfigLogConsole
  alaQoSConfigFlowTimeout
  alaQoSConfigAppliedFlowTimeout
  alaQoSConfigFragmentTimeout
  alaQoSConfigAppliedFragmentTimeout
  alaQoSConfigReflexiveTimeout
  alaQoSConfigAppliedReflexiveTimeout
  alaQoSConfigNatTimeout
  alaQoSConfigAppliedNatTimeout
  alaQoSConfigClassifyFragments
  alaQoSConfigAppliedClassifyFragments
  alaQoSConfigDefaultMulticastDisposition
  alaQoSConfigAppliedDefaultMulticastDisposition
  alaQoSConfigDefaultDisposition
  alaQoSConfigAppliedDefaultDisposition
```



## qos trust ports

Configures the global trust mode for QoS ports. Trusted ports can accept 802.1p and ToS/DSCP values in incoming packets; untrusted ports will set any 802.1p or ToS/DSCP values to zero in incoming packets, unless a default 802.1p or ToS/DSCP value is configured.

Any port configured through the **qos port** command will automatically be added in the trust mode specified by this command. See [page 32-44](#) for more information about this command.

**qos trust ports**

**qos no trust ports**

---

### Syntax Definitions

N/A

### Defaults

By default, 802.1Q-tagged ports and mobile ports are trusted; any other port is untrusted by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **qos port trusted** command to override the default for a particular port.
- The setting only applies to ports with incoming traffic.
- Any port configured for 802.1Q tagging is always trusted regardless of the global setting.
- Mobile ports are always trusted regardless of the global setting.
- Use the **qos port default 802.1p** or **qos port default dscp** commands to specify that a value other than zero should be applied to the incoming packets. Note that this value is overridden if a policy exists that specifies a different value for such packets.

### Examples

```
-> qos trust ports
-> qos no trust ports
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>qos port</b>	Configures a physical port for QoS.
<b>qos port trusted</b>	Configures whether or not a particular port is trusted or untrusted.
<b>show qos port</b>	Displays information about QoS ports.

**MIB Objects**

alaQoSConfigTable  
  alaQoSConfigTrustedPorts

---

## qos default servicing mode

Configures the default queuing scheme for destination (egress) ports.

```
qos default servicing mode {strict-priority | wrr [w0 w1 w2 w3 w4 w5 w6 w7] | priority-wrr [w0 w1 w2 w3 w4 w5 w6 w7] | drr [w0 w1 w2 w3 w4 w5 w6 w7]}
```

---

### Syntax Definitions

<b>strict-priority</b>	Selects the strict priority queuing scheme as the default servicing mode. All eight available queues on a port are serviced strictly by priority.
<b>wrr</b>	Selects the weighted round robin (WRR) queuing scheme as the default servicing mode. Traffic is serviced based on the weight of each queue.
<b>priority-wrr</b>	Parameter not supported.
<b>drr</b>	Selects the deficit round robin (DRR) queuing scheme as the default servicing mode. Traffic is serviced based on the weight of each queue.
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	The value of the desired weight for each of the queues when WRR or DRR is the active queuing scheme. The range is 0 to 15.

### Defaults

parameter	default
<b>strict-priority   wrr   drr</b>	<b>strict-priority</b>
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	1 (best effort)

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Each queue can have a different weight value and configuring these values in ascending or descending order is not required. When a queue is given a weight of 0, it is configured as a Strict-Priority queue.
- Use the **wrr** parameter to configure a Priority-WRR queuing scheme, which consists of a combination of Strict-Priority queues (zero weight) and WRR queues (non-zero weight).
- Using the **qos default servicing mode** command does not override configuration values that were set on a per port basis with the **qos port servicing mode** command.
- The servicing mode only applies to destination (egress) ports because this is where traffic shaping occurs. Even though the **qos port servicing mode** and **qos default servicing mode** commands are allowed on source (ingress) ports, they do not affect traffic on these ports.

### Examples

```
-> qos default servicing mode strict-priority
-> qos default servicing mode wrr 1 2 3 4 5 6 7 8
-> qos default servicing mode drr 10 0 12 14 0 0 8 1
```

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **wrr** and **drp** parameters added.

Release 6.3.1; **priority-wrr** parameter deprecated.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">qos port servicing mode</a>	Configures the servicing mode (SPQ or priority WRR) for a port.
<a href="#">show qos queue</a>	Displays information for all QoS queues.

## MIB Objects

```
alaQoSConfig
  alaQoSConfigServicingMode
  alaQoSConfigLowPriorityWeight
  alaQoSConfigMediumPriorityWeight
  alaQoSConfigHighPriorityWeight
  alaQoSConfigUrgentPriorityWeight
```

---

## qos forward log

Enables the QoS software in the switch to send events to the policy server software in the switch in real time. The policy server software may then be polled by an NMS application for logged events.

**qos forward log**

**qos no forward log**

---

### Syntax Definitions

N/A

### Defaults

By default, logged events are not sent to the policy server software in the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

An NMS application may query the Policy Manager in the switch for logged events. Use the **qos forward log** command to forward each event as it happens.

### Examples

```
-> qos forward log
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos log lines</a>	Configures the number of lines in the QoS log.
<a href="#">show qos log</a>	Displays the log of QoS events.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigForwardLog
```

---

---

## qos log console

Sends QoS log messages to the switch logging utility, which is an event logging application available on the OmniSwitch. The configuration of the switch logging utility determines if QoS messages are sent to a log file in the switch's flash file system, displayed on the switch console, or sent to a remote syslog server.

**qos log console**

**qos no log console**

---

### Syntax Definitions

N/A

### Defaults

QoS log messages are not sent to the switch logging utility by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To display QoS log events as they happen on an output console attached to the switch, configure the switch logging utility to output events to the console. This is done using the **swlog output** command.
- The entire log may be viewed at any time using the **show qos log** command.

### Examples

```
-> qos log console
-> qos no log console
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[qos log lines](#)

Configures the number of lines in the QoS log.

[swlog output](#)

Enables or disables switch logging output to the console, file, or data socket (remote session).

[show qos log](#)

Displays the log of QoS events.

### MIB Objects

```
alaQoSConfigTable
  alaQoSConfigLogConsole
```

---

## qos log lines

Configures the number of lines in the QoS log.

**qos log lines** *lines*

---

### Syntax Definitions

*lines* The number of lines included in the QoS log. A value of zero turns off logging to the console. The range is 0–512.

### Defaults

---

parameter	default
<i>lines</i>	256

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To turn off logging, enter 0 for the number of log lines. (Note that error messages will still be logged.)
- If you change the number of log lines, you may clear all messages in the QoS log. To avoid clearing all messages in the log, enter the **qos log lines** command in the **boot.cfg** file. The log length will be changed at the next reboot.

### Examples

```
-> qos log lines 5  
-> qos log lines 0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show qos log](#) Displays the log of QoS events.

### MIB Objects

alaQoSConfigTable  
  alaQoSConfigLogLines

---

## qos log level

Configures the level of log detail.

**qos log level** *level*

**qos no log level**

---

### Syntax Definitions

*level* The level of log detail, in the range from 2 (least detail) to 9 (most detail).

### Defaults

parameter	default
<i>level</i>	6

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **qos debug** command to change the type of debugging messages that are logged. The **qos log level** command configures the level of detail for these messages.
- If the **qos debug** command is not configured to log any kind of information (this is the default), the **qos log level** command has no effect.
- To log fatal errors only, set the log level to 0.
- Note that a high log level value will impact the performance of the switch.

### Examples

```
-> qos log level 4  
-> qos log level 0
```

### Release History

Release 6.1; command was introduced.



## Related Commands

[qos log lines](#)

Configures the number of lines in the QoS log.

[debug qos](#)

Configures the type of QoS events that will be displayed in the QoS log.

[show qos log](#)

Displays the log of QoS events.

## MIB Objects

alaQoSConfigTable

    alaQoSConfigLogLevel

---

## qos default bridged disposition

Configures the default disposition for bridged traffic (Layer 2) that comes into the switch and does not match any policies.

**qos default bridged disposition {accept | deny | drop}**

---

### Syntax Definitions

<b>accept</b>	Specifies that the switch should accept the flow.
<b>drop</b>	Specifies that the switch should silently drop the flow.
<b>deny</b>	Specifies that the switch should drop the flow and issue an ICMP message indicating the flow was dropped for administrative reasons. Currently this option will provide the same result as <b>drop</b> ; that is, the flow is silently dropped.

### Defaults

By default, the disposition for flows that do match any policies is **accept**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The disposition for particular flows may be configured through the **policy action disposition** command. The disposition for a particular flow will override the global setting.
- Typically, when configuring IP filtering rules, the global default disposition should be set to **deny**. Filtering rules may then be configured to allow particular types of traffic through the switch.
- If you set the bridged disposition to deny or drop, and you configure rules to allow bridged traffic, each type of allowed traffic must have two rules, one for source and one for destination.

### Examples

```
-> qos default bridged disposition deny
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**policy action disposition**      Configures a disposition for a policy action.

## MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigDefaultBridgedDisposition  
  alaQoSConfigAppliedDefaultBridgedDisposition
```

---

---

## qos default routed disposition

Configures the default disposition for routed traffic (Layer 3) that comes into the switch and does not match any policies.

**qos default routed disposition {accept | deny | drop}**

---

### Syntax Definitions

<b>accept</b>	Specifies that the switch should accept the flow.
<b>drop</b>	Specifies that the switch should silently drop the flow.
<b>deny</b>	Specifies that the switch should drop the flow and issue an ICMP message indicating the flow was dropped for administrative reasons. Currently this option will provide the same result as <b>drop</b> ; that is, the flow is silently dropped.

### Defaults

By default, the disposition for flows that do match any policies is **accept**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The disposition for particular flows may be configured through the **policy action disposition** command. The disposition for a particular flow will override the global setting.
- Typically, when configuring IP filtering rules, the global default disposition should be set to **deny**. Filtering rules may then be configured to allow particular types of traffic through the switch.

### Examples

```
-> qos default routed disposition deny
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[policy action disposition](#) Configures a disposition for a policy action.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigRoutedDefaultDisposition  
  alaQoSConfigAppliedRoutedDefaultDisposition
```

---

## qos default multicast disposition

Configures the default disposition for multicast flows coming into the switch that do not match any policies.

**qos default multicast disposition {accept | deny | drop}**

---

### Syntax Definitions

<b>accept</b>	Specifies that the switch should accept the flow.
<b>drop</b>	Specifies that the switch should silently drop the flow.
<b>deny</b>	Specifies that the switch should drop the flow and issue an ICMP message indicating the flow was dropped for administrative reasons. Currently this option will provide the same result as <b>drop</b> ; that is, the flow is silently dropped.

### Defaults

By default, multicast flows that do not match policies are accepted on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **policy action multicast** command to specify the disposition for a particular action associated with a multicast condition. The disposition for a particular action will override the global setting.
- This command applies only to IGMP messages. It does not apply to other types of multicast traffic.

### Examples

```
-> qos default multicast disposition deny
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[policy action disposition](#) Configures a disposition for a policy action.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigDefaultMulticastDisposition  
  alaQoSConfigAppliedDefaultMulticastDisposition
```

---

## qos user-port

Configures the option to filter packets or administratively disable a port when the specified type of traffic is received on a port that is a member of the pre-defined UserPorts group.

**qos user-port** {filter | shutdown} {spoof | bgp | bpdu | rip | ospf | vrrp | dvmrp | pim | isis | dhcp-server | dns-reply}

**qos no user-port** {filter | shutdown}

---

### Syntax Definitions

<b>filter</b>	Filters the specified type of traffic when it is received on UserPort ports.
<b>shutdown</b>	Administratively disables UserPort ports that receive the specified type of traffic.
<b>spoof</b>	Detects IP spoofing. The source IP address of a packet ingressing on a user port is compared to the subnet of the VLAN for the user port; the packet is dropped if these two items do not match. Also applies to ARP packets.
<b>bgp</b>	Filters only BGP protocol packets from a TCP session that was not originated by the same switch that has this filter configured.
<b>bpdu</b>	Filters conventional Spanning Tree BPDU (destination MAC address 0x0180c2:000000) packets and GVRP (destination MAC address 0x0180c2:000021) packets.
<b>rip</b>	Filters RIP protocol packets.
<b>ospf</b>	Filters OSPF protocol packets.
<b>vrrp</b>	Filters VRRP protocol packets.
<b>dvmrp</b>	Filters IGMP packets with a type of 0x13. This applies only to IP packets with no options.
<b>pim</b>	Filters PIMv1, PIM-DM, and PIM-SM packets. The PIMv1 filter applies only to IP packets with no options.
<b>isis</b>	Filters IS-IS protocol packets.
<b>dhcp-server</b>	Filters response packets originating from a DHCP or BOOTP server that is configured on the known UDP port 67.
<b>dns-reply</b>	Filters all packets (both TCP and UDP) that originate from the known DNS port 53.

## Defaults

parameter	default
<b>filter</b>	spooof
<b>shutdown</b>	none

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to disable the filter or shutdown function. This form of the command effects the overall operation of the feature.
- To specify more than one traffic type in the same command line, enter each type separated by a space (e.g., **spooof bgp ospf**).
- Note that existing traffic types to filter or shutdown are removed each time the **filter** or **shutdown** option is configured. Specify all desired traffic types each time the **qos user-port** command is performed to retain previously configured traffic types.
- No changes to the **filtering** and **shutdown** options are applied to the switch until the **qos apply** command is performed.
- This command only applies to ports that are members of the UserPorts group. Use the **policy port group** command to create and assign members to the UserPorts group.
- An SNMP trap is sent when a port is administratively disabled through a UserPorts shutdown function or a port disable action.
- To enable a port disabled by a user port shutdown operation, use the **interfaces admin** command to administratively enable the port or disconnect and reconnect the port cable.
- Up to 126 IP interfaces are supported with spooof detection on user ports. If the number of interfaces exceeds this amount, user port packets ingressing on those interfaces that exceed the 126 limit are dropped.

## Examples

```
-> qos user-port filter spooof bpdu
-> qos user-port shutdown spooof bgp ospf
-> qos no user-port shutdown
```

## Release History

Release 6.1.1; command was introduced.

Release 6.3.1; **dvmrp**, **pim**, **isis**, and **dns-reply** parameters added.

## Related Commands

**policy port group**

Configures a port group and its associated slot and port numbers.

**show qos config**

Displays QoS configuration information.

## MIB Objects

alaQoSConfigTable

alaQoSConfigUserportFilter

alaQoSConfigAppliedUserportFilter

alaQoSConfigUserportShutdown

alaQoSConfigAppliedUserportShutdown

---



## qos dei

Configures the global Drop Eligible Indicator (DEI) bit mapping and marking setting for all QoS ports. The DEI setting applies to packets marked yellow (non-conforming) as the result of Tri-Color Marking (TCM) rate limiting.

**qos dei {ingress | egress}**

**qos no dei {ingress | egress}**

---

### Syntax Definitions

<b>ingress</b>	Maps the DEI/CFI bit to yellow (non-conforming) if this bit is set for ingress traffic.
<b>egress</b>	Marks the DEI/CFI bit for egress packets if TCM marked the packets yellow.

### Defaults

By default, no DEI/CFI bit marking or mapping is done.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the global DEI bit mapping (ingress) or marking (egress) configuration for the switch.
- Use the **qos port dei** command to set the DEI bit mapping and marking configuration for a specific port. Note that the port setting takes precedence over the global DEI setting.
- Packets marked yellow by TCM rate limiting are still transmitted when there is no congestion on the egress port queues. Setting the DEI/CFI bit for yellow egress packets (**qos dei egress**) ensures that an upstream switch is made aware that the packet was marked yellow.
- When a switch receives a yellow packet with the DEI/CFI bit set and ingress DEI/CFI bit mapping is enabled (**qos dei ingress**), the packet is mapped to an internal drop precedence or yellow color marking for the switch.

### Examples

```
-> qos dei ingress
-> qos dei egress
-> qos no dei ingress
-> qos no dei egress
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

<b>qos port</b>	Configures a physical port for QoS.
<b>qos port dei</b>	Configures the Drop Eligible Indicator (DEI) bit mapping and marking setting for the specified QoS port.
<b>policy action cir</b>	Configures a Tri-Color Marking policy action.
<b>show qos config</b>	Displays global information about the QoS configuration.
<b>show qos port</b>	Displays information about QoS ports.

## MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigDEIMapping  
  alaQoSConfigDEIMarking
```

---

## qos stats interval

Configures how often the switch polls network interfaces for statistics about QoS events.

**qos stats interval** *seconds*

---

### Syntax Definitions

*seconds*

The number of seconds before the switch polls network interfaces for statistics. The range is 10–3600.

### Defaults

parameter	default
<i>seconds</i>	60

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Change the statistics interval to a smaller interval if you want to monitor QoS events.
- Change the statistics interval to a larger interval if you want to free some switch memory.

### Examples

```
-> qos stats interval 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show qos statistics](#)

Displays statistics about the QoS configuration.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigStatsInterval
```

---

---

## qos nms priority

Enables or disables the automatic prioritization of NMS traffic—SSH (TCP Port 22), Telnet (TCP Port 23), WebView (HTTP Port 80) and SNMP (UDP port 161)—that is destined for the switch. Prioritization maximizes access for NMS traffic and helps to reduce the potential for DoS attacks.

**qos nms priority**

**qos no nms priority**

---

### Syntax Definitions

N/A

### Defaults

By default, NMS traffic prioritization is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable automatic prioritization of NMS traffic.
- The NMS traffic from the first eight *active* IP interfaces is prioritized; any such traffic from additional interfaces is not prioritized.
- The precedence of an active IP interface is determined by the value of the SNMP interface index (ifindex), which was assigned to the interface when it was created. The lower the ifindex value the higher the precedence; the higher the ifindex value the lower the precedence. Note that the precedence is only determined for active IP interfaces.
- To change the precedence of an IP interface, use the **ip interface ifindex** command and specify a higher (lower precedence) or lower (higher precedence) ifindex value.
- When automatic NMS prioritization is enabled, QoS policies that specify priority are not applied to the NMS traffic. Other QoS policies, however, are applied to this type of traffic as usual. If a policy specifies rate limiting, then the policy with the lowest rate limiting value is applied.

### Examples

```
-> qos nms priority
-> qos no nms priority
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**show qos config**

Displays the QoS configuration for the switch.

## MIB Objects

alaQoSConfigTable

alaQoSConfigAutoNms

---

## qos phones

Enables or disables the automatic prioritization of IP phone traffic.

**qos phones** [*priority priority\_value* | **trusted**]

**qos no phones**

---

### Syntax Definitions

*priority\_value*                      The priority given to scheduling traffic on the output port. Values range from 0 (lowest) to 7 (highest).

**trusted**                                Trusts IP phone traffic; priority value of the IP phone packet is used.

### Defaults

parameter	default
<i>priority_value</i>   <b>trusted</b>	trusted

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable automatic prioritization of IP phone traffic.
- IP phone traffic is identified by examining the source MAC address of the packet received on the port. If the source MAC falls within one of the following ranges, the QoS IP phone priority is automatically assigned to the MAC:  
 00-80-9F-54-xx-xx to 00-80-9F-64-xx-xx  
 00-80-9F-66-xx-xx to 00-80-9F-6F-xx-xx.
- To automatically apply the QoS IP phone priority to other, non-IP phone traffic, add the source MAC addresses of such traffic to the QoS “alaPhone” group.
- When automatic prioritization of IP phone traffic is enabled, QoS policies that specify priority are not applied to the IP phone traffic. Other QoS policies, however, are applied to this type of traffic as usual.

### Examples

```
-> qos phones priority 7
-> qos phones trusted
-> qos no phones
```

### Release History

Release 6.3.1; command was introduced.

## **Related Commands**

**show qos config**

Displays the QoS configuration for the switch.

## **MIB Objects**

alaQoSConfigTable

alaQoSConfigAutoPhones

---

## qos quarantine mac-group

Configures the name of the Quarantine MAC address group. The OmniVista Quarantine Manager application identifies source MAC addresses to quarantine and adds these addresses to the Quarantine MAC group.

**qos quarantine mac-group** *mac\_group*

**qos no quarantine mac-group**

---

### Syntax Definitions

*mac\_group*                      The name of the Quarantine MAC group (up to 31 alphanumeric characters).

### Defaults

parameter	default
<i>mac-group</i>	Quarantined

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Use the **no** form of the command to reset the default MAC group name back to “Quarantined”.
- The *mac-group* name specified with this command must match the group name specified with the OmniVista Quarantine Manager application.
- Each switch can have a different Quarantine MAC group name as long as each switch matches the OmniVista Quarantine Manager MAC group name for that switch. Note that there is only one such MAC group per switch.
- Do not use the Quarantine MAC group name in regular QoS policies.
- This group is also used by the switch Quarantine Manager and Remediation (QMR) application to restrict or restore network access to quarantined MACs.
- Note that QMR is not available if VLAN Stacking services or QoS VLAN Stacking inner VLAN and 802.1p policies are configured on the switch.
- QMR is considered active when there are MAC addresses in the Quarantine MAC address group. Use the **show policy mac group** command to display the contents of this group. In addition, the **show mac-address-table** command output display identifies quarantined MAC addresses.

### Examples

```
-> qos quarantine mac-group mac_group1
-> no quarantine mac-group
```



## Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">qos quarantine path</a>	Specifies the URL for a remediation server.
<a href="#">qos quarantine page</a>	Configures the Quarantine Manager and Remediation (QMR) application to send a Quarantined page to a client if a remediation server is not configured.
<a href="#">show policy mac group</a>	Displays information about policy MAC groups.
<a href="#">show qos config</a>	Displays QoS configuration information.

## MIB Objects

alaQoSConfigTable  
  alaQoSConfigQuarantineMacGroupName

---

## qos quarantine path

Specifies the URL for a remediation server. This information is used by the Quarantine Manager and Remediation (QMR) application.

**qos quarantine path** *url*

**qos no quarantine path**

---

### Syntax Definitions

*url* The URL for the QMR remediation server.

### Defaults

By default, no URL is configured.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Use the **no** form of the command to remove the remediation server URL from the configuration.
- Add the corresponding IP address for the remediation server to the “alaExceptionSubnet” network group. Specifying both the URL and IP address is required to redirect quarantined MACs to the remediation server.

### Examples

```
-> qos quarantine path www.remediate.com  
-> no quarantine path
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">qos quarantine mac-group</a>	Configures the name of the Quarantine MAC address group.
<a href="#">qos quarantine page</a>	Configures the Quarantine Manager and Remediation (QMR) application to send a Quarantined page to a client if a remediation server is not configured.
<a href="#">policy network group</a>	Configures a network group name and its associated IP addresses.
<a href="#">show qos config</a>	Displays QoS configuration information.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigQMPath
```

---

## qos quarantine page

Configures the Quarantine Manager and Remediation (QMR) application to send a Quarantined page to a client if a remediation server is not configured. This page is used to notify the client that QMR has quarantined the client.

**qos quarantine page**

**qos no quarantine page**

---

### Syntax Definitions

N/A

### Defaults

By default, no Quarantined page is sent to the client.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Use the **no** form of the command to disable the Quarantined page notification.
- A Quarantined page is only sent if a remediation server path was not configured. Note that even if the remediation server is not active, a page is not sent as long as the server is configured for QMR.

### Examples

```
-> qos quarantine page  
-> no quarantine page
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">qos quarantine mac-group</a>	Configures the name of the Quarantine MAC address group.
<a href="#">qos quarantine path</a>	Specifies the URL for a remediation server.
<a href="#">show qos config</a>	Displays QoS configuration information.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigQMPage
```

---

## debug qos

Configures the type of QoS events that will be displayed in the QoS log.

```
debug qos [info] [config] [rule] [main] [route] [hre] [port] [msg] [sl] [ioctl] [mem] [cam] [mapper]
[flows] [queue] [slot] [l2] [l3] [classifier] [nat] [sem] [pm] [ingress] [egress] [rsvp] [balance] [nimg]
```

```
debug no qos
```

```
debug no qos [info] [config] [rule] [main] [route] [hre] [port] [msg] [sl] [ioctl] [mem] [cam] [mapper]
[flows] [queue] [slot] [l2] [l3] [classifier] [nat] [sem] [pm] [ingress] [egress] [rsvp] [balance] [nimg]
```

---

### Syntax Definitions

<b>flows</b>	Logs events for flows on the switch.
<b>queue</b>	Logs events for queues created and destroyed on the switch.
<b>rule</b>	Logs events for rules configured on the switch.
<b>l2</b>	Logs Layer 2 QoS events on the switch.
<b>l3</b>	Logs Layer 3 QoS events on the switch.
<b>nat</b>	Logs events for Network Address Translation policies. <i>Not supported for the OmniSwitch 6624/6648.</i>
<b>port</b>	Logs events related to QoS ports.
<b>msg</b>	Logs QoS messages.
<b>classifier</b>	Logs information whenever the switch classifies a flow; more details are provided if the log level is higher.
<b>info</b>	Logs basic information about the switch
<b>config</b>	Logs information about the global configuration.
<b>main</b>	Logs information about basic program interfaces.
<b>route</b>	Logs information about routing.
<b>hre</b>	Logs information about hardware route programming.
<b>sl</b>	Logs information about source learning.
<b>mem</b>	Logs information about memory.
<b>cam</b>	Logs information about CAM operations.
<b>mapper</b>	Logs information about mapping queues.
<b>slot</b>	Logs events related to slots.
<b>sem</b>	Logs information about semaphore, process locking.
<b>pm</b>	Logs events related to the Policy Manager.
<b>ingress</b>	Logs information about packets arriving on the switch.

<b>egress</b>	Logs information about packets leaving the switch.
<b>rsvp</b>	Logs information about RSVP flows. <i>Currently not supported.</i>
<b>balance</b>	Logs information about flows that are part of a load balancing cluster. <i>Not supported for the OmniSwitch 6624/6648.</i>
<b>nimsg</b>	Logs information about QoS interfaces.

## Defaults

By default basic information messages are logged (**info**). Error messages are always logged.

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to change the type of messages that will be logged or to return debugging to its default state.
- Use this command to troubleshoot QoS events on the switch.

## Examples

```
-> debug qos flows queue  
-> qos debug no flows no queue  
-> debug no qos
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos forward log</a>	Enables the switch to send events to the PolicyView application in real time.
<a href="#">qos log lines</a>	Configures the number of lines in the QoS log.
<a href="#">show qos log</a>	Displays the log of QoS events.

## MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigDebug
```

---

## debug qos internal

Displays debugging information for QoS internal to the switch.

**debug qos internal** [*slice slot/slice*] [**flow**] [**queue**] [**port**] [**l2tree**] [**l3tree**] [**vector**] [**pending**] [**verbose**] [**mapper**] [**pool**] [**log**] [**pingonly** | **nopingonly**]

---

### Syntax Definitions

<i>slot/slice</i>	The slot number and slice for which you want to view debugging information. A <i>slice</i> is a logical section of hardware that corresponds to particular ports on a network interface module.
<b>flow</b>	Displays information about QoS flows.
<b>queue</b>	Displays information about QoS queues.
<b>port</b>	Displays information about QoS ports.
<b>l2tree</b>	Displays information about Layer 2 flows.
<b>l3tree</b>	Displays information about Layer 3 flows.
<b>vector</b>	Displays information about vectors.
<b>pending</b>	Displays information about pending QoS objects.
<b>verbose</b>	Sets the output to verbose mode for more detailed information.
<b>mapper</b>	Displays information about QoS mapping flows to queues.
<b>pool</b>	Displays information about the buffer pool.
<b>log</b>	Displays information about QoS information that is logged.
<b>pingonly</b>	Specifies that any policies configured with an ICMP protocol condition apply only to ICMP echo-requests and echo-replies.
<b>nopingonly</b>	Configures the switch so that any policies configured with an ICMP protocol condition apply to any ICMP packets.

### Defaults

Debugging is disabled by default.

parameter	default
<b>pingonly</b>   <b>nopingonly</b>	<b>nopingonly</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

Use the **debug qos** command to set the level of log detail in the QoS log.

## Examples

```
-> debug qos internal "verbose log"
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">debug qos</a>	Configures the type of QoS events that will be displayed in the QoS log.
<a href="#">policy condition ip protocol</a>	Configures an IP protocol for a policy condition.

## MIB Objects

N/A

---

## qos clear log

Clears messages in the current QoS log.

```
qos clear log
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command is useful for clearing messages from a large log file so that the file is easier to view. Logs can get large if invalid rules are configured on the switch, or if a lot of QoS events have taken place. Clearing the log makes the file easier to manage.

### Examples

```
-> qos clear log
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos log lines</a>	Configures the number of lines in the QoS log.
<a href="#">debug qos</a>	Configures the type of QoS events that will be displayed in the QoS log.
<a href="#">show qos log</a>	Displays the log of QoS events.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigClearLog
```

---



## qos apply

Applies configured global QoS and policy settings to the current configuration (changes will be active and stored in flash).

**qos apply**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is required to activate all QoS and policy commands. This is the only command that causes current changes to be written to flash.
- Rules are configured through the **policy rule** command, but are not active on the switch until you enter **qos apply**.

### Examples

```
-> qos apply
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos revert</a>	Removes any policies configured through policy rule but not applied to the current configuration through the <b>qos apply</b> command.
<a href="#">qos reset</a>	Resets the QoS configuration to its default values.
<a href="#">qos flush</a>	Deletes all pending policy information.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigApply
```

---

## qos revert

Deletes any QoS configuration that has not been applied to the configuration through the **qos apply** command.

**qos revert**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to remove currently configured policies that have not yet been activated through the **qos apply** command.

### Examples

```
-> qos revert
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy rule</a>	Configures a policy rule and saves it to the current configuration but does not make it active on the switch.
<a href="#">qos apply</a>	Applies all QoS settings configured on the switch to the current configuration.
<a href="#">qos reset</a>	Resets the QoS configuration to its defaults.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigRevert
```

---

## qos flush

Deletes all pending policy information. This command is different from **qos revert**, which returns the pending policy configuration to its last applied settings.

**qos flush**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If you enter this command, the pending policy configuration is completely erased. If you then enter **qos apply**, the erased configuration *overwrites the applied policies and you will erase all of your policy configuration*.

---

**Note.** Do not use this command unless you want to erase all of your policy configuration and start configuring new policies.

---

- Use the **qos revert** command to return the pending policy configuration to its last applied value.
- Policy configuration includes the following commands:

---

#### base commands

---

<b>policy rule</b>	<b>policy mac group</b>
<b>policy network group</b>	<b>policy port group</b>
<b>policy service</b>	<b>policy condition</b>
<b>policy service group</b>	<b>policy action</b>

---

### Examples

```
-> qos flush
```

### Release History

Release 6.1; command was introduced.

**Related Commands****qos revert**

Deletes any QoS configuration that has not been applied to the configuration through the **qos apply** command.

**qos apply**

Applies configured global QoS and policy settings to the current configuration (changes will be active and stored in flash).

**policy server flush**

Removes all cached LDAP policy data from the switch.

**MIB Objects**

alaQoSConfigTable  
  alaQoSConfigFlush

---

## qos reset

Resets the QoS configuration to its defaults.

```
qos reset
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to reset QoS configuration that has not yet been applied through the **qos apply** command. The parameters are reset to their defaults.

### Examples

```
-> qos reset
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies all QoS settings configured on the switch to the current configuration.
<a href="#">qos revert</a>	Deletes any QoS configuration that has not been applied to the configuration through the <b>qos apply</b> command.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigReset
```

---

## qos stats reset

Resets QoS statistic counters to zero.

```
qos stats reset [egress]
```

---

### Syntax Definitions

N/A

### Defaults

All QoS statistic counters are reset to zero.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to reset global QoS statistics to zero. Statistics may be displayed with the **show qos statistics** command.
- Use the **egress** parameter to reset only the egress CoS queue statistics to zero. Statistics may be displayed with the **show qos queue** command.

### Examples

```
-> qos stats reset  
-> qos stats reset egress
```

### Release History

Release 6.1; command was introduced.

Release 6.4.3; **egress** parameter added.

### Related Commands

<a href="#">show qos statistics</a>	Displays statistics about the QoS configuration.
<a href="#">show qos queue</a>	Displays QoS egress CoS queue statistics.

### MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigStatsReset
```

---



## qos port

Configures QoS parameters for a physical port. This section describes the base command with a single required option (*slot/port*).

In lieu of these options, the base command (**qos port**) may be used with other keywords to set up a QoS configuration on a per port basis. These keywords are listed here and described as separate commands later in this chapter. In addition, some keywords have a **no** form to remove the parameter or return it to its default.

**qos port** *slot/port*

[**trusted**]

[**servicing mode**]

[**qn** {**minbw** | **maxbw**} *kbps*]

[**maximum egress-bandwidth**]

[**maximum ingress-bandwidth**]

[**default 802.1p** *value*]

[**default dscp** *value*]

[**default classification** {**802.1p** | **tos** | **dscp**}]

[**dei** {**ingress** | **egress**}]

---

### Syntax Definitions

*slot/port*

The physical slot and port number. For example: 4/1.

### Defaults

- Mobile ports and ports enabled for 802.1Q are always trusted; by default, any other ports are not trusted.
- By default, QoS ports do not preempt queues of lower priority.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **trusted** option to change the trust mode for the port.

### Examples

```
-> qos port 3/1 trusted
-> qos port 4/2 no trusted
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>qos port</b>	Configures whether the default mode for QoS ports is trusted or untrusted.
<b>show qos port</b>	Displays information about QoS ports.

## MIB Objects

```
alaQoSPortTable  
  alaQoSPortSlot  
  alaQoSPortPort  
  alaQoSPortTrusted  
  alaQoSPortDefault8021p  
  alaQoSPortDefaultDSCP  
  alaQoSPortMaximumDefaultBandwidth  
  alaQoSPortAppliedMaximumDefaultBandwidth  
  alaQoSPortDefaultClassification  
  alaQoSPortAppliedDefaultClassification  
  alaQoSPortLowPriorityWeight  
  alaQoSPortAppliedLowPriorityWeight  
  alaQoSPortMediumPriorityWeight  
  alaQoSPortAppliedMediumPriorityWeight  
  alaQoSPortHighPriorityWeight  
  alaQoSPortAppliedHighPriorityWeight  
  alaQoSPortUrgentPriorityWeight  
  alaQoSPortAppliedUrgentPriorityWeight
```

---



## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">qos port</a>	Configures a physical port for QoS.
<a href="#">qos trust ports</a>	Configures the global trust mode for QoS ports.
<a href="#">show qos port</a>	Displays information about QoS ports.

## MIB Objects

alaQoSPortTable  
    alaQoSPortTrusted

---

## qos port servicing mode

Configures a queuing scheme for an individual destination (egress) port.

```
qos port slot/port servicing mode {strict-priority | wrr [w0 w1 w2 w3 w4 w5 w6 w7] | priority-wrr [w0 w1 w2 w3 w4 w5 w6 w7] | drr [w0 w1 w2 w3 w4 w5 w6 w7] | default}
```

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number to which this servicing mode applies.
<b>strict-priority</b>	Selects the strict priority queuing scheme as the servicing mode for the specified port. All eight available queues on a port are serviced strictly by priority.
<b>wrr</b>	Selects the weighted round robin (WRR) queuing scheme as the servicing mode for the specified port. Traffic is serviced based on the weight of each queue.
<b>priority-wrr</b>	Parameter not supported.
<b>drr</b>	Selects the deficit round robin (DRR) queuing scheme as the servicing mode for the specified port. Traffic is serviced based on the weight of each queue.
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	The value of the desired weight for each of the queues when WRR or DRR is the active queuing scheme. The range is 0 to 15.
<b>default</b>	Selects the switch default servicing mode for the port. The default mode is configured using the <a href="#">qos default servicing mode</a> command.

### Defaults

parameter	default
<b>strict-priority   wrr   drr</b>	<b>strict-priority</b>
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	1 (best effort)

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Each queue can have a different weight value and configuring these values in ascending or descending order is *not* required. When a queue is given a weight of 0, it is configured as a Strict-Priority queue.
- Use the **wrr** parameter to configure a Priority-WRR queuing scheme, which consists of a combination of Strict-Priority queues (zero weight) and WRR queues (non-zero weight).
- The **qos port servicing mode** command overrides the servicing mode configured with the **qos default servicing mode** command.

- The servicing mode only applies to destination (egress) ports because this is where traffic shaping occurs. Even though the **qos port servicing mode** and **qos default servicing mode** commands are allowed on source (ingress) ports, they do not affect traffic on these ports.
- Once the **qos port servicing mode** command is used on a port, this same command is required to make any additional mode changes for that port. If the port is changed back to the default servicing mode, however, this restriction is removed and the **qos default servicing mode** command is also allowed on the port.

## Examples

```
-> qos port 3/1 servicing mode strict-priority
-> qos port 3/3 servicing mode wrr 1 2 3 4 5 6 7 8
-> qos port 3/4 servicing mode drr 10 11 12 13 14 15 16 17
-> qos port 3/2 servicing mode default
```

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **wrr** and **drr** parameters added.

Release 6.3.1; priority-wrr parameter deprecated.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">qos default servicing mode</a>	Configures the default servicing mode for all switch ports.
<a href="#">show qos queue</a>	Displays information for all QoS queues.

## MIB Objects

```
alaQoSPortTable
  alaQoSPortServicingMode
  alaQoSPortQ0PriorityWeight
  alaQoSPortQ1PriorityWeight
  alaQoSPortQ2PriorityWeight
  alaQoSPortQ3PriorityWeight
  alaQoSPortQ4PriorityWeight
  alaQoSPortQ5PriorityWeight
  alaQoSPortQ6PriorityWeight
  alaQoSPortQ7PriorityWeight
```

---

## qos port q minbw maxbw

Configures a minimum and maximum bandwidth for each of the 8 COS egress queues on the specified port.

```
qos port slot/port qn {minbw | maxbw} kbps
```

```
qos port slot/port no qn {minbw | maxbw} kbps
```

---

### Syntax Definitions

<i>slot/port</i>	The slot/port on which the COS min/max bandwidth is configured.
<i>n</i>	The number of the queue for the specified port. Range is 1 to 8.
<i>kbps</i>	The minimum or maximum bandwidth value (in Kbits per second). The value may be entered as an integer (for example, <b>10000</b> ) or with abbreviated units (for example, <b>10k</b> , <b>10m</b> , <b>10g</b> , or <b>10t</b> ). If the value is entered in bits per second, the switch rounds the value up to the nearest thousand.

### Defaults

By default the minimum bandwidth value for each queue is set to zero (best effort), and the maximum bandwidth value for each queue is set to zero (port speed).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to return the minimum or maximum bandwidth value for the specified queue to the default value (zero).
- Note that configuring the minimum and maximum bandwidth for the same queue is allowed on the same command line (see the “Examples” section).
- Configuring the bandwidth values for different queues requires a separate command for each queue.

### Examples

```
-> qos port 1/3 q0 minbw 10 q0 maxbw 100
-> qos port 1/3 q1 minbw 100
-> qos port 1/3 q1 maxbw 10g
-> qos port 2/1 q7 minbw 5k q7 maxbw 50k
-> qos port 1/3 no q1 minbw
-> qos port 1/3 no q1 maxbw
```

### Release History

Release 6.1.1; command was introduced.

## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>qos default servicing mode</b>	Configures the default servicing mode for all switch ports.
<b>show qos queue</b>	Displays information for all QoS queues.

## MIB Objects

```
alaQoSPortTable  
  alaQoSPortSlot  
  alaQoSPortPort  
  alaQoSPortCOS0MaximumBandwidth  
  alaQoSPortCOS1MaximumBandwidth  
  alaQoSPortCOS2MaximumBandwidth  
  alaQoSPortCOS3MaximumBandwidth  
  alaQoSPortCOS4MaximumBandwidth  
  alaQoSPortCOS5MaximumBandwidth  
  alaQoSPortCOS6MaximumBandwidth  
  alaQoSPortCOS7MaximumBandwidth  
  alaQoSPortCOS0MinimumBandwidth  
  alaQoSPortCOS1MinimumBandwidth  
  alaQoSPortCOS2MinimumBandwidth  
  alaQoSPortCOS3MinimumBandwidth  
  alaQoSPortCOS4MinimumBandwidth  
  alaQoSPortCOS5MinimumBandwidth  
  alaQoSPortCOS6MinimumBandwidth  
  alaQoSPortCOS7MinimumBandwidth
```

---

## qos port maximum egress-bandwidth

Configures the maximum rate at which to send traffic on the specified QoS port.

**qos port** *slot/port* **maximum egress-bandwidth** *bps*

**qos port** *slot/port* **no maximum egress-bandwidth**

---

### Syntax Definitions

<i>slot/port</i>	The slot number and port number of the physical port.
<i>bps</i>	The maximum amount of bandwidth that may be used for all traffic egressing on the QoS port.

### Defaults

By default, the maximum bandwidth is the maximum allowed for the interface type on which the port resides.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a configured maximum egress bandwidth value from a port.
- The maximum egress bandwidth value cannot exceed the maximum bandwidth of the interface type associated with the port.
- Modifying the maximum egress bandwidth is most useful for low-bandwidth links.

### Examples

```
-> qos port 3/1 maximum egress-bandwidth 1000  
-> qos port 3/1 no maximum egress-bandwidth
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; **bandwidth** parameter changed to **egress-bandwidth**.

### Related Commands

<b>qos port maximum ingress-bandwidth</b>	Configures the rate at which traffic is received on a QoS port.
<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>qos port</b>	Configures a physical port for QoS.
<b>show qos port</b>	Displays information about QoS ports.



## **MIB Objects**

```
alaQoSPortTable  
  alaQoSPortSlot  
  alaQoSPortPort  
  alaQoSPortMaximumBandwidth  
  alaQoSPortMaximumBandwidthStatus
```

---

## qos port maximum ingress-bandwidth

Configures the maximum rate at which traffic is received on a QoS port.

**qos port** *slot/port* **maximum ingress-bandwidth** *bps*

**qos port** *slot/port* **no maximum ingress-bandwidth**

---

### Syntax Definitions

<i>slot/port</i>	The slot number and port number of the physical port.
<i>bps</i>	The maximum amount of bandwidth that may be used for all traffic ingressing on the QoS port.

### Defaults

By default, the maximum bandwidth is the maximum allowed for the interface type on which the port resides.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a configured maximum ingress bandwidth value from a port.
- The maximum ingress bandwidth value cannot exceed the maximum bandwidth of the interface type associated with the port.
- Modifying the maximum ingress bandwidth is most useful for low-bandwidth links.

### Examples

```
-> qos port 3/1 maximum ingress-bandwidth 1000  
-> qos port 3/1 no maximum ingress-bandwidth
```

### Release History

Release 6.3.1; command introduced.

### Related Commands

<b>qos port maximum egress-bandwidth</b>	Configures the rate at which traffic is sent on a QoS port.
<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>qos port</b>	Configures a physical port for QoS.
<b>show qos port</b>	Displays information about QoS ports.

## **MIB Objects**

alaQoSPortTable

    alaQoSPortSlot

    alaQoSPortPort

    alaQoSPortMaximumIngBandwidth

    alaQoSPortMaximumIngBandwidthStatus

---

## qos port default 802.1p

Configures the 802.1p value to be inserted in flows ingressing on an untrusted port.

**qos port** *slot/port* **default 802.1p** *value*

---

### Syntax Definitions

<i>slot/port</i>	The slot number and port number of the physical port.
<i>value</i>	The priority value to be set. Values range from 0 (lowest priority) to 7 (highest priority).

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- By default untrusted ports will set the 802.1p bit to zero on incoming flows. Use this command to specify that a different 802.1p value should be applied to the flow.
- The default 802.1p value is not used if there is a matching QoS policy rule that sets the priority.
- Note that on the 802.1p bit for tagged packets received on untrusted ports is set with the default 802.1p value, which is configured using the **qos port default 802.1p** command. If the packet is untagged, however, then the DSCP bit is set with the default DSCP value, which is configured using the **qos port default dscp** command.

### Examples

```
-> qos port 3/1 default 802.1p 5
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>qos port</b>	Configures a physical port for QoS.
<b>show qos port</b>	Displays information about QoS ports.

## **MIB Objects**

```
alaQoSPortTable  
  alaQoSPortDefault8021p  
  alaQoSAppliedPortDefault8021p
```

---

## qos port default dscp

Configures the ToS/DSCP value to be inserted in flows ingressing on an untrusted port.

**qos port** *slot/port* **default dscp** *value*

---

### Syntax Definitions

*slot/port*                      The slot number and port number of the physical port.

*value*                              The ToS/DSCP value. The range is 0–63.

### Defaults

parameter	default
<i>value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The value configured by this command sets the upper byte (precedence) and therefore configures the ToS/DSCP value for the port.
- The default DSCP value is not used if there is a matching QoS policy rule that sets the priority.
- Note that on the 802.1p bit for tagged packets received on untrusted ports is set with the default 802.1p value, which is configured using the **qos port default 802.1p** command. If the packet is untagged, however, then the DSCP bit is set with the default DSCP value, which is configured using the **qos port default dscp** command.

### Examples

```
-> qos port 3/1 default dscp 63
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<code>qos apply</code>	Applies configured QoS and policy settings to the current configuration.
<code>qos port</code>	Configures a physical port for QoS.
<code>show qos port</code>	Displays information about QoS ports.

## MIB Objects

```
alaQoSPortTable  
  alaQoSPortDefaultDSCP  
  alaQoSAppliedPortDefaultDSCP
```

---

## qos port default classification

Specifies the default egress priority value to use for IP traffic ingressing on trusted ports.

**qos port *slot/port* default classification {802.1p | dscp}**

---

### Syntax Definitions

<i>slot/port</i>	The slot number and port number of the physical port.
<b>802.1p</b>	Specifies that the 802.1p value of the flow will be used to prioritize flows coming in on the port.
<b>dscp</b>	Specifies that DSCP of the flow will be used to prioritize flows coming in on the port.

### Defaults

parameter	default
<b>802.1p   dscp</b>	DSCP

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The egress priority assigned to an IP packet received on a trusted port is based on the DSCP value of the packet unless 802.1p is specified as the default priority value.
- Note that when the default priority value is set to DSCP (using the default DSCP value of 0), the DSCP value of a tagged IP packet is mapped to the 802.1p value for that same packet. In other words, the 802.1p priority is overwritten with the DSCP value. This does not apply to Layer 2 packets.
- The default classification priority is not used if there is a matching QoS policy rule that sets the egress priority value.
- This command does not affect Layer 2 traffic, which is always classified with 802.1p.
- In some network situations, some IP traffic may be dropped before any QoS rules can take effect for the traffic.

### Examples

```
-> qos port 3/1 default classification tos
-> qos port 8/24 default classification dscp
-> qos port 7/1 default classification 802.1p
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">qos port</a>	Configures a physical port for QoS.
<a href="#">show qos port</a>	Displays information about QoS ports.

## MIB Objects

alaQoSPortTable  
alaQoSPortDefaultClassification

---

## qos port dei

Configures the Drop Eligible Indicator (DEI) bit mapping and marking setting for the specified QoS port. The DEI setting applies to packets marked yellow (non-conforming) as the result of Tri-Color Marking (TCM) rate limiting.

```
qos port slot/port dei {ingress | egress}
```

```
qos port slot/port no dei {ingress | egress}
```

---

### Syntax Definitions

<i>slot/port</i>	The slot number and port number of the physical port.
<b>ingress</b>	Maps the DEI/CFI bit to yellow (non-conforming) if this bit is set for ingress packets.
<b>egress</b>	Sets the DEI/CFI bit for egress packets if TCM marked the packets yellow.

### Defaults

By default, no DEI/CFI bit mapping or marking is done.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the DEI bit mapping (ingress) or marking (egress) configuration for the specified port
- Use the **qos dei** command to set the global DEI bit mapping and marking configuration for all QoS switch ports. Note that the port-level setting takes precedence over the global DEI setting.
- Packets marked yellow by TCM rate limiting are still transmitted when there is no congestion on the egress port queues. Setting the DEI/CFI bit for yellow egress packets (**qos port dei egress**) ensures that an upstream switch is made aware that the packet was marked yellow.
- When a switch receives a yellow packet with the DEI/CFI bit set and ingress DEI/CFI bit mapping is enabled (**qos port dei ingress**), the packet is mapped to an internal drop precedence or yellow color marking for the switch.

### Examples

```
-> qos port 1/10 dei ingress
-> qos port 1/20 dei egress
-> qos port 1/10 no dei ingress
-> qos port 1/20 no dei egress
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

<b>qos port</b>	Configures a physical port for QoS.
<b>qos dei</b>	Configures the global Drop Eligible Indicator (DEI) bit mapping and marking setting for all QoS ports.
<b>policy action cir</b>	Configures a Tri-Color Marking policy action.
<b>show qos config</b>	Displays global information about the QoS configuration.
<b>show qos port</b>	Displays information about QoS ports.

## MIB Objects

```
alaQoSPortTable  
  alaQoSPortDEIMapping  
  alaQoSPortDEIMarking
```

---



## Related Commands

<b>qos port</b>	Configures a physical port for QoS.
<b>show qos port monitor</b>	Displays ports that QoS is monitoring to gather egress CoS statistics.
<b>show qos queue</b>	Displays information and statistics for QoS priority queues.

## MIB Objects

alaQoSPortTable  
alaQoSPortMonitor

---

## show qos port

Displays information about all QoS ports or a particular port.

**show qos port** [*slot/port*] [*statistics*]

---

### Syntax Definitions

**slot/port** The physical slot and port number. For example: 3/1.

**statistics** Displays statistics for high-density gigabit modules.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all ports is displayed unless a particular port is specified.
- Use the **qos port** command to configure port parameters.
- For ports that are trusted (**Yes** displays in the Trust field), the Trust field includes one of the following characters:

character	definition
+	Indicates that the port is manually configured as trusted through the <b>qos port trusted</b> command; the port setting takes precedence over the global trust setting configured through the <b>qos trust ports</b> command.
*	Indicates that the port is automatically trusted regardless of the global setting set through the <b>qos trust ports</b> command. (Applies to mobile ports and ports configured for 802.1Q.)

### Examples

```
-> show qos port
```

Slot/ Port	Active	Trust	Default P/DSCP	Default Classification	Queues Deftl Total	Bandwidth Physical	Ingress	Egress	DEI Map/Mark	Type
1/1	Yes	No	0/ 0	DSCP	8 0	100M	-	-	No /Yes	ethernet
1/2	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/3	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/4	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/5	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/6	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/7	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/8	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/9	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/10	No	No	0/ 0	DSCP	8 0	0K	-	-	Yes /Yes	ethernet
1/11	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet
1/12	No	No	0/ 0	DSCP	8 0	0K	-	-	No /No	ethernet

```

-> show qos port 1/1
Slot/           Default   Default   Queues           Bandwidth           DEI
Port Active Trust P/DSCP Classification Deflt Total Physical Ingress Egress Map/Mark Type
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
1/1   Yes     No  0/ 0           DSCP              8    0    100M          -     -     No /Yes ethernet

```

### output definitions

<b>Slot/Port</b>	The slot and physical port number.
<b>Active</b>	Whether or not the port is sending/receiving QoS traffic.
<b>Trust</b>	Whether the port is trusted or not trusted.
<b>Default P</b>	The default 802.1p setting for the port.
<b>Default DSCP</b>	The default ToS/DSCP setting for the port.
<b>Default Classification</b>	The default classification setting for the port ( <b>802.1p</b> or <b>DSCP</b> ).
<b>Default Queues</b>	The number of default queues.
<b>Total Queues</b>	The total number of queues.
<b>Physical Bandwidth</b>	The amount of physical bandwidth available on the port.
<b>Ingress</b>	The amount of ingress bandwidth for the port.
<b>Egress</b>	The amount of egress bandwidth for the port.
<b>DEI Map</b>	Whether or not the port maps the DEI bit for yellow (non-conforming) ingress packets.
<b>DEI Mark</b>	Whether or not the port sets the DEI bit for yellow (non-conforming) egress packets.
<b>Type</b>	The interface type, <b>ethernet</b> or <b>wan</b> .

### Release History

Release 6.1; command was introduced.  
 Release 6.4.3; **DEI Map** and **Mark** fields added.

### Related Commands

**qos port** Configures a physical port for QoS.

### MIB Objects

```

alaQoSPortTable
  alaQoSPortSlot
  alaQoSPortPort
  alaQoSPortEnabled
  alaQoSPortDefault8021p
  alaQoSPortDefaultDSCP
  alaQoSPortDefaultQueues
  alaQoSPortMaximumReservedBandwidth
  alaQoSPortMaximumDefaultBandwidth
  alaQoSPortDefaultClassification
alaQoSClassify
  alaQoSClassifySourceInterfaceType

```

## show qos port monitor

Displays ports that are enabled to monitor egress CoS transmit and drop statistics.

**show qos port monitor**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- This command displays ports that were configured to enable statistics monitoring using the **qos port monitor** command.
- Note that this command is not required on the OmniSwitch 9000E, as QoS monitoring is automatically active on all ports for these switches.

### Examples

```
-> show qos port monitor
```

```

  NI      Port
-----+-----
  1       1/10
  2       2/5
  3       3/16
  4       4/26
  5       5/25

```

#### *output definitions*

---

<b>NI</b>	The slot number.
<b>Port</b>	The slot/port number for the switch port.

---

### Release History

Release 6.4.3; command was introduced.



## **Related Commands**

**qos port monitor**

Enables or disables statistics monitoring for a specific port.

## **MIB Objects**

---



*output definitions*

---

<b>Slot/Port</b>	The physical slot/port numbers associated with the queue.
<b>VPN</b>	The virtual port number associated with the queue.
<b>Q No</b>	The queue number ( <b>0</b> through <b>7</b> ).
<b>Pri</b>	The priority associated with the queue ( <b>0</b> through <b>7</b> ), configured through the <b>policy action priority</b> command.
<b>Wt</b>	The weight value assigned to each queue. Configured through the <b>qos default servicing mode</b> and <b>qos port servicing mode</b> commands.
<b>Bandwidth Min</b>	The minimum bandwidth requirement for the queue.
<b>Bandwidth Max</b>	The maximum bandwidth requirement for the queue (the bandwidth allowed by the maximum configured for all actions associated with the queue). Configured through the <b>policy action maximum bandwidth</b> command.
<b>Max Bufs</b>	The number of buffers associated with the queue.
<b>Max Depth</b>	The maximum queue depth, in bytes. Configured through the <b>policy action maximum depth</b> command.
<b>Packets Xmit/Drop</b>	The number of packets transmitted/dropped from this queue.
<b>Type</b>	The type of queuing performed on this queue ( <b>pri</b> , <b>wrr</b> , <b>drp</b> ).

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.1; **Q No** field was added.

Release 6.4.3; *slot/port* parameter added, **Action** field deprecated.

**Related Commands**

<b>policy rule</b>	Configures a policy rule on the switch. A rule is made up of a condition (for classifying incoming traffic) and an action (to be applied to outgoing traffic).
<b>qos port monitor</b>	Enables QoS statistics monitoring for a specific port.

**MIB Objects**

alaQoSQueueTable  
  alaQoSQueueId  
  alaQoSQueueSlot  
  alaQoSQueuePort  
  alaQoSQueuePortId  
  alaQoSQueueType  
  alaQoSQueuePriority  
  alaQoSQueueMinimumBandwidth  
  alaQoSQueueMaximumBandwidth  
  alaQoSQueueAverageBandwidth  
  alaQoSQueueMaximumDepth  
  alaQoSQueueMaximumBuffers  
  alaQoSQueue8021p  
  alaQoSQueuePacketsSent  
  alaQoSQueuePacketsDropped  
  alaQoSQueueMaxLength  
  alaQoSQueueAverageLength  
  alaQoSQueueCurrentLength

---

## show qos slice

Displays rule availability and usage information for QoS slices of QoS slots. A *slice* is a logical section of hardware and corresponds to particular ports on the interface.

```
show qos slice {ingress | egress} [slot/slice]
```

---

### Syntax Definitions

<b>ingress</b>	Displays information for ingress rules.
<b>egress</b>	Displays information for egress rules.
<i>slot/slice</i>	The slot number and slice for which you want to view information. The number of slices per module varies depending on the type of module.

### Defaults

By default, information is displayed for all slots/slices.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E  
 OmniSwitch 6400, 6855-U24X, 9000E; **egress** parameter supported.

### Usage Guidelines

- Use the **ingress** parameter to display information for rules applied to ingress traffic.
- Use the **egress** parameter to display information for rules applied to egress traffic.
- Use the *slot/slice* parameter to display information for a specific slot or slice on the switch.
- This command is useful for monitoring switch resources required for policy rules.

### Examples

```
-> show qos slice
Slot/
Slice   Type  Ranges      Rules      Counters      Meters
        Total/Free  CAM Total/Free  Total/Free  Total/Free
  3/0   Firebolt  16/16      0   128/101      128/101      64/64
        1   128/125      128/125      64/64
        2   128/0        128/0        64/64
        3   128/0        128/0        64/64
        4   128/0        128/0        64/64
        5   128/0        128/0        64/64
        6   128/0        128/0        64/64
        7   128/0        128/0        64/64
        8   128/0        128/0        64/64
        9   128/0        128/0        64/64
       10  128/0        128/0        64/64
       11  128/0        128/0        64/64
       12  128/0        128/0        64/64
       13  128/0        128/24       64/64
       14  128/0        128/62       64/64
       15  128/124     128/123     64/63
```

*output definitions*


---

<b>Slot/Slice</b>	The slot and slice number.
<b>Type</b>	The type of slice.
<b>Ranges Total</b>	The total number of TCP/UDP port ranges supported per slot/slice.
<b>Ranges Free</b>	The number of TCP/UDP port ranges that are still available for use.
<b>CAM</b>	The CAM number.
<b>Rules Total</b>	The total number of rules supported per CAM.
<b>Rules Free</b>	The number of rules that are still available for use. On startup, the switch uses 27 rules.
<b>Counters Total</b>	The total number of counters supported per CAM.
<b>Counter Free</b>	The number of counters that are still available for use.
<b>Meters Total</b>	The total number of meters supported per CAM.
<b>Meters Free</b>	The number of meters that are still available for use.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.1: command modified to show policy rule usage and available resources.

Release 6.4.3: **ingress** and **egress** parameters added.

**Related Commands****policy rule**

Configures a policy rule on the switch. A rule is made up of a condition (for classifying incoming traffic) and an action (to be applied to outgoing traffic).

**MIB Objects**

N/A

---

## show qos log

Displays the log of QoS events.

**show qos log**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to display the current QoS log. To clear the log, use the **qos clear log** command.
- Logging of ARP packets is not supported.

### Examples

```
-> show qos log
**QOS Log**
Insert rule 0
Rule index at 0
Insert rule 1
Rule index at 1
Insert rule 2
Rule index at 2
Enable rule r1 (1) 1,1
Enable rule r2 (0) 1,1
Enable rule yuba1 (2) 1,1
Verify rule r1(1)
Enable rule r1 (1) 1,1
Really enable r1
Update condition c1 for rule 1 (1)
Verify rule r2(1)
Enable rule r2 (0) 1,1
Really enable r2
Update condition c2 for rule 0 (1)
Verify rule yuba1(1)
Enable rule yuba1 (2) 1,1
Really enable yuba1
Update condition yubamac for rule 2 (1)
QoS Manager started TUE MAR 10 13:46:50 2002

Match rule 2 to 1
Match rule 2 to 2
```

Match rule 2 to 3

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

[qos clear log](#)

Clears messages in the current QoS log.

[qos log lines](#)

Configures the number of lines in the QoS log.

### **MIB Objects**

N/A

---



## show qos config

Displays global information about the QoS configuration.

**show qos config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to view the current global configuration for QoS. Use the **show qos statistics** command to view statistics about the QoS software in the switch.

### Examples

```
-> show qos config
QoS Configuration:
  Enabled           : Yes
  Pending changes   : None
DEI:
  Mapping           : Enabled
  Marking           : Enabled
Classifier:
  Default queues    : 8
  Default queue service : strict-priority
  Trusted ports     : No
  NMS Priority       : Yes
  Phones            : trusted
  Default bridged disposition : accept
  Default routed disposition  : accept
  Default IGMP/MLD disposition : accept
Logging:
  Log lines         : 256
  Log level         : 6
  Log to console    : No
  Forward log       : No
Stats interval     : 60 seconds
Userports:
  Filter           : spoof
  Shutdown         : none
Quarantine Manager:
  Quarantine MAC Group : Quarantined
  Quarantined Page     : No
  Remediation URL      :
Debug               : info
```

*output definitions*

<b>QoS Configuration</b>	Whether or not QoS is enabled or disabled. Configured through the <b>qos</b> command.
<b>Mapping</b>	Whether or not DEI mapping for ingress packets is enabled or disabled. Configured through the <b>qos dei</b> command.
<b>Marking</b>	Whether or not DEI marking for egress packets is enabled or disabled. Configured through the <b>qos dei</b> command.
<b>Default queues</b>	The number of default queues for QoS ports. There are eight queues for each QoS port; this value is not configurable.
<b>Default queue service</b>	The default servicing mode for the switch ( <b>strict-priority</b> , <b>WRR</b> , or <b>DRR</b> ). Configured through the <b>qos default servicing mode</b> command.
<b>Trusted Ports</b>	The default trusted mode for switch ports. Configured through the <b>qos trust ports</b> command.
<b>NMS Priority</b>	Whether or not the automatic prioritization of NMS traffic is enabled or disabled. Configured through the <b>qos nms priority</b> command.
<b>Phones</b>	Whether or not IP Phone traffic is automatically trusted or assigned a priority value. Configured through the <b>qos phones</b> command.
<b>Default bridged disposition</b>	Whether or not bridged traffic that does not match any policy will be accepted or denied on the switch. Configured through the <b>qos default bridged disposition</b> command.
<b>Default routed disposition</b>	Whether or not routed traffic that does not match any policy will be accepted or denied on the switch. Configured through the <b>qos default routed disposition</b> command.
<b>Default IGMP/MLD disposition</b>	Whether or not multicast flows that do not match any policy will be accepted or denied on the switch. Configured through the <b>qos default multicast disposition</b> command.
<b>Log lines</b>	The number of lines included in the QoS log. Configured through the <b>qos log lines</b> command.
<b>Log level</b>	The level of log detail. Configured through the <b>qos log level</b> command.
<b>Log to console</b>	Whether or not log messages are sent to the console. Configured through the <b>qos log console</b> command.
<b>Forward log</b>	Whether or not logged events are sent to the policy server software in the switch in real time. Configured through the <b>qos forward log</b> command.
<b>Stats interval</b>	How often the switch polls network interfaces for statistics about QoS events. Configured through the <b>qos stats interval</b> command.
<b>Filter</b>	The type of traffic that is filtered on ports that are members of the UserPorts group. Configured through the <b>qos user-port</b> command.
<b>Shutdown</b>	The type of traffic that will trigger an administrative shutdown of the port if the port is a member of the UserPorts group. Configured through the <b>qos user-port</b> command.
<b>Quarantine MAC Group</b>	The name of the Quarantine Manager and Remediation (QMR) MAC address group. Configured through the <b>qos quarantine mac-group</b> command. Note that this field only displays on an OmniSwitch 6850 and 6855.

*output definitions (continued)*

---

<b>Quarantined Page</b>	Indicates whether or not QMR sends a Quarantined page to a client. Configured through the <b>qos quarantine page</b> command. Note that this field only displays on an OmniSwitch 6850 and 6855.
<b>Remediation URL</b>	The URL for the QMR remediation server. Configured through the <b>qos quarantine path</b> command. Note that this field only displays on an OmniSwitch 6850 and 6855.
<b>Debug</b>	The type of information that will be displayed in the QoS log. Configured through the <b>debug qos</b> command. A value of <b>info</b> indicates the default debugging type.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.1; **Filter** and **Shutdown** fields added.

Release 6.3.1; **NMS Priority**, **Phones**, and **Quarantine Manager** fields added.

Release 6.4.3; **DEI Mapping** and **Marking** fields added.

**Related Commands**

<b>qos</b>	Enables or disables QoS. This base command may be used with keyword options to configure QoS globally on the switch.
<b>show qos statistics</b>	Displays statistics about the QoS configuration.

**MIB Objects**

```
alaQoSConfigTable
  alaQoSConfigEnable
  alaQoSConfigDEIMapping
  alaQoSConfigDEIMarking
  alaQoSConfigServicingMode
  alaQoSConfigTrustPorts
  alaQoSConfigAutoNms
  alaQoSConfigAutoPhones
  alaQoSConfigDefaultBridgedDisposition
  alaQoSConfigDefaultRoutedDisposition
  alaQoSConfigDefaultMulticastDisposition
  alaQoSConfigLogLines
  alaQoSConfigLogLevel
  alaQoSConfigLogConsole
  alaQoSConfigStatsInterval
  alaQoSConfigUserportFilter
  alaQoSConfigUserportShutdown
  alaQoSConfigQMMacGroup
  alaQoSConfigQMPage
  alaQoSConfigQMPath
  alaQoSConfigDebug
```

---

## show qos statistics

Displays statistics about the QoS configuration.

**show qos statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays statistics about the global QoS configuration. Use the **show qos config** command to display information about configurable global parameters.

### Examples

```
-> show qos statistics
QoS stats
```

	Events	Matches	Drops
L2	15	0	0
L3 Inbound	0	0	0
L3 Outbound	0	0	0
IGMP Join	0	0	0
Fragments	: 0		
Bad Fragments	: 0		
Unknown Fragments	: 0		
Sent NI messages	: 9		
Received NI messages	: 4322		
Failed NI messages	: 0		
Load balanced flows	: 0		
Reflexive flows	: 0		
Reflexive correction	: 0		
Flow lookups	: 0		
Flow hits	: 0		
Max PTree nodes	: 0		
Max PTree depth	: 0		
Spoofed Events	: 0		
NonSpoofed Events	: 0		
DropServices	: 0		

Software resources

Table	Applied						Pending					Max
	CLI	LDAP	ACLM	Blt	Total	CLI	LDAP	ACLM	Blt	Total		
rules	0	0	0	0	0	4	0	0	0	4	2048	
actions	0	0	0	0	0	1	0	0	0	1	2048	
conditions	0	0	0	0	0	1	0	0	0	1	2048	

services	0	0	0	0	0	0	0	0	0	0	256
service groups	1	0	0	0	1	1	0	0	0	1	1024
network groups	0	0	0	1	1	0	0	0	1	1	1024
port groups	2	0	0	16	18	2	0	0	16	18	1024
mac groups	0	0	0	0	0	0	0	0	0	0	1024
map groups	0	0	0	0	0	0	0	0	0	0	1024
vlan groups	0	0	0	0	0	0	0	0	0	0	1024

Hardware resources			TCAM			Ranges		
Slot	Slice	Unit	Used	Free	Max	Used	Free	Max
1	0	0	0	1664	1664	0	16	16
2	0	0	0	1664	1664	0	16	16

### *output definitions*

---

<b>Events</b>	The number of Layer 2 or Layer 3 flows transmitted on the switch.
<b>Matches</b>	The number of Layer 2 or Layer 3 flows that match policies.
<b>Drops</b>	The number of Layer 2 or Layer 3 flows that were dropped.
<b>L2</b>	The number of Layer 2 events, matches, and drops.
<b>L3 Ingress</b>	The number of Layer 3 ingress events, matches, and drops.
<b>L3 Egress</b>	The number of Layer 3 egress events, matches, and drops.
<b>IGMP join</b>	The number of multicast events, matches, and drops.
<b>Fragments</b>	The number of fragments dropped.
<b>Bad Fragments</b>	The number of fragments received with an offset of 1.
<b>Unknown Fragments</b>	The number of out-of-order fragments received.
<b>Sent NI messages</b>	The number of messages sent to network interfaces.
<b>Received NI messages</b>	The number of messages received by network interfaces.
<b>Failed NI messages</b>	The number of failed message attempts to network interfaces.
<b>Load balanced flows</b>	The number of Server Load Balance flow entries.
<b>Reflexive flows</b>	The number of reflexive flows.
<b>Reflexive correction</b>	The number of reflexive flow corrections.
<b>Flow lookups</b>	The number of flow table lookups.
<b>Flow hits</b>	The number of flow table lookup hits.
<b>Max PTree nodes</b>	The highest number of nodes in the classifier tree.
<b>Max Ptree depth</b>	The length of the longest path in the classifier tree.
<b>Spoofed Events</b>	The number of spoofed events.
<b>Nonspoofed Events</b>	The number of nonspoofed events.
<b>DropServices</b>	The number of TCP/UDP flows dropped.
<b>Software Resources</b>	The current usage and availability of software resources for the QoS configuration.
<b>Hardware Resources</b>	The current usage and availability of hardware resources for the QoS configuration.

---

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **Spoofed Events**, **Nonspoofed Events**, and **DropServices** fields added.

Release 6.3.4: **vlan groups** field added to Software Resources display.

## Related Commands

**qos stats reset**                      Resets QoS statistic counters to zero.

## MIB Objects

```
alaQoSStats
  alaQoSStatsL2Events
  alaQoSStatsL2matches
  alaQoSStatsL2Drops
  alaQoSStatsL3IngressEvents
  alaQoSStatsL3IngressMatches
  alaQoSStatsL3IngressDrops
  alaQoSStatsL3EgressEvents
  alaQoSStatsL3EgressMatches
  alaQoSStatsL3EgressDrops
  alaQoSStatsFragments
  alaQoSStatsBadFragments
  alaQoSStatsUnknownFragments
  alaQoSStatsSpoofedEvents
  alaQoSStatsNonspoofedEvents
```

---

# 33 QoS Policy Commands

This chapter describes CLI commands used for policy management in the switch. The Quality of Service (QoS) software in the switch uses policy rules for classifying incoming flows and deciding how to treat outgoing flows. A policy rule is made up of a policy condition and a policy action. Policy rules may be created on the switch through CLI or SNMP commands, or they may be created through the PolicyView GUI application on an attached LDAP server.

---

**Note.** Rules created through PolicyView cannot be modified through the CLI; however, you can create policies in the CLI that take precedence over policies created through PolicyView.

---

Refer to [Chapter 43, “QoS Commands,”](#) for information about commands used to configure QoS software.

MIB information for the QoS policy commands is as follows:

*Filename:* alcatelIND1Qos.mib  
*Module* ALCATEL-IND1-QoS-MIB

---

**Important Note.** Some of the commands listed here are not currently supported on one or more platforms. See command descriptions in this chapter and check release notes for information about commands that are not supported.

---

The QoS Policy commands are listed here:

---

<b>Policy commands</b>	<b>policy rule</b> <b>policy validity period</b> <b>policy condition</b> <b>policy action</b> <b>policy list</b> <b>show policy action</b> <b>show policy condition</b> <b>show active policy rule</b> <b>show active policy rule meter-statistics</b> <b>show policy rule</b> <b>show policy validity period</b> <b>show active policy list</b> <b>show policy list</b>
------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

**Group commands**

**policy network group**  
**policy service group**  
**policy mac group**  
**policy port group**  
**policy vlan group**  
**policy map group**  
**show policy network group**  
**show policy mac group**  
**show policy port group**  
**show policy vlan group**  
**show policy map group**  
**show policy service group**

**Service commands**

**policy service**  
**policy service protocol**  
**policy service source tcp port**  
**policy service destination tcp port**  
**policy service source udp port**  
**policy service destination udp port**  
**show policy service**

---



**Condition commands**

**policy condition**  
**policy condition source ip**  
**policy condition source ipv6**  
**policy condition destination ipv6**  
**policy condition multicast ip**  
**policy condition source network group**  
**policy condition destination network group**  
**policy condition multicast network group**  
**policy condition source ip port**  
**policy condition destination ip port**  
**policy condition source tcp port**  
**policy condition destination tcp port**  
**policy condition source udp port**  
**policy condition destination udp port**  
**policy condition ethertype**  
**policy condition established**  
**policy condition tcpflags**  
**policy condition service**  
**policy condition service group**  
**policy condition icmptype**  
**policy condition icmpcode**  
**policy condition ip protocol**  
**policy condition ipv6**  
**policy condition nh**  
**policy condition flow-label**  
**policy condition tos**  
**policy condition dscp**  
**policy condition source mac**  
**policy condition source mac group**  
**policy condition destination mac**  
**policy condition destination mac group**  
**policy condition source vlan**  
**policy condition source vlan group**  
**policy condition inner source vlan**  
**policy condition inner source vlan group**  
**policy condition destination vlan**  
**policy condition 802.1p**  
**policy condition inner 802.1p**  
**policy condition source port**  
**policy condition destination port**  
**policy condition source port group**  
**policy condition destination port group**  
**policy condition vrf**

---

**Command for testing conditions**

**show policy classify**

---

**Action commands**

**policy action**  
**policy action disposition**  
**policy action shared**  
**policy action priority**  
**policy action maximum bandwidth**  
**policy action maximum depth**  
**policy action cir**  
**policy action tos**  
**policy action 802.1p**  
**policy action dscp**  
**policy action map**  
**policy action permanent gateway ip**  
**policy action port-disable**  
**policy action redirect port**  
**policy action redirect linkagg**  
**policy action no-cache**  
**policy action mirror**

---

Types of policies are generally determined by the kind of traffic they classify (policy conditions) and how the policy is enforced (policy actions). Commands used for particular types of policies are listed here. See the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about creating these types of policies and information about valid condition/action combinations.

---

<b>Access Control Lists</b>	<b>policy condition</b> <b>policy action disposition</b> <b>policy rule</b>
<b>ACLMAN interactive shell</b>	<b>aclman</b>
<b>Traffic prioritization/shaping</b>	<b>policy action shared</b> <b>policy action priority</b> <b>policy action maximum bandwidth</b> <b>policy action maximum depth</b> <b>policy action cir</b> <b>policy rule</b>
<b>802.1p/ToS/DSCP tagging or mapping</b>	<b>policy condition tos</b> <b>policy condition dscp</b> <b>policy condition 802.1p</b> <b>policy action tos</b> <b>policy action 802.1p</b> <b>policy action dscp</b> <b>policy action map</b> <b>policy rule</b>
<b>Policy based port mirroring</b>	<b>policy action mirror</b>
<b>VLAN Stacking (Ethernet Services)</b>	<b>policy condition inner source vlan</b> <b>policy condition inner 802.1p</b>

---

## aclman

Invokes the Access Control List Manager (ACLMAN) interactive shell for using common industry syntax to create ACLs.

**aclman**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Invoking multiple, concurrent ACLMAN shells is supported.
- Once the shell is active, Alcatel-Lucent CLI commands are no longer accepted. Refer to the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about ACLMAN commands and usage.
- Commands entered using the ACLMAN shell are interpreted and converted to Alcatel-Lucent CLI syntax that is used for creating QoS filtering policies.
- Note that a user with read-only access to the Alcatel-Lucent CLI policy domain is restricted to using only the ACLMAN **clear**, **exit**, and **show** commands when the shell is active.

### Examples

```
-> aclman
```

### Release History

Release 6.1.2; command was introduced.

### Related Commands

N/A

---

## policy rule

Configures a policy rule on the switch. A rule is made up of a condition (for classifying incoming traffic) and an action (to be applied to outgoing traffic).

**policy rule** *rule\_name* [**enable** | **disable**] [**precedence** *precedence*] [**condition** *condition*] [**action** *action*] [**validity period** *name* | **no validity period**] [**save**] [**log** [**log-interval** *seconds*]] [**count** {**packets** | **bytes**}] [**trap** | **no trap**] [**default-list** | **no default-list**]

**no policy rule** *rule\_name*

**policy rule** *rule\_name* [**no reflexive**] [**no save**] [**no log**]

---

### Syntax Definitions

<i>rule_name</i>	The name of the policy rule, any alphanumeric string.
<b>enable</b>	Enables the policy rule.
<b>disable</b>	Disables the policy rule.
<i>precedence</i>	The precedence value in the range 0–65535. This value determines the order in which rules are searched for a matching condition. A higher number indicates higher precedence. Typically the range 30000–65535 is reserved for PolicyView.
<i>condition</i>	The condition name that is associated with this rule. Conditions are configured through the <b>policy condition</b> command.
<i>action</i>	The name of the action that is associated with this rule. Actions are configured through the <b>policy action</b> command.
<i>name</i>	The name of a user-defined validity period that is associated with this rule. Validity periods are configured through the <b>policy validity period</b> command.
<b>save</b>	Marks the policy rule so that it may be captured as part of the switch configuration.
<b>log</b>	Configures the switch to log messages about specific flows coming into the switch that match this policy rule.
<i>seconds</i>	Configures how often to look for packets that match this policy rule when rule logging is applied (in the range from 0–3600 seconds). A value of 0 specifies to log as often as possible.
<b>packets</b>	Counts the number of packets that match the rule.
<b>bytes</b>	Counts the number of bytes that match the rule.
<b>trap</b>	Enables or disables traps for the rule.
<b>default-list</b>	Adds or removes the policy rule from the default policy list.

## Defaults

By default, rules are not reflexive, but they are saved to the configuration.

parameter	default
<b>enable   disable</b>	enable
<i>precedence</i>	0
<b>log</b>	no
<b>log-interval</b>	30 seconds
<b>packets   bytes</b>	packets
<b>trap</b>	enable
<b>default-list</b>	add to default list

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Any rule configured through this command is not active on the switch until the **qos apply** command is issued.
- A policy rule configured through the PolicyView application may not be edited in the CLI. You may, however, create a rule using the CLI with a higher precedence that will override a rule created through PolicyView.
- Use the **no** form of the command to remove the rule from the configuration. The change will not take effect, however, until the **qos apply** command is issued.
- When a flow comes into the switch, the switch examines Layer 2 source policies first; if no match is found, it examines Layer 2 destination policies; if no match is found it then examines Layer 3 policies. The precedence value only applies within the group of the same type of rules.
- If multiple rules (of the same type; that is, Layer 2 source, Layer 2 destination, or Layer 3) are configured with the same precedence, the switch evaluates the rules in the order they were created.
- Only one validity period is associated with a policy rule. Each time this command is entered with a validity period name specified, the existing period name is overwritten with the new one.
- Software and hardware resources are allocated for rules associated with a validity period even if the validity period is not active. Pre-allocating the resources makes sure the rule can be enforced when the validity period becomes active.
- The **save** option marks the policy rule so that the rule will be captured in an ASCII text file (using the **configuration snapshot** command), saved to the working directory after the **write memory** command or **reload issu** command is entered, or saved after a reboot. Rules are saved by default. If **no save** is entered for the rule, the policy rule will not be written to the configuration. The **save** option should be disabled only if you want to use a policy rule temporarily.

- If the **configuration snapshot** command is entered after the **policy rule** command is configured, the resulting ASCII file will include the following additional syntax for the **policy rule** command:

**from {cli | ldap | blt}**

This syntax indicates how the rule was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in rule, this setting is not configurable.

- The **log** option is useful for determining the source of attacks on the switch firewall.
- Logging of ARP packets is not supported.
- If traps are enabled for the rule, a trap is only sent when a port disable action or UserPort shutdown operation is triggered.
- The **default-list** option adds the rule to the default policy list. Rules are added to this list by default when the rule is created. A rule can belong to multiple policy lists. As a result, the rule remains a member of the default list even when it is subsequently assigned to additional lists.
- Note that each time a rule is assigned to a policy list, an instance of that rule is created and each instance is allocated system resources. Use the **no default-list** option with this command to exclude the rule from the default policy list.

## Examples

```
-> policy rule rule2 condition c2 action a2
-> policy rule rule2 precedence 65535
-> policy rule rule2 validity period vp01
-> no policy rule rule2
-> policy rule rule2 no precedence
-> policy rule rule2 no validity period
-> policy rule rule2 no default-list
```

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **count** parameter added.

Release 6.3.4; **default-list** parameter added.

## Related Commands

<a href="#">policy validity period</a>	Configures a validity period that specifies days, times, and/or months during which an associated policy rule is in effect.
<a href="#">policy condition</a>	Configures condition parameters.
<a href="#">policy action</a>	Configures action parameters.
<a href="#">policy list</a>	Adds or removes a policy rule from a policy list.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show active policy rule</a>	Displays only those policy rules that are currently being enforced on the switch.
<a href="#">show policy rule</a>	Displays information for policy rules configured on the switch.

---

## MIB Objects

### alaQoSRuleTable

- alaQoSRuleName
- alaQoSRuleEnabled
- alaQoSRuleSource
- alaQoSRulePrecedence
- alaQoSRuleCondition
- alaQoSRuleAction
- alaQoSRuleReflexive
- alaQoSRuleSave
- alaQoSRuleLog
- alaQoSRuleLogInterval
- alaQoSRuleCountType
- alaQoSRulePacketCount
- alaQoSRuleByteCount
- alaQoSRuleExcessPacketCount
- alaQoSRuleExcessByteCount
- alaQoSRuleTrapEvents
- alaQoSRuleDefaultList

### alaQoSAppliedRuleTable

- alaQoSAppliedRuleName
- alaQoSAppliedRuleEnabled
- alaQoSAppliedRuleSource
- alaQoSAppliedRulePrecedence
- alaQoSAppliedRuleCondition
- alaQoSAppliedRuleAction
- alaQoSAppliedRuleReflexive
- alaQoSAppliedRuleSave
- alaQoSAppliedRuleLog
- alaQoSAppliedRuleLogInterval
- alaQoSAppliedCountType
- alaQoSAppliedPacketCount
- alaQoSAppliedByteCount
- alaQoSAppliedExcessPacketCount
- alaQoSAppliedExcessByteCount
- alaQoSDefaultList

---



## policy validity period

Configures a validity period that specifies the days and times in which a policy rule is in effect.

**policy validity period** *name* [[**no**] **days** *days*] [[**no**] **months** *months*] [[**no**] **hours** *hh:mm* **to** *hh:mm* | **no hours**] [**interval** *mm:dd:yyyy hh:mm* **to** *mm:dd:yyyy hh:mm* | **no interval**]

**no policy validity period** *name*

---

### Syntax Definitions

<i>name</i>	The name of the validity period (up to 31 alphanumeric characters).
<i>days</i>	The day(s) of the week this validity period is active. Enter the actual day of the week (e.g., monday, tuesday, wednesday, etc.).
months	The month(s) in which the validity period is active. Enter the actual month (e.g., january, february, march, etc.).
<i>hh:mm</i>	The time of day, specified in hours and minutes, the validity period starts and the time of day the validity period ends (e.g., 10:30 to 11:30).
<i>mm:dd:yyyy hh:mm</i>	An interval of time in which a rule is in effect. Specify a start and end to the interval period by entering a beginning date and time followed by an end date and time (e.g., 11:01:2005 12:01 to 11:02:2005 12:01).

### Defaults

By default, no validity period is in effect for a policy rule.

parameter	default
<i>days</i>	no restriction
<i>months</i>	no restriction
<i>hh:mm</i>	no specific time
<i>mm:dd:yyyy hh:mm</i>	no interval

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a validity period from the configuration, or to remove parameters from a particular validity period. Note that at least one parameter must be associated with a validity period.
- Any combination of days, months, hours, and interval parameters is allowed. The validity period is only in effect when all specified parameters are true.
- Use the **policy rule** command to associate a validity period with a rule.

- Software and hardware resources are allocated for rules associated with a validity period even if the validity period is not active. Pre-allocating the resources makes sure the rule can be enforced when the validity period becomes active.
- If the **snapshot** command is entered after the **policy validity period** command is configured, the resulting ASCII file will include the following additional syntax for the **policy validity period** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

## Examples

```
-> policy validity period vp01 days tuesday thursday months january february
-> policy validity period vp01 hours 13:00 to 19:00
-> policy validity period vp02 interval 01/01/05 12:01 to 02/01/05 11:59
-> policy validity period vp01 no days thursday
-> no policy validity period vp02
```

## Release History

Release 6.1; command was introduced.

## Related Commands

- |                                             |                                                                                                    |
|---------------------------------------------|----------------------------------------------------------------------------------------------------|
| <a href="#">policy rule</a>                 | Configures a policy rule on the switch and optionally associates that rule with a validity period. |
| <a href="#">show policy validity period</a> | Displays information about policy validity periods.                                                |

## **MIB Objects**

### alaQoSValidityPeriodTable

- alaQoSValidityPeriodName
- alaQoSValidityPeriodSource
- alaQoSValidityPeriodDays
- alaQoSValidityPeriodDaysStatus
- alaQoSValidityPeriodMonths
- alaQoSValidityPeriodMonthsStatus
- alaQoSValidityPeriodHour
- alaQoSValidityPeriodHourStatus
- alaQoSValidityPeriodEndHour
- alaQoSValidityPeriodInterval
- alaQoSValidityPeriodIntervalStatus
- alaQoSValidityPeriodEndInterval

### alaQoSAppliedValidityPeriodTable

- alaQoSAppliedValidityPeriodName
- alaQoSAppliedValidityPeriodSource
- alaQoSAppliedValidityPeriodDays
- alaQoSAppliedValidityPeriodDaysStatus
- alaQoSAppliedValidityPeriodMonths
- alaQoSAppliedValidityPeriodMonthsStatus
- alaQoSAppliedValidityPeriodHour
- alaQoSAppliedValidityPeriodHourStatus
- alaQoSAppliedValidityPeriodEndHour
- alaQoSAppliedValidityPeriodInterval
- alaQoSAppliedValidityPeriodIntervalStatus
- alaQoSAppliedValidityPeriodEndInterval

---

## policy list

Configures a list of policy rules. There are two types of lists supported: User Network Profile (UNP) and egress. Rules assigned to a UNP list are applied to traffic classified into a specific profile. Rules assigned to an egress list are applied to traffic egressing on QoS ports.

**policy list** *list\_name* **type** [**unp** | **egress**] **rules** *rule\_name* [*rule\_name2...*] [**enable** | **disable**]

**no policy list** *list\_name*

**policy list** *list\_name* **no rules** *rule\_name* [*rule\_name2...*]

---

### Syntax Definitions

<i>list_name</i>	The name to assign to the policy list. Note that the list name is case sensitive.
<b>unp</b>	Applies the list of policy rules to the User Network Profile to which the list is assigned.
<b>egress</b>	Applies the list of policy rules to traffic egressing on QoS ports.
<i>rule_name</i>	The name of an existing QoS policy rule to include in the policy list.
<i>rule_name2</i>	Optional. The name of another QoS policy rule to include in the policy list. Separate each rule name specified with a space.
<b>enable</b>	Enables the policy list.
<b>disable</b>	Disables the policy list.

### Defaults

A default policy list is available when the switch boots up. This list has no name and is not configurable. All QoS policy rules are assigned to this default list unless the **no default-list** option of the [policy rule](#) command is used.

parameter	default
<b>unp</b>   <b>egress</b>	<b>unp</b>
<b>enable</b>   <b>disable</b>	enabled

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E  
 OmniSwitch 6400, 6855-U24X, 9000E **egress** parameter supported.

### Usage Guidelines

- Use the **no** form of the command to remove a policy list from the configuration or to remove a policy rule from an existing list.
- The QoS policy rule name specified with this command must already exist in the switch configuration.

- Only those rules that are assigned to an egress policy list are applied to egress traffic. However, certain policy conditions and actions are not supported within an egress policy list. For example, IPv6 conditions are not allowed. See the “Configuring QoS” chapter in the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information.
- QoS changes DSCP and 802.1p values for traffic ingressing on an *untrusted* port. As a result, the new values may not match any egress policy list rules as expected. To avoid this scenario, trust the ingress port or configure a default ToS/DSCP/802.1p value as required.
- If an egress policy list rule contains an 802.1p condition and the ingress port is *trusted*, set the default classification of the ingress port to 802.1p. If the default classification of the ingress port is set to DSCP, the 802.1p value of the traffic is changed per the DSCP classification and will not match the egress 802.1p condition.
- Egress rate limiting configured through an Ethernet Service SAP profile takes precedence over egress rate limiting specified within a QoS egress policy list rule.
- A rule may belong to a UNP list, the default list, and an egress policy list at the same time. By default, a rule is assigned to a default policy list when the rule is created. If the rule is subsequently assigned to another policy list, it still remains associated with the default list.
- If a rule is a member of multiple policy lists but one or more of these lists are disabled, the rule is still active in those lists that are enabled.
- If the QoS status of a rule is disabled, then the rule is disabled for all lists even if a list to which the policy belongs is enabled.
- Any policy list configured through this command is not active on the switch until the **qos apply** command is issued.
- If the **snapshot** command is entered after the **policy list** command is configured, the resulting ASCII file will include the following additional syntax for the **policy list** command:

**from {cli | ldap | blt}**

This syntax indicates how the list was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

## Examples

```
-> policy list unpl type rules r1 r2 r3
-> policy list unpl disable
-> policy list unpl no rules r2
-> policy list unpl enable
-> no policy list unpl
-> policy list egr1 type egress rules r1 r2 r3
-> policy list egr1 disable
-> policy list egr1 no rules r3
-> policy list egr1 enable
-> no policy list egr1
```

## Release History

Release 6.3.4; command was introduced.

Release 6.4.3; **egress** parameter added.

## Related Commands

<b>policy rule</b>	Configures a policy rule on the switch and optionally associates that rule with a validity period.
<b>show policy rule</b>	Displays information for policy rules configured on the switch.
<b>show active policy list</b>	Displays only those policy lists that are currently being enforced on the switch.
<b>show policy list</b>	Displays information for policy lists configured on the switch.

## MIB Objects

```
alaQoSRuleGroupsTable
  alaQoSRuleDefaultList
  alaQoSRuleGroupsName
  alaQoSRuleGroupsSource
  alaQoSRuleGroupsType
  alaQoSRuleGroupsEnabled
  alaQoSRuleGroupsStatus
alaQoSAppliedRuleGroupsTable
  alaQoSAppliedRuleGroupsName
  alaQoSAppliedRuleGroupsSource
  alaQoSAppliedGroupsType
  alaQoSAppliedGroupsEnabled
  alaQoSAppliedRuleGroupsStatus
```

---

## policy network group

Configures a network group name and its associated IP addresses. The group may be used as part of a policy condition. The action associated with any policy using the condition will be applied to all members of the network group.

**policy network group** *net\_group ip\_address [mask net\_mask] [ip\_address2 [mask net\_mask2]...]*

**no policy network group** *net\_group*

**policy network group** *net\_group no ip\_address [mask netmask] [ip\_address2 [mask net\_mask2]...]*

---

### Syntax Definitions

<i>net_group</i>	The name of the network group (up to 31 alphanumeric characters).
<i>ip_address</i>	An IPv4 address included in the network group. IPv6 addresses are not supported with network groups.
<i>net_mask</i>	The mask for the IPv4 address. If no mask is entered, the IPv4 address is assumed to be a host address.
<i>ip_address2</i>	Optional. Another IPv4 address to be included in the network group. Multiple IP addresses may be configured for a network group. Separate each address/mask combination with a space.
<i>net_mask2</i>	Optional mask for the IPv4 address. If no mask is entered, the natural mask for the address will be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure a group of IPv4 addresses to which you want to apply QoS rules. Rather than create a condition for each IPv4 address, group the addresses together. Use the **policy condition** command to associate a condition with the network group.
- Use the **no** form of the command to remove a network group from the configuration or to remove an IP address from a network group.
- If the **snapshot** command is entered after the **policy network group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy network group** command:

**from {cli | ldap | blt}**

This syntax indicates how the network group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in network group, this setting is not configurable.

## Examples

```
-> policy network group webgroup1 10.10.12.5 10.50.3.1
-> policy network group webgroup1 no 10.10.12.5
-> no policy network group webgroup1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy condition</a>	Configures a policy condition. A network group may be configured as part of a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy network group</a>	Displays information for policy network groups.

## MIB Objects

```
alaQoSNetworkGroupsTable
  alaQoSNetworkGroupsName
  alaQoSNetworkGroupsSource
alaQoSAppliedNetworkGroupsTable
  alaQoSAppliedNetworkGroupsName
  alaQoSAppliedNetworkGroupsSource
alaQoSNetworkGroupTable
  alaQoSNetworkGroupIpAddr
  alaQoSNetworkGroupsIpMask
alaQoSAppliedNetworkGroupTable
  alaQoSAppliedNetworkGroupIpAddr
  alaQoSAppliedNetworkGroupsIpMask
```

---



## policy service group

Configures a service group and its associated services. The group may be used as part of a policy condition. The action associated with any policy using the condition will be applied to all members of the service group.

**policy service group** *service\_group service\_name1 [service\_name2...]*

**no policy service group** *service\_group*

**policy service group** *service\_group no service\_name1 [service\_name2...]*

---

### Syntax Definitions

<i>service_group</i>	The name of the service group (up to 31 alphanumeric characters).
<i>service_name1</i>	The service name is configured through the <b>policy service</b> command and includes information about protocol, source port, and destination port.
<i>service_name2...</i>	Optional. Additional service names may be configured for a service group. Separate each service name with a space.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure a group of services to which you want to apply QoS rules. Rather than create a condition for each service, group services together. Use the **policy condition** command to associate a condition with the service group.
- Use the **no** form of the command to remove a service group from the configuration, or to remove a service from a service group.
- To drop packets destined to specific TCP and UDP ports, create port services for the traffic that you want dropped and add these services to a service group called DropServices. Then create a condition for this service group and a source port group, which can then be used in a deny rule. Refer to the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about ACL security enhancements.
- If the **snapshot** command is entered after the **policy service group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service group** command:

**from {cli | ldap | blt}**

This syntax indicates how the service group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in service group, this setting is not configurable.

## Examples

```
-> policy service group servgroup2 telnet ftp
-> policy service group servgroup2 no telnet
-> no policy service group servgroup2
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy service</a>	Configures a service that may be used as part of a policy service group.
<a href="#">policy condition</a>	Configures a policy condition. A network group may be configured as part of a policy condition.
<a href="#">show policy service group</a>	Displays information for policy service groups.

## MIB Objects

```
alaQoSServiceGroupsTable
  alaQoSServiceGroupsName
  alaQoSServiceGroupsSource
alaQoSAppliedServiceGroupsTable
  alaQoSAppliedServiceGroupsName
  alaQoSAppliedServiceGroupsSource
alaQoSServiceGroupTable
  alaQoSServiceGroupServiceName
alaQoSAppliedServiceGroupTable
  alaQoSAppliedServiceGroupServiceName
```

---

## policy mac group

Configures a MAC group and its associated MAC addresses. The group may be used as part of a policy condition. The action associated with any policy using the condition will be applied to all members of the MAC group.

**policy mac group** *mac\_group mac\_address* [**mask** *mac\_mask*] [*mac\_address2* [**mask** *mac\_mask2*]...]

**no policy mac group** *mac\_group*

**policy mac group** *mac\_group no mac\_address* [**mask** *mac\_mask*] [*mac\_address2* [**mask** *mac\_mask2*]...]

---

### Syntax Definitions

<i>mac_group</i>	The name of the MAC group (up to 31 alphanumeric characters).
<i>mac_address</i>	The MAC address associated with the group (for example, 00:20:da:05:f6:23).
<i>mac_mask</i>	The mask of the MAC address, used to identify which bytes in the MAC address are significant when comparing the MAC address in the received frame with the MAC address in the policy condition. If no mask is specified, the switch automatically uses ff:ff:ff:ff:ff:ff.
<i>mac_address2</i>	Optional. Additional MAC addresses may be configured for a MAC group. Separate each address with a space.
<i>mac_mask2</i>	The mask of an additional MAC address, used to identify which bytes in the MAC address are significant when comparing the MAC address in the received frame with the MAC address in the policy condition. If no mask is specified, the switch automatically uses ff:ff:ff:ff:ff:ff.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure a group of source or destination MAC addresses to which you want to apply QoS rules. Rather than create a condition for each MAC address, group MAC addresses together. Use the **policy condition** command to associate a condition with the MAC group.
- Use the **no** form of the command to remove a MAC group from the configuration, or to remove a MAC address from a MAC group.
- The MAC group name “alaPhones” is a reserved group name used to identify the MAC addresses of IP phones. See the [qos phones](#) command for more information.
- The MAC group name “Quarantined” is a reserved group name used to identify MAC address that are restricted through the Quarantine Manager and Remediation (QMR) switch application. This name is

configurable by the user, but “Quarantined” is used by default if a different name is not specified. See the [qos quarantine mac-group](#) command for more information.

- If the **snapshot** command is entered after the **policy map group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy map group** command:

**from {cli | ldap | blt}**

This syntax indicates how the map group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

## Examples

```
-> policy mac group mac_group1 00:20:da:05:f6:23 00:20:da:05:f6:24
-> no policy mac group mac_group1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy condition</a>	Configures a policy condition. A MAC group may be configured as part of a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy mac group</a>	Displays information about policy MAC groups.

## MIB Objects

```
alaQoSACGroupsTable
  alaQoSACGroupsName
  alaQoSACGroupsSource
alaQoSAppliedMACGroupsTable
  alaQoSAppliedMACGroupsName
  alaQoSAppliedMACGroupsSource
alaQoSACGroupTable
  alaQoSACGroupMacAddr
  alaQoSACGroupMacMask
alaQoSAppliedMACGroupTable
  alaQoSAppliedMACGroupMacAddr
  alaQoSAppliedMACGroupMacMask
```

## policy port group

Configures a port group and its associated slot and port numbers. A port group may be attached to a policy condition. The action associated with that policy will be applied to all members of the port group.

**policy port group** *group\_name slot/port[-port] [slot/port[-port]...]*

**no policy port group** *group\_name*

**policy port group** *group\_name no slot/port[-port] [slot/port[-port]...]*

---

### Syntax Definitions

<i>group_name</i>	The name of the port group (up to 31 alphanumeric characters).
<i>slot/port[-port]</i>	The slot and port (or port range) to be included in the group. At least one slot/port combination must be specified. Additional combinations may be included in the group; each combination should be separated by a space.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure a group of ports to which you want to apply QoS rules. Rather than create a condition for each port, group ports together. Use the **policy condition** command to associate a condition with the port group.
- Use the **no** form of the command to remove a port group from the configuration, or to remove a slot/port from a port group.
- If a range of ports is specified using the syntax *slot/port-port* (i.e., 2/1-8), a single port within that range cannot be removed on its own. The entire range must be deleted as it was entered.
- When a port group is used as part of a policy rule and a policy action specifies a maximum bandwidth, each interface in the port group will be allowed the maximum bandwidth.
- To prevent IP source address spoofing, add ports to the port group called **UserPorts**. This port group does not need to be used in a condition or rule to be effected on flows and only applies to routed traffic. Ports added to the UserPorts group will block spoofed traffic while still allowing normal traffic on the port. Refer to the *OmniSwitch AOS Release 6 Network Configuration Guide* for more information about ACL security enhancements.
- Use the **qos user-port** command to configure the option to filter or administratively disable a port when a specific type of traffic (Spoof, RIP, BPDU, OSPF, and/or BGP) is received on a port that is a member of the pre-defined UserPorts group.

- If the **snapshot** command is entered after the **policy port group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy port group** command:

**from {cli | ldap | blt}**

This syntax indicates how the port group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

## Examples

```
-> policy port group port_group4 3/1-2 4/3 5/4
-> policy port group port_group4 no 3/1-2
-> policy port group UserPorts 4/1-8 5/1-8
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy condition</a>	Configures a policy condition. A port group may be configured as part of a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action maximum bandwidth</a>	Configures a maximum bandwidth value for a policy action.
<a href="#">show policy port group</a>	Displays information about policy port groups.

## MIB Objects

```
alaQoSPortGroupsTable
  alaQoSPortGroupsName
  alaQoSPortGroupsSource
alaQoSAppliedPortGroupsTable
  alaQoSAppliedPortGroupsName
  alaQoSAppliedPortGroupsSource
alaPortGroupTable
  alaQoSPortGroupSlot
  alaQoSPortGroupPort
  alaQoSPortGroupPortEnd
alaAppliedPortGroupTable
  alaQoSAppliedPortGroupSlot
  alaQoSAppliedPortGroupPort
  alaQoSAppliedPortGroupPortEnd
```

## policy vlan group

Configures a VLAN group and its associated VLAN ID numbers. A VLAN group may be attached to a policy condition. The action associated with that policy will be applied to all members of the VLAN group.

**policy vlan group** *group\_name* *vlan\_id[-vlan\_id]* [*vlan\_id[-vlan\_id]*...]

**no policy vlan group** *group\_name*

**policy vlan group** *group\_name no* *vlan\_id[-vlan\_id]* [*vlan\_id[-vlan\_id]*...]

---

### Syntax Definitions

<i>group_name</i>	The name of the VLAN group (up to 31 alphanumeric characters).
<i>vlan_id[-vlan_id]</i>	The VLAN ID to include in the group. At least one VLAN ID combination is required. To specify a contiguous range of VLAN IDs, use a hyphen. To specify multiple ID entries, use a space (for example, 10-15 50 100 250-252).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure a group of VLAN IDs to which you want to apply QoS rules. Rather than create a condition for each VLAN, group VLANs together. Use the **policy condition** command to associate a condition with the VLAN group.
- Use the **no** form of the command to remove a VLAN group from the configuration, or to remove a VLAN from a VLAN group.
- If a range of VLANs is specified using the syntax *vlan\_id-vlan\_id* (i.e., 1-8), a single VLAN within that range cannot be removed on its own. The entire range must be deleted as it was entered.
- If the **snapshot** command is entered after the **policy vlan group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy port group** command:

**from {cli | ldap | blt}**

This syntax indicates how the VLAN group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy vlan group vlan_group1 100-200 205 240-245 1000
-> policy vlan group vlan_group2 1000-2000
-> policy vlan group vlan_group3 3000
```

```
-> policy vlan group vlan_group3 3000 3100-3105
-> no policy vlan group vlan_group2
-> policy vlan group vlan_group1 no 100-200
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">policy condition source vlan</a>	Configures a source VLAN policy condition. A VLAN group may be configured as part of this type of policy condition.
<a href="#">policy condition inner source vlan</a>	Configures an inner source VLAN policy condition. A VLAN group may be configured as part of this type of policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy vlan group</a>	Displays information about policy VLAN groups.

## MIB Objects

```
alaQoSvlanGroupsTable
  alaQoSvlanGroupsName
  alaQoSvlanGroupsSource
  alaQoSvlanGroupsStatus
alaQoSAppliedVlanGroupsTable
  alaQoSAppliedVlanGroupsName
  alaQoSAppliedVlanGroupsSource
  alaQoSAppliedVlanGroupsStatus
alaQoSvlanGroupTable
  alaQoSvlanGroupVlan
  alaQoSvlanGroupVlanEnd
  alaQoSvlanGroupStatus
alaQoSAppliedVlanGroupTable
  alaQoSAppliedVlanGroupVlan
  alaQoSAppliedVlanGroupVlanEnd
  alaQoSAppliedVlanGroupStatus
```



## policy map group

Configures a map group and its associated mappings for 802.1p, Type of Service (ToS), or Differentiated Services Code Point (DSCP) values. A map group may be referenced in a policy action with the **map** keyword.

**policy map group** *map\_group* {*value1:value2...*}

**no policy map group** *map\_group*

**policy map group no** {*value1:value2...*}

---

### Syntax Definitions

<i>map_group</i>	The name of the map group (up to 31 alphanumeric characters).
<i>value1</i>	The 802.1p, ToS, or DSCP value to be mapped to another value. May be a value or a range of values (for example, <b>1-2</b> ).
<i>value2...</i>	The 802.1p, ToS, or DSCP value to be used in place of <i>value1</i> . Additional mapping pairs may be included.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a mapping pair or to remove the map group entirely.
- The map group may contain more than one mapping pair.
- If the **snapshot** command is entered after the **policy map group** command is configured, the resulting ASCII file will include the following additional syntax for the **policy map group** command:

**from** {**cli** | **ldap** | **blt**}

This syntax indicates how the map group was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy map group tosGroup 1-4:3 5-6:5 7:6
-> policy map group tosGroup no 7:6
-> no policy map group tosGroup
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [policy action map](#)

Configures a mapping group for a policy action.

## MIB Objects

```
alaQoSMapGroupsTable
  alaQoSMapGroupsName
  alaQoSMapGroupsSource
alaQoSAppliedMapGroupsTable
  alaQoSAppliedMapGroupsName
  alaQoSAppliedMapGroupsSource
alaQoSMapGroupTable
  alaQoSMapGroupKey
  alaQoSMapGroupKeyEnd
  alaQoSMapGroupValue
alaQoSAppliedMapGroupTable
  alaQoSAppliedMapGroupKey
  alaQoSAppliedMapGroupKeyEnd
  alaQoSAppliedMapGroupValue
```

---

## policy service

Configures a service that may be used as part of a policy service group or included as part of a policy condition. A service is a source and/or destination TCP or UDP port or port range.

This overview section describes the base command. *At least one option must be configured with the base command.* Some options may be used in combination; some options are shortcuts for keyword combinations (see the Usage Guidelines). Options are described as separate commands. See the command descriptions and usage guidelines for valid combinations.

Use the **no** form for keywords to remove a parameter from a service.

```
policy service service_name
  [protocol protocol]
  [source ip port port[-port]]
  [destination ip port port[-port]]
  [source tcp port port[-port]]
  [destination tcp port port[-port]]
  [source udp port port[-port]]
  [destination udp port port[-port]]
```

```
no policy service service_name
```

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>protocol</i>	The protocol associated with the service. The range of values is 0–255. Currently a value of 6 (for TCP) or 17 (for UDP) is supported. This value must be specified for <b>source ip port</b> or <b>destination ip port</b> ; it cannot be specified for <b>source tcp port</b> , <b>destination tcp port</b> , <b>source udp port</b> , or <b>destination udp port</b> .
<i>port</i>	The well-known port number (or port range) for the desired service. For example, the port number for Telnet is 23. Specify a range of ports using a hyphen (for example, <b>22-23</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a service from the configuration, or to remove parameters from a particular service. Note that at least one parameter must be associated with a service.

- The command options offer alternate ways of configuring TCP or UDP ports for a service. Note that port types (TCP or UDP) cannot be mixed in the same service. The following table shows how the keywords are used:

To configure:	Use keywords:	Notes
TCP or UDP ports for a service	<b>protocol</b> <b>source ip port</b> <b>destination ip port</b>	<i>The protocol must be specified with at least one source or destination port.</i>
TCP ports for a service	<b>source tcp port</b> <b>destination tcp port</b>	<i>Keywords may be used in combination.</i>
UDP ports for a service	<b>source udp port</b> <b>destination udp port</b>	<i>Keywords may be used in combination.</i>

- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

## Examples

The following two commands show two different ways of configuring the same service:

```
-> policy service telnet2 protocol 6 destination ip port 23
-> policy service telnet3 destination tcp port 23
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceIpProtocol
  alaQoSServiceSourceIpPort
  alaQoSServiceSourceIpPortEnd
  alaQoSServiceDestinationIpPort
  alaQoSServiceDestinationIpPortEnd
  alaQoSServiceSourceTcpPort
  alaQoSServiceSourceTcpPortEnd
  alaQoSServiceDestinationTcpPort
  alaQoSServiceDestinationTcpPortEnd
  alaQoSServiceSourceUdpPort
  alaQoSServiceSourceUdpPortEnd
  alaQoSServiceDestinationUdpPort
  alaQoSServiceDestinationUdpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedServiceIpProtocol
  alaQoSAppliedSourceIpPort
  alaQoSAppliedSourceIpPortEnd
  alaQoSAppliedServiceDestinationIpPort
  alaQoSAppliedServiceDestinationIpPortEnd
  alaQoSAppliedSourceTcpPort
  alaQoSAppliedSourceTcpPortEnd
  alaQoSAppliedServiceDestinationTcpPort
  alaQoSAppliedServiceDestinationTcpPortEnd
  alaQoSAppliedSourceUdpPort
  alaQoSAppliedSourceUdpPortEnd
  alaQoSAppliedServiceDestinationUdpPort
  alaQoSAppliedServiceDestinationUdpPortEnd
```

---

## policy service protocol

Configures a service with a protocol and IP port or port range that may be used as part of a policy service group or included as part of a policy condition.

**policy service** *service\_name* **protocol** *protocol* {[**source ip port** *port*[-*port*]]  
[**destination ip port** *port*[-*port*]]}

**no policy service** *service\_name*

**policy service** *service\_name* [**no source ip port**] [**no destination ip port**]

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>protocol</i>	The protocol associated with the service. The range of values is 0–255. Currently a value of 6 (for TCP) or 17 (for UDP) is supported.
<i>port</i>	The well-known port number (or port range) for the desired service. For example, the port number for Telnet is 23. A port range should be separated by a hyphen (for example, <b>22-23</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a service from the configuration, or to remove parameters from a particular service. (A protocol value cannot be removed from a service.)
- Shortcut commands for the **policy service protocol** command include the following: **policy service source tcp port**, **policy service destination tcp port**, **policy service source udp port**, and **policy service destination udp port**.
- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy service telnet2 protocol 6 destination ip port 23 source ip port 22
-> policy service telnet2 no source ip port
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceIpProtocol
  alaQoSServiceSourceIpPort
  alaQoSServiceSourceIpPortEnd
  alaQoSServiceDestinationIpPort
  alaQoSServiceDestinationIpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedServiceIpProtocol
  alaQoSAppliedSourceIpPort
  alaQoSAppliedSourceIpPortEnd
  alaQoSAppliedServiceDestinationIpPort
  alaQoSAppliedServiceDestinationIpPortEnd
```

---

## policy service source tcp port

Configures a service with a source TCP port or port range that may be used as part of a policy service group or included as part of a policy condition.

**policy service** *service\_name* **source tcp port** *port[-port]*

**no policy service** *service\_name*

**policy service** *service\_name* **no source tcp port**

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>port</i>	The well-known port number (or port range) for the desired TCP service. For example, the port number for Telnet is 23. A port range should be separated by a hyphen (for example, <b>22-23</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is a shortcut for the **policy service protocol** command.
- Use the **no** form of the command to remove a service from the configuration, or to remove parameters from a particular service. Note that at least one parameter must be associated with a service.
- Ports associated with a particular service must all be of the same type. (The **destination tcp port** keyword may be used with this command; other keywords for the command are not allowed.)
- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy service serv_5 source tcp port 21-22
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceSourceTcpPort
  alaQoSServiceSourceTcpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedSourceTcpPort
  alaQoSAppliedSourceTcpPortEnd
```

---

## policy service destination tcp port

Configures a service with a destination TCP port or port range that may be used as part of a policy service group or included as part of a policy condition.

**policy service** *service\_name* **destination tcp port** *port*[-*port*]

**no policy service** *service\_name*

**policy service** *service\_name* **no destination tcp port**

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>port</i>	The well-known port number (or port range) for the desired TCP service. For example, the port number for Telnet is 23. A port range should be separated by a hyphen (for example, <b>22-23</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a service from the configuration, or to remove parameters from a particular service.
- This command is a shortcut for the **policy service protocol** command.
- A policy service may be grouped in a policy group using the **policy service group** command. A policy condition may then be associated with the service group.
- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy service service4 destination tcp port 23
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceDestinationTcpPort
  alaQoSServiceDestinationTcpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedServiceDestinationTcpPort
  alaQoSAppliedServiceDestinationTcpPortEnd
```

---

## policy service source udp port

Configures a service with a source UDP port or port range that may be used as part of a policy service group or included as part of a policy condition.

**policy service** *service\_name* **source udp port** *port*[-*port*]

**no policy service** *service\_name*

**policy service** *service\_name* **no source udp port**

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>port</i>	The well-known port number (or port range) for the desired UDP service. A port range should be separated by a hyphen (for example, <b>22-23</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is a shortcut for the **policy service protocol** command.
- Use the **no** form of the command to remove a service from the configuration, or to remove parameters from a particular service. Note that at least one parameter must be associated with a service.
- Ports associated with a particular service must all be of the same type. (The **destination tcp port** keyword may be used with this command; other keywords for the command are not allowed.)
- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy service serv_a source udp port 1000
-> no policy service serv_a
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceSourceUdpPort
  alaQoSServiceSourceUdpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedSourceUdpPort
  alaQoSAppliedSourceUdpPortEnd
```

---

## policy service destination udp port

Configures a service with a destination UDP port or port range that may be used as part of a policy service group or included as part of a policy condition.

**policy service** *service\_name* **destination udp port** *port[-port]*

**no policy service** *service\_name*

**policy service** *service\_name* **no destination udp port**

---

### Syntax Definitions

<i>service_name</i>	The name of the service (up to 31 alphanumeric characters).
<i>port</i>	The well-known port number (or port range) for the desired UDP service. For example, a port number for NETBIOS is 137. A port range should be separated by a hyphen (for example, <b>137-138</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is a shortcut for the **policy service protocol** command.
- A policy service may be grouped in a policy group using the **policy service group** command. A policy condition may then be associated with the service group.
- Use the **no** form of the command to remove a service from the configuration, or to remove parameters from a particular service.
- If the **snapshot** command is entered after the **policy service** command is configured, the resulting ASCII file will include the following additional syntax for the **policy service** command:

**from {cli | ldap | blt}**

This syntax indicates how the service was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in object, this setting is not configurable.

### Examples

```
-> policy service service4 destination udp port 137
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy service group</a>	Configures a policy service group, which is made up of policy services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy service</a>	Displays information about policy services configured on the switch.

## MIB Objects

```
alaQoSServiceTable
  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceDestinationUdpPort
  alaQoSServiceDestinationUdpPortEnd
alaQoSAppliedServiceTable
  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedServiceDestinationUdpPort
  alaQoSAppliedServiceDestinationUdpPortEnd
```

---

## policy condition

Creates a QoS policy condition. The condition determines what parameters the switch uses to classify incoming flows. Condition parameters may be configured when the condition is created; or parameters may be configured for an existing condition. At least one parameter must be configured for a condition.

This section describes the base command. Optional keywords are listed below and described as separate commands later in this chapter. (Options may be used in combination but are described separately for ease in explanation.) Use the **no** form for keywords to remove a parameter from the condition.

Some condition parameters may not be supported depending on the platform you are using. Also some condition parameters may not be supported with some action parameters. See the condition/action tables in the *OmniSwitch AOS Release 6 Network Configuration Guide*.

**policy condition** *condition\_name*

```
[source ip ip_address [mask netmask]]
[source ipv6 {any | ipv6_address [mask netmask]}]
[destination ip ip_address [mask netmask]]
[destination ipv6 {any | ipv6_address [mask netmask]}]
[multicast ip ip_address [mask netmask]]
[source network group network_group]
[destination network group network_group]
[multicast network group multicast_group]
[source ip port port[-port]]
[destination ip port port[-port]]
[source tcp port port[-port]]
[destination tcp port port[-port]]
[source udp port port[-port]]
[destination udp port port[-port]]
[ethertype etype]
[established]
[tcpflags {any | all} flag [mask flag]]
[service service]
[service group service_group]
[icmptype type]
[icmpcode code]
[ip protocol protocol]
[ipv6]
[nh next_header_value]
[flow-label flow_label_value]
[tos tos_value tos_mask]
[dscp {dscp_value[-value] [dscp_mask]}]
[source mac mac_address [mask mac_mask]]
[destination mac mac_address [mask mac_mask]]
[source mac group group_name]
[destination mac group mac_group]
[source vlan vlan_id]
[source vlan group group_name]
[inner source vlan vlan_id ]
```



```
[inner source vlan group mac_group]
[destination vlan vlan_id]
[802.1p 802.1p_value]
[source port slot/port[-port]]
[source port group group_name]
[destination port slot/port[-port]]
[destination port group group_name]
[vrf { vrf_name | default}]
```

**no policy condition** *condition\_name*

---

## Syntax Definitions

*condition\_name*                      The name of the condition. Any alphanumeric string.

## Defaults

N/A

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- A policy condition and a policy action are combined to make a policy rule. See the [policy rule](#) command for more information.
- Use the [qos apply](#) command to activate configuration changes.
- If multiple keywords are defined for a single condition, the traffic flow must match all of the parameters in the condition before the rule is enforced.
- Use the **no** form of the command to remove a condition from a policy rule.
- At least one parameter must be associated with a condition.
- If the **snapshot** command is entered after the **policy condition** command is configured, the resulting ASCII file will include the following additional syntax for the **policy condition** command:

```
from {cli | ldap | blt}
```

This syntax indicates how the condition was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in condition, this option is not configurable.

## Examples

```
-> policy condition cond4 source port 3/1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy action</b>	Configures a policy action.
<b>policy rule</b>	Configures a policy rule on the switch. A rule is made up of a condition (for classifying incoming traffic) and an action (to be applied to outgoing traffic).
<b>show policy condition</b>	Shows information about policy conditions configured on the switch.

## MIB Objects

```

alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSource
  alaQoSConditionSourceSlot
  alaQoSConditionSourcePort
  alaQoSConditionSourcePortEnd
  alaQoSConditionSourcePortGroup
  alaQoSConditionDestinationSlot
  alaQoSConditionDestinationPort
  alaQoSConditionDestinationPortEnd
  alaQoSConditionDestinationPortGroup
  alaQoSConditionSourceInterfaceType
  alaQoSConditionDestinationInterfaceType
  alaQoSConditionSourceMacAddr
  alaQoSConditionSourceMacMask
  alaQoSConditionSourceMacGroup
  alaQoSConditionDestinationMacAddr
  alaQoSConditionDestinationMacMask
  alaQoSConditionDestinationMacGroup
  alaQoSConditionSourceVlan
  alaQoSConditionSourceVlanGroup
  alaQoSConditionInnerSourceVlan
  alaQoSConditionInnerSourceVlanGroup
  alaQoSConditionDestinationVlan
  alaQoSCondition8021p
  alaQoSConditionSourceIpAddr
  alaQoSConditionSourceIpMask
  alaQoSConditionSourceNetworkGroup
  alaQoSConditionDestinationIpAddr
  alaQoSConditionDestinationIpMask
  alaQoSConditionDestinationNetworkGroup
  alaQoSConditionMulticastIpAddr
  alaQoSConditionMulticastIpMask
  alaQoSConditionMulticastNetworkGroup
  alaQoSConditionTos
  alaQoSConditionDscp
  alaQoSConditionTcpFlags
  alaQoSConditionIpProtocol
  alaQoSConditionSourceIpPort
  alaQoSConditionSourceIpPortEnd
  alaQoSConditionDestinationIpPort
  alaQoSConditionDestinationIpPortEnd
  alaQoSConditionSourceTcpPort
  alaQoSConditionSourceTcpPortEnd
  alaQoSConditionDestinationTcpPort

```

alaQoSConditionDestinationTcpPortEnd  
alaQoSConditionSourceUdpPort  
alaQoSConditionSourceUdpPortEnd  
alaQoSConditionDestinationUdpPort  
alaQoSConditionDestinationUdpPortEnd  
alaQoSConditionService  
alaQoSConditionServiceStatus  
alaQoSConditionServiceGroup  
alaQoSConditionVrfName  
alaQoSConditionVrfNameStatus

#### alaQoSAppliedConditionTable

alaQoSAppliedConditionName  
alaQoSAppliedConditionSource  
alaQoSAppliedConditionSourceSlot  
alaQoSAppliedConditionSourcePort  
alaQoSAppliedConditionSourcePortEnd  
alaQoSAppliedConditionSourcePortGroup  
alaQoSAppliedConditionDestinationSlot  
alaQoSAppliedConditionDestinationPort  
alaQoSAppliedConditionDestinationPortEnd  
alaQoSAppliedConditionDestinationPortGroup  
alaQoSAppliedConditionSourceInterfaceType  
alaQoSAppliedConditionDestinationInterfaceType  
alaQoSAppliedConditionSourceMacAddr  
alaQoSAppliedConditionSourceMacMask  
alaQoSAppliedConditionSourceMacGroup  
alaQoSAppliedConditionDestinationMacAddr  
alaQoSAppliedConditionDestinationMacMask  
alaQoSAppliedConditionDestinationMacGroup  
alaQoSAppliedConditionSourceVlan  
alaQoSAppliedConditionSourceVlanGroup  
alaQoSAppliedConditionInnerSourceVlan  
alaQoSAppliedConditionInnerSourceVlanGroup  
alaQoSAppliedConditionDestinationVlan  
alaQoSAppliedCondition8021p  
alaQoSAppliedConditionSourceIpAddr  
alaQoSAppliedConditionSourceIpMask  
alaQoSAppliedConditionSourceNetworkGroup  
alaQoSAppliedConditionDestinationIpAddr  
alaQoSAppliedConditionDestinationIpMask  
alaQoSAppliedConditionDestinationNetworkGroup  
alaQoSAppliedConditionMulticastIpAddr  
alaQoSAppliedConditionMulticastIpMask  
alaQoSAppliedConditionMulticastNetworkGroup  
alaQoSAppliedConditionTos  
alaQoSAppliedConditionDscp  
alaQoSAppliedConditionTcpFlags  
alaQoSAppliedConditionIpProtocol  
alaQoSAppliedConditionSourceIpPort  
alaQoSAppliedConditionSourceIpPortEnd  
alaQoSAppliedConditionDestinationIpPort  
alaQoSAppliedConditionDestinationIpPortEnd  
alaQoSAppliedConditionSourceTcpPort  
alaQoSAppliedConditionSourceTcpPortEnd  
alaQoSAppliedConditionDestinationTcpPort  
alaQoSAppliedConditionDestinationTcpPortEnd  
alaQoSAppliedConditionSourceUdpPort

```
alaQoSAppliedConditionSourceUdpPortEnd  
alaQoSAppliedConditionDestinationUdpPort  
alaQoSAppliedConditionDestinationUdpPortEnd  
alaQoSAppliedConditionService  
alaQoSAppliedConditionServiceStatus  
alaQoSAppliedConditionServiceGroup  
alaQoSAppliedConditionVrfName  
alaQoSAppliedConditionVrfNameStatus
```

---

## policy condition source ip

Configures a source IP address for a policy condition.

**policy condition** *condition\_name* **source ip** *ip\_address* [**mask** *netmask*]

**policy condition** *condition\_name* **no source ip**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>ip_address</i>	The source IP address of the Layer 3 flow.
<i>netmask</i>	The mask for the source IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a mask is not specified, the IP address is assumed to be a host address.
- A source IP address and a source IP network group cannot be specified in the same condition.
- Use the **no** form of the command to remove a source IP address from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond3 source ip 173.201.18.3
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about a particular policy condition configured on the switch.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourceIpAddr

    alaQoSConditionSourceIpMask

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourceIpAddr

    alaQoSAppliedConditionSourceIpMask

---

## policy condition source ipv6

Configures a source IPv6 address for a policy condition.

**policy condition** *condition\_name* **source ipv6** {**any** | *ipv6\_address* [**mask** *netmask*]}

**policy condition** *condition\_name* **no source ipv6**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<b>any</b>	Any source IPv6 address.
<i>ipv6_address</i>	A specific source IPv6 address.
<i>netmask</i>	The mask for the source IPv6 address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source IPv6 address from a condition; however, at least one classification parameter must be associated with a condition.
- If a mask is not specified, the IPv6 address is assumed to be a host address.

### Examples

```
-> policy condition cond3 source ipv6 ::1234:531F:BCD2:F34A
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about a particular policy condition configured on the switch.

**MIB Objects**

alaQoSConditionTable

  alaQoSConditionName

  alaQoSConditionSourceIpv6Addr

  alaQoSConditionSourceIpv6AddrStatus

  alaQoSConditionSourceIpv6Mask

alaQoSAppliedConditionTable

  alaQoSAppliedConditionName

  alaQoSAppliedConditionSourceIpv6Addr

  alaQoSAppliedConditionSourceIpv6AddrStatus

  alaQoSAppliedConditionSourceIpMask

---



## policy condition destination ip

Configures a destination IP address for a policy condition.

**policy condition** *condition\_name* **destination ip** *ip\_address* [**mask** *netmask*]

**policy condition** *condition\_name* **no destination ip**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>ip_address</i>	The destination IP address of the Layer 3 flow.
<i>netmask</i>	The mask for the destination IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a mask is not specified, the IP address is assumed to be a host address.
- A destination IP address and a destination IP network group cannot be specified in the same condition.
- Use the **no** form of the command to remove a destination IP address from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond4 destination ip 208.192.21.0 mask 255.255.255.0
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about a particular policy condition configured on the switch.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationIpAddr

    alaQoSConditionDestinationIpMask

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationIpAddr

    alaQoSAppliedConditionDestinationIpMask

---

## policy condition destination ipv6

Configures a destination IPv6 address for a policy condition.

**policy condition** *condition\_name* **destination ipv6** {**any** | *ipv6\_address* [**mask** *netmask*]}

**policy condition** *condition\_name* **no destination ipv6**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<b>any</b>	Any destination IPv6 address.
<i>ipv6_address</i>	A specific destination IPv6 address.
<i>netmask</i>	The mask for the source IPv6 address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a destination IPv6 address from a condition; however, at least one classification parameter must be associated with a condition.
- If a mask is not specified, the IPv6 address is assumed to be a host address.

### Examples

```
-> policy condition cond3 destination ipv6 ::1234:531F:BCD2:F34A
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about a particular policy condition configured on the switch.

**MIB Objects**

alaQoSConditionTable

  alaQoSConditionName

  alaQoSConditionDestinationIpv6Addr

  alaQoSConditionDestinationIpv6AddrStatus

  alaQoSConditionDestinationIpv6Mask

alaQoSAppliedConditionTable

  alaQoSAppliedConditionName

  alaQoSAppliedConditionDestinationIpv6Addr

  alaQoSAppliedConditionDestinationIpv6AddrStatus

  alaQoSAppliedConditionDestinationIpMask

---

## policy condition multicast ip

Configures a multicast IP address for a policy condition.

**policy condition** *condition\_name* **multicast ip** *ip\_address* [**mask** *netmask*]

**policy condition** *condition\_name* **no multicast ip**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>ip_address</i>	The multicast IP address.
<i>netmask</i>	Optional. The mask for the multicast IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a mask is not specified, the IP address is assumed to be a host address.
- A multicast IP address and a multicast network group cannot be specified in the same condition.
- Use the **no** form of the command to remove a multicast IP address from a condition; however, at least one classification parameter must be associated with a condition.
- An IP multicast condition is used in IGMP ACLs. The multicast IP is the multicast group address used in the IGMP report packet.

### Examples

```
-> policy condition cond4 multicast ip 224.1.1.1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.

**MIB Objects**

alaQoSConditionTable

- alaQoSConditionName
- alaQoSMulticastIpAddr
- alaQoSMulticastIpMask

alaQoSAppliedConditionTable

- alaQoSAppliedConditionName
- alaQoSAppliedMulticastIpAddr
- alaQoSAppliedMulticastIpMask

---

## policy condition source network group

Associates a source network group with a policy condition.

**policy condition** *condition\_name* **source network group** *network\_group*

**policy condition** *condition\_name* **no source network group**

---

### Syntax Definitions

*condition\_name* The name of the condition.

*network\_group* The name of the source network group. Network groups are configured through the **policy network group** command. See [page 33-17](#) for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source network group from a condition; however, at least one classification parameter must be associated with a condition.
- A source IP address and a source IP network group cannot be specified in the same condition.

### Examples

```
-> policy condition cond5 source network group webgroup1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy network group</a>	Configures a network group name and its associated IP addresses.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.
<a href="#">show policy network group</a>	Displays information about policy network groups.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourceNetworkGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourceNetworkGroup

---



## policy condition destination network group

Associates a destination network group with a policy condition.

**policy condition** *condition\_name* **destination network group** *network\_group*

**policy condition** *condition\_name* **no destination network group**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*network\_group*                      The name of the destination network group. Network groups are configured through the **policy network group** command. See [page 33-17](#) for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination network group from a condition; however, at least one classification parameter must be associated with a condition.
- A destination IP address and a destination IP network group cannot be specified in the same condition.

### Examples

```
-> policy condition cond6 destination network group webgroup1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy network group</a>	Configures a network group name and its associated IP addresses.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.
<a href="#">show policy network group</a>	Displays information about policy network groups.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationNetworkGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationNetworkGroup

---

## policy condition multicast network group

Associates a multicast group with a policy condition.

**policy condition** *condition\_name* **multicast network group** *multicast\_group*

**policy condition** *condition\_name* **no multicast network group**

---

### Syntax Definitions

*condition\_name* The name of the condition.

*multicast\_group* The multicast group name. Multicast groups are configured through the **policy network group** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a multicast group from a condition; however, at least one classification parameter must be associated with a condition.
- A multicast address and a multicast network group cannot be specified in the same condition.

### Examples

```
-> policy condition cond3 multicast group video2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy network group</a>	Configures a network group name and its associated IP addresses.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.
<a href="#">show policy network group</a>	Displays information about policy network groups.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionMulticastNetworkGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionMulticastNetworkGroup

---

## policy condition source ip port

Configures a source IP port number for a policy condition.

**policy condition** *condition\_name* **source ip port** *port*[-*port*]

**policy condition** *condition\_name* **no source ip port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>port</i>	The TCP or UDP port number of the source address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source IP port from a condition; however, at least one classification parameter must be associated with a condition.
- The protocol (TCP or UDP) must be specified in the condition, either on the same command line or in a previous command. Use the **ip protocol** keywords. See the [policy condition ip protocol](#) for more information.
- The same condition cannot specify a source IP port with a source TCP port, source UDP port, service, or service group.

### Examples

```
-> policy condition cond1 ip protocol 6 source ip port 137
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition ip protocol</a>	Configures an IP protocol for a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourceIpPort

    alaQoSConditionSourceIpPortEnd

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourceIpPort

    alaQoSAppliedConditionSourceIpPortEnd

---

## policy condition destination ip port

Configures a destination IP port number for a policy condition.

**policy condition** *condition\_name* **destination ip port** *port[-port]*

**policy condition** *condition\_name* **no destination ip port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>port</i>	The TCP or UDP port number (or port range) of the destination address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination IP port from a condition; however, at least one classification parameter must be associated with a condition.
- The protocol (TCP or UDP) must be specified in the same condition, either on the same command line or in a previous command. Use the **ip protocol** keywords. See the [policy condition ip protocol](#) command for more information.
- The same condition cannot specify a destination IP port with a service or service group.

### Examples

```
-> policy condition cond2 ip protocol 6 destination ip port 137-138
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition ip protocol</a>	Configures an IP protocol for a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationIpPort

    alaQoSConditionDestinationIpPortEnd

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationIpPort

    alaQoSAppliedConditionDestinationIpPortEnd

---



## policy condition source tcp port

Configures a source TCP port number for a policy condition.

**policy condition** *condition\_name* **source tcp port** *port*[-*port*]

**policy condition** *condition\_name* **no source tcp port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>port</i>	The TCP port number of the source address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source TCP port from a condition; however, at least one classification parameter must be associated with a condition.
- This command is a shortcut for the **policy condition source ip port** command, which requires that the protocol also be specified. Rather than specifying **source ip port** and **ip protocol**, use **source tcp port**.
- The same condition cannot specify a source TCP port with a service or service group.
- IP port protocol types cannot be mixed in the same condition; ports must be either TCP or UDP.
- Use this condition in combination with the IPv6 condition (**policy condition ipv6**) to configure IPv6 policies for Layer 4 information, services, and service groups.

### Examples

```
-> policy condition cond3 source tcp port 137
-> policy condition cond4 ipv6 source tcp port 21
-> policy condition cond3 no source tcp port
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; support for IPv6 policies added.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceTcpPort
  alaQoSConditionSourceTcpPortEnd
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceTcpPort
  alaQoSAppliedConditionSourceTcpPortEnd
```

---

## policy condition destination tcp port

Configures a destination TCP port number for a policy condition.

**policy condition** *condition\_name* **destination tcp port** *port[-port]*

**policy condition** *condition\_name* **no destination tcp port**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*port*                                      The TCP port number (or port range) of the destination address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination TCP port from a condition; however, at least one classification parameter must be associated with a condition.
- This command is a shortcut for the **policy condition destination ip port** command, which requires that the protocol also be specified. Rather than specifying **destination ip port** and **ip protocol**, use **destination tcp port**.
- The same condition cannot specify a destination TCP port with a service or service group.
- IP port protocol types cannot be mixed in the same condition; ports must be either TCP or UDP.
- Use this condition in combination with the IPv6 condition (**policy condition ipv6**) to configure IPv6 policies for Layer 4 information, services, and service groups.

### Examples

```
-> policy condition cond4 destination tcp port 137-138
-> policy condition cond5 ipv6 destination tcp port 140
-> policy condition cond4 no destination tcp port
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; support for IPv6 policies added.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionDestinationTcpPort
  alaQoSConditionDestinationTcpPortEnd
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionDestinationTcpPort
  alaQoSAppliedConditionDestinationTcpPortEnd
```

---

## policy condition source udp port

Configures a source UDP port number for a policy condition.

**policy condition** *condition\_name* **source udp port** *port[-port]*

**policy condition** *condition\_name* **no source udp port**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*port*                                      The UDP port number of the source address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source UDP port from a condition; however, at least one classification parameter must be associated with a condition.
- This command is a shortcut for the **policy condition source ip port** command, which requires that the protocol also be specified. Rather than specifying **source ip port** and **ip protocol**, use **source udp port**.
- The same condition cannot specify a source UDP port with a service or service group.
- IP port protocol types cannot be mixed in the same condition; ports must be either TCP or UDP.
- Use this condition in combination with the IPv6 condition (**policy condition ipv6**) to configure IPv6 policies for Layer 4 information, services, and service groups.

### Examples

```
-> policy condition cond5 source udp port 1200-1400
-> policy condition cond6 ipv6 source udp port 1000
-> policy condition cond5 no source udp port
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; support for IPv6 policies added.

## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy condition</b>	Creates a policy condition.
<b>show policy condition</b>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceUdpPort
  alaQoSConditionSourceUdpPortEnd
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceUdpPort
  alaQoSAppliedConditionSourceUdpPortEnd
```

---

## policy condition destination udp port

Configures a destination UDP port number for a policy condition.

**policy condition** *condition\_name* **destination udp port** *port*[-*port*]

**policy condition** *condition\_name* **no destination udp port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>port</i>	The UDP port number (or port range) of the destination address of the Layer 3 flow, in the range from 0–65535. A range of ports (separated by a hyphen) may be specified instead of a single port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination UDP port from a condition; however, at least one classification parameter must be associated with a condition.
- This command is a shortcut for the **policy condition destination ip port** command, which requires that the protocol also be specified. Rather than specifying **destination ip port** and **ip protocol**, use **destination tcp port**.
- The same condition cannot specify a destination UDP port with a service or service group.
- IP port protocol types cannot be mixed in the same condition; ports must be either TCP or UDP.
- Use this condition in combination with the IPv6 condition (**policy condition ipv6**) to configure IPv6 policies for Layer 4 information, services, and service groups.

### Examples

```
-> policy condition cond4 destination udp port 137-138
-> policy condition cond5 ipv6 destination udp port 140
-> policy condition cond4 no destination udp port
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; support for IPv6 policies added.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionDestinationTcpPort
  alaQoSConditionDestinationTcpPortEnd
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionDestinationTcpPort
  alaQoSAppliedConditionDestinationTcpPortEnd
```

---



## policy condition ethertype

Configures an ethertype value to use for traffic classification.

**policy condition** *condition\_name* **ethertype** *etype*

**policy condition** *condition\_name* **no ethertype**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*etype*                                      The ethertype value, in the range 1536–65535 or 0x600–0xffff hex.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an ethertype value from a condition; however, at least one classification parameter must be associated with a condition.
- Enter a numeric or equivalent hex value for the *etype*.

### Examples

```
-> policy condition cond12 ethertype 8137
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

**MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionEthertype

    alaQoSConditionEthertypeStatus

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionEthertype

    alaQoSAppliedConditionEthertypeStatus

---

## policy condition established

Configures an established TCP connection as a policy condition. A connection is considered established if the **ack** or **rst** flags in the TCP header of the packet are set.

**policy condition** *condition\_name* **established**

**policy condition** *condition\_name* **no established**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove **established** from a condition; however, at least one classification parameter must be associated with a condition.
- When an initial TCP connection packet is received only the **syn** flag is set. As a result, TCP packets are only examined if they are not the starting packet.
- Typically this condition is used in combination with **source ip**, **destination ip**, **source port**, **destination port**, **source TCP port**, or **destination TCP port** conditions.
- The **source mac**, **destination mac**, and **ethertype conditions** cannot be combined with the **established** condition parameter.
- Note that even though **established** can be used with most action parameters, it is mainly intended for ACL use.

### Examples

```
-> policy condition cond2 source ip 192.168.5.10 established
-> policy condition cond3 destination ip 10.255.11.40
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                       |                                                                          |
|---------------------------------------|--------------------------------------------------------------------------|
| <a href="#">qos apply</a>             | Applies configured QoS and policy settings to the current configuration. |
| <a href="#">policy condition</a>      | Creates a policy condition.                                              |
| <a href="#">show policy condition</a> | Shows information about policy conditions configured on the switch.      |

**MIB Objects**

```
alaQoSConditionTable  
  alaQoSConditionTcpEstablished  
alaQoSAppliedConditionTable  
  alaQoSAppliedConditionTcpEstablished
```

---

## policy condition tcpflags

Configures a specific TCP flag value or combination of flag values as a policy condition.

**policy condition** *condition\_name* **tcpflags** [**any** | **all**] {**F** | **S** | **R** | **P** | **A** | **U** | **E** | **W**} **mask** {**F** | **S** | **R** | **P** | **A** | **U** | **E** | **W**}

**policy condition** *condition\_name* **no tcpflags**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<b>any</b>	Match on any of the specified TCP flags.
<b>all</b>	Match all specified TCP flags.
<b>F</b>   <b>S</b>   <b>R</b>   <b>P</b>   <b>A</b>   <b>U</b>   <b>E</b>   <b>W</b>	TCP flag value to match ( <b>F</b> =fin, <b>S</b> =syn, <b>R</b> =rst, <b>P</b> =psh, <b>A</b> =ack, <b>U</b> =urg, <b>E</b> =ecn, and <b>W</b> =cwr). <i>The E and W flags are currently not supported.</i>

### Defaults

parameter	default
<b>any</b>   <b>all</b>	all

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove **tcpflags** from a condition; however, at least one classification parameter must be associated with a condition.
- Use the **any** option to indicate that a match on any one of the specified TCP flags qualifies as a match for the condition. Use the **all** option to indicate that a match on all specified TCP flags is required to qualify as a match for the condition.
- Enter one or more TCP flags after the **any** or **all** keyword to indicate that the value of the flag bit must be set to one to qualify as a match.
- Enter one or more TCP flags after the **mask** keyword to indicate which TCP flags to match.
- If a TCP flag is specified as part of the **mask** but does not have a corresponding match value specified with the **any** or **all** options, then zero is assumed as the match value. For example, **tcpflags all f s mask f s a** looks for the following bit values to determine a match: **f**=1, **s**=1, **a**=0.
- Typically this condition is used in combination with **source ip**, **destination ip**, **source port**, **destination port**, **source TCP port**, or **destination TCP port** conditions.
- The **source mac**, **destination mac**, and **ethertype conditions** cannot be combined with the **established** condition parameter.

- Note that even though **tcpflags** can be used with most action parameters, it is mainly intended for ACL use.

## Examples

```
-> policy condition c1 tcpflags all f s mask f s a
-> policy condition c2 tcpflags any a r mask a r
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionTcpFlags,
  alaQoSConditionTcpFlagsStatus,
  alaQoSConditionTcpFlagsVal,
  alaQoSConditionTcpFlagsValStatus,
  alaQoSConditionTcpFlagsMask,
  alaQoSConditionTcpFlagsMaskStatus,
alaQoSAppliedConditionTable
  alaQoSAppliedConditionTcpFlags,
  alaQoSAppliedConditionTcpFlagsStatus,
  alaQoSAppliedConditionTcpFlagsVal,
  alaQoSAppliedConditionTcpFlagsValStatus,
  alaQoSAppliedConditionTcpFlagsMask,
  alaQoSAppliedConditionTcpFlagsMaskStatus,
```

---

## policy condition service

Configures a service for a policy condition.

**policy condition** *condition\_name* **service** *service\_name*

**policy condition** *condition\_name* **no service**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*service\_name*                        The service name, configured through the **policy service** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a service group from a condition; however, at least one classification parameter must be associated with a condition.
- A policy condition that specifies a service cannot also specify a service group, IP protocol, source IP port, or destination IP port.

### Examples

```
-> policy condition cond12 service serv2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy service</a>	Configures a service that may be used as part of a policy service group.
<a href="#">qos apply</a>	Applies configured global QoS and policy settings to the current configuration (changes will be active and stored in flash).
<a href="#">show policy service</a>	Displays information about all particular policy services or a particular policy service configured on the switch.

### MIB Objects

```
alaQoSConditionTable  
  alaQoSConditionService  
alaQoSAppliedConditionTable  
  alaQoSAppliedConditionService
```

---

## policy condition service group

Associates a policy service group with a policy condition.

**policy condition** *condition\_name* **service group** *service\_group*

**policy condition** *condition\_name* **no service group**

---

### Syntax Definitions

*condition\_name* The name of the condition.

*service\_group* The service group name. Service groups are configured through the **policy service group** command. See [page 33-19](#) for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a service group from a condition; however, at least one classification parameter must be associated with a condition.
- A policy condition that specifies a service group cannot also specify a service, IP protocol, source IP port, or destination IP port.

### Examples

```
-> policy condition cond12 service group servgroup2
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy service group</a>	Configures a service group and its associated services.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.



## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionServiceGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionServiceGroup

---

## policy condition icmp type

Configures an ICMP type value to use for traffic classification.

**policy condition** *condition\_name* **icmp type** *type*

**policy condition** *condition\_name* **no icmp type**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>type</i>	The ICMP type value, in the range 0–255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove an ICMP type value from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond12 icmp type 100
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy condition icmp code</a>	Configures an ICMP code value for traffic classification.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionIcmpType
  alaQoSConditionIcmpTypeStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionIcmpType
  alaQoSAppliedConditionIcmpTypeStatus
```

---

## policy condition icmpcode

Configures an ICMP code value to use for traffic classification.

**policy condition** *condition\_name* **icmpcode** *code*

**policy condition** *condition\_name* **no icmpcode**

---

### Syntax Definitions

*condition\_name* The name of the condition.

*code* The ICMP code value, in the range 0–255.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove an ICMP code value from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond12 icmpcode 150
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**policy condition** Creates a policy condition.

**policy condition icmptype** Configures an ICMP type value for traffic classification.

**qos apply** Applies configured QoS and policy settings to the current configuration.

**show policy condition** Shows information about policy conditions configured on the switch.

## **MIB Objects**

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionIcmpCode
  alaQoSConditionIcmpCodeStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionIcmpCode
  alaQoSAppliedConditionIcmpCodeStatus
```

---

## policy condition ip protocol

Configures an IP protocol for a policy condition.

**policy condition** *condition\_name* **ip protocol** *protocol*

**policy condition** *condition\_name* **no ip protocol**

---

### Syntax Definitions

*condition\_name* The name of the condition.

*protocol* The protocol associated with the flow. The range is 0–255.

### Defaults

parameter	default
<i>protocol</i>	6

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a protocol from a condition; however, at least one classification parameter must be associated with a condition.
- If a source or destination port is specified (through the **policy condition source ip port** or **policy condition destination ip port** commands), the protocol must be specified.
- The same condition cannot specify an IP protocol with a service or service group.

### Examples

```
-> policy condition cond4 ip protocol 6
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- policy condition source ip port** Configures a source IP port number for a policy condition.
- policy condition destination ip port** Configures a destination IP port number for a policy condition.
- qos apply** Applies configured QoS and policy settings to the current configuration.
- show policy condition** Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionIpProtocol

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionIpProtocol

---

## policy condition ipv6

Configures a policy condition to classify IPv6 traffic.

**policy condition** *condition\_name* **ipv6**

**policy condition** *condition\_name* **no ipv6**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove IPv6 traffic as a condition; however, at least one classification parameter must be associated with a condition.
- When the **ipv6** keyword is used in a condition, a policy that uses the condition is considered an IPv6 policy. IPv6 policies are effected only on IPv6 traffic. All other IP policies are considered IPv4 policies and are effected only on IPv4 traffic.
- IPv6 Layer 4 policies are supported and are configured using the **ipv6** keyword in a condition that specifies Layer 4 information, services, or service groups. Note that IPv6 Layer 4 policies only work with packets that contain a single header.
- The **icmptype** and **icmpcode** keywords in an IPv6 policy imply the ICMPv6 protocol, not the ICMPv4 protocol.

### Examples

```
-> policy condition cond4 ipv6
-> policy condition cond5 ipv6 tos 7
-> policy condition cond6 ipv6 source port 1/1
-> policy condition cond7 ipv6 source tcp port 21
-> policy condition cond8 ipv6 source tcp port 0-1024
-> policy condition cond6 no ipv6
```

### Release History

Release 6.1.3; command was introduced.

Release 6.3.1; support for IPv6 Layer 4 policies added.



## Related Commands

- |                                       |                                                                          |
|---------------------------------------|--------------------------------------------------------------------------|
| <a href="#">qos apply</a>             | Applies configured QoS and policy settings to the current configuration. |
| <a href="#">show policy condition</a> | Shows information about policy conditions configured on the switch.      |

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionIpv6Traffic
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionIpv6Traffic
```

---

## policy condition nh

Configures an IPv6 next header value as a policy condition. This value is compared to the next header value in the IPv6 header.

**policy condition** *condition\_name* **nh** *next\_header\_value*

**policy condition** *condition\_name* **no nh**

---

### Syntax Definitions

*condition\_name*                      The name of the condition.

*next\_header\_value*                  The next header value (0–255).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove the next header value as a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond4 nh 100
-> policy condition cond4 no nh
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[qos apply](#)                              Applies configured QoS and policy settings to the current configuration.

[show policy condition](#)                Shows information about policy conditions configured on the switch.

## **MIB Objects**

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionIpv6NH
  alaQoSConditionIpv6NHStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionIpv6NH
  alaQoSAppliedConditionIpv6NHStatus
```

---

## policy condition flow-label

Configures an IPv6 flow label value as a policy condition. This value is compared to the flow label value in the IPv6 header.

**policy condition** *condition\_name* **flow-label** *flow\_label\_value*

**policy condition** *condition\_name* **no flow-label**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition.
<i>flow_label_value</i>	The flow-label value (0–1048575).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove the flow label value as a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond4 flow-label 1500
-> policy condition cond4 no flow-label
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionIpv6FlowLabel
  alaQoSConditionIpv6FlowLabelStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionIpv6FlowLabel
  alaQoSAppliedConditionIpv6FlowLabelStatus
```

---

## policy condition tos

Configures the precedence bits in the Type of Service (ToS) byte value for a policy condition.

**policy condition** *condition\_name* **tos** *tos\_value* [**mask** *tos\_mask*]

**policy condition** *conditioning* **no tos**

---

### Syntax Definitions

<i>conditioning</i>	The name of the condition. May be an existing condition name or a new condition.
<i>tos_value</i>	The Type of Service bits value included in the IP header. The three most significant bits of the byte determine the precedence (i.e, priority) of the frame (0 is the lowest, 7 is the highest).
<i>tos_mask</i>	The mask for the ToS bits, in the range 0–7.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a ToS value from a condition; however, at least one classification parameter must be associated with a condition.
- If a ToS value is specified, a DSCP value may not be specified.

### Examples

```
-> policy condition cond2 tos 7
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionTos

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionTos

---

## policy condition dscp

Configures the Differentiated Services Code Point (DSCP) for a policy condition. The DSCP value defines the six most significant bits of the DS byte in the IP header.

**policy condition** *condition\_name* **dscp** {*dscp\_value*[-*value*]} [**mask** *dscp\_mask*]

**policy condition** *condition\_name* **no dscp**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
{ <i>dscp_value</i> [- <i>value</i> ]}	The DiffServ Code Point value, in the range 0–63. Use a hyphen to specify a range of DSCP values for the condition (for example, 10-20).
<i>dscp_mask</i>	The mask for the DiffServ Code Point, in the range 0–63.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a DSCP value from a condition; however, at least one classification parameter must be associated with a condition.
- If a DSCP value is specified, a ToS value may not be specified.

### Examples

```
-> policy condition cond4 dscp 10
-> policy condition cond5 dscp 20-30
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; support for specifying a DSCP range of values without a mask added for OS6850.



## Related Commands

<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionDscp
  alaQoSConditionDscpMask
  alaQoSConditionDscpEnd
  alaQoSConditionDscpStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionDscp
  alaQoSAppliedConditionDscpMask
  alaQoSAppliedConditionDscpEnd
  alaQoSAppliedConditionDscpStatus
```

---

## policy condition source mac

Configures a source MAC address for a policy condition.

**policy condition** *condition\_name* **source mac** *mac\_address* [**mask** *mac\_mask*]

**policy condition** *condition\_name* **no source mac**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>mac_address</i>	The source MAC address in the Layer 2 header of the frame (for example, 00:20:da:05:f6:23)
<i>mac_mask</i>	Optional. The mask for the source MAC address (for example, ff:ff:ff:ff:ff:ff).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source MAC address from a condition; however, at least one classification parameter must be associated with a condition.
- A source MAC address and a source MAC group cannot be specified in the same condition.

### Examples

```
-> policy condition cond2 source mac 00:20:da:05:f6:23
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourceMacAddr

    alaQoSConditionSourceMacMask

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourceMacAddr

    alaQoSAppliedConditionSourceMacMask

---

## policy condition destination mac

Configures a destination MAC address for a policy condition.

---

**Note.** Specifying a destination MAC address and mask of all zeros (00:00:00:00:00:00) as a policy condition can result in the switch dropping all traffic. Only use this type of condition in combination with other policies that will allow desired traffic and/or if a source or destination slot/port is also part of the destination MAC condition.

---

**policy condition** *condition\_name* **destination mac** *mac\_address* [**mask** *mac\_mask*]

**policy condition** *condition\_name* **no destination mac**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>mac_address</i>	The destination MAC address in the Layer 2 header of the frame (for example, 00:20:da:05:f6:23).
<i>mac_mask</i>	Optional. The mask for the destination MAC address (for example, ff:ff:ff:ff:ff:ff).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination MAC address from a condition; however, at least one classification parameter must be associated with a condition.
- A destination MAC address and a destination MAC group cannot be specified in the same condition.

### Examples

```
-> policy condition cond3 destination mac 00:20:da:05:f6:23
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSource
  alaQoSConditionDestinationMacAddr
  alaQoSConditionDestinationMacMask
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSource
  alaQoSAppliedConditionDestinationMacAddr
  alaQoSAppliedConditionDestinationMacMask
```

---

## policy condition source mac group

Associates a source MAC group with a policy condition.

**policy condition** *condition\_name* **source mac group** *group\_name*

**policy condition** *condition\_name* **no source mac group**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>group_name</i>	The name of the source MAC group, configured through the <b>policy mac group</b> command. See <a href="#">page 33-21</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source MAC group from a condition; however, at least one classification parameter must be associated with a condition.
- A source MAC address and a source MAC group cannot be specified in the same condition.

### Examples

```
-> policy condition cond4 source mac group mac_group1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy mac group</a>	Configures a MAC group and its associated MAC addresses.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourceMacGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourceMacGroup

---

## policy condition destination mac group

Associates a destination MAC group with a policy condition.

**policy condition** *condition\_name* **destination mac group** *mac\_group*

**policy condition** *condition\_name* **no destination mac group**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>mac_group</i>	The name of the destination MAC group, configured through the <b>policy mac group</b> command. See <a href="#">page 33-21</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination MAC group from a policy condition; however, at least one classification parameter must be associated with a condition.
- A destination MAC address and a destination MAC group cannot be specified in the same condition.

### Examples

```
-> policy condition cond5 destination mac group mac_group1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy mac group</a>	Configures a MAC group and its associated MAC addresses.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.



## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationMacGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationMacGroup

---

## policy condition source vlan

Configures a source VLAN for a policy condition.

**policy condition** *condition\_name* **source vlan** *vlan\_id*

**policy condition** *condition\_name* **no source vlan**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vlan_id</i>	The source VLAN ID for the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source VLAN from a policy condition; however, at least one classification parameter must be associated with a condition.
- The **source vlan** policy condition classifies double-tagged traffic (for example, VLAN Stacking packets) based on the value of the *outer* VLAN tag of the packet. Use the **inner source vlan** policy condition to classify double-tagged traffic based on the value of the *inner* VLAN tag of the packet.
- A source VLAN ID and a source VLAN group cannot be specified in the same condition. However, a source VLAN ID or group and an inner source VLAN ID or group can be specified in the same condition.

### Examples

```
-> policy condition cond5 source vlan 3
-> policy condition cond6 source vlan 150 inner source vlan 500
-> policy condition cond7 source vlan 300 inner source vlan group invlan1
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy condition</b>	Creates a policy condition.
<b>policy condition source vlan group</b>	Associates a VLAN group with a policy condition.
<b>policy condition inner source vlan</b>	Configures an inner (customer) source VLAN ID as a policy condition.
<b>show policy condition</b>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceVlan
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceVlan
```

---

## policy condition source vlan group

Associates a source VLAN group with a policy condition.

**policy condition** *condition\_name* **source vlan group** *vlan\_group*

**policy condition** *condition\_name* **no source vlan group**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vlan_group</i>	The name of an existing VLAN group, configured through the <b>policy vlan group</b> command. See <a href="#">page 33-25</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source VLAN group from a policy condition; however, at least one classification parameter must be associated with a condition.
- The **source vlan group** condition classifies double-tagged traffic (for example, VLAN Stacking packets) based on the value of the *outer* VLAN tag of the packet. Use the **inner source vlan group** condition to classify double-tagged traffic based on the value of the *inner* VLAN tag of the packet.
- A source VLAN ID and a source VLAN group cannot be specified in the same condition. However, a source VLAN ID or group and an inner source VLAN ID or group can be specified in the same condition.

### Examples

```
-> policy condition cond1 source vlan group vlan_group1
-> policy condition cond2 source vlan group vstack1 inner source vlan 150
-> policy condition cond3 source vlan group vstack1 inner source vlan group invlan1
-> policy condition cond1 no source vlan group
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy vlan group</b>	Configures a VLAN group and its associated VLAN IDs.
<b>policy condition</b>	Creates a policy condition.
<b>policy condition inner source vlan group</b>	Associates an inner source VLAN group with a policy condition.
<b>show policy condition</b>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceVlanGroup
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceVlanGroup
```

---

## policy condition inner source vlan

Configures an inner source VLAN ID as a policy condition. This condition applies to double-tagged VLAN Stacking traffic and is used to classify such traffic based on the inner VLAN ID tag, also known as the customer VLAN ID.

**policy condition** *condition\_name* **inner source vlan** *vlan\_id*

**policy condition** *condition\_name* **no inner source vlan**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vlan_id</i>	The inner source VLAN ID (customer VLAN ID) to match on double-tagged packets.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove an inner source VLAN from a policy condition; however, at least one classification parameter must be associated with a condition.
- Policies that use the inner source VLAN condition are referred to as QoS VLAN Stacking policies. These are separate policies from those configured through the VLAN Stacking Service application.
- Use the **source vlan** policy condition to classify double-tagged traffic based on the value of the *outer* VLAN tag of the packet.
- Note that if the Quarantine Manager Remediation (QMR) feature is active on the switch, configuring VLAN Stacking services and inner VLAN or 802.1p policies is not available. QMR is considered active when there are MAC addresses present in the Quarantine MAC group.
- An inner source VLAN ID and an inner source VLAN group cannot be specified in the same condition. However, a source VLAN ID or group and an inner source VLAN ID or group can be specified in the same condition.

### Examples

```
-> policy condition cond5 inner source vlan 3
-> policy condition cond6 source vlan 500 inner source vlan 150
-> policy condition cond7 source vlan 250 inner source vlan group invlan1
-> policy condition cond5 no inner source vlan
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy condition inner source vlan group</a>	Associates an inner source VLAN group with a policy condition.
<a href="#">policy condition source vlan</a>	Configures a source VLAN ID as a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionInnerSourceVlan
  alaQoSConditionInnerSourceVlanStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionInnerSourceVlan
  alaQoSAppliedConditionInnerSourceVlanStatus
```

---

## policy condition inner source vlan group

Associates an inner source VLAN group with a policy condition.

**policy condition** *condition\_name* **inner source vlan group** *vlan\_group*

**policy condition** *condition\_name* **no inner source vlan group**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vlan_group</i>	The name of an existing VLAN group, configured through the <b>policy vlan group</b> command. See <a href="#">page 33-25</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a source VLAN group from a policy condition; however, at least one classification parameter must be associated with a condition.
- The **inner source vlan group** condition classifies double-tagged traffic (for example, VLAN Stacking packets) based on the value of the *inner* VLAN tag of the packet. Use the **source vlan group** condition to classify double-tagged traffic based on the value of the *outer* VLAN tag of the packet.
- An inner source VLAN ID and an inner source VLAN group cannot be specified in the same condition. However, a source VLAN ID or group and an inner source VLAN ID or group can be specified in the same condition.

### Examples

```
-> policy condition cond2 inner source vlan group vstack1
-> policy condition cond3 inner source vlan group invlan1 source vlan group vstack1
-> policy condition cond4 inner source vlan group invlan2 source vlan 250
-> policy condition cond2 no inner source vlan group
```

### Release History

Release 6.4.3; command was introduced.



## Related Commands

<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy vlan group</b>	Configures VLAN group and its associated VLAN IDs.
<b>policy condition</b>	Creates a policy condition.
<b>policy condition source vlan group</b>	Associates a source VLAN group with a policy condition.
<b>show policy condition</b>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionInnerSourceVlanGroup
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionInnerSourceVlanGroup
```

---

## policy condition destination vlan

Configures a destination VLAN (multicast only) for a policy condition. Use the **no** form of the command to remove a destination VLAN from a condition.

**policy condition** *condition\_name* **destination vlan** *vlan\_id*

**policy condition** *condition\_name* **no destination vlan**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vlan_id</i>	The destination VLAN ID for the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a destination VLAN from a condition; however, at least one classification parameter must be associated with a condition.
- Note that this condition is supported for multicast only policies.

### Examples

```
-> policy condition cond4 destination vlan 3
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationVlan

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationVlan

---

## policy condition 802.1p

Configures the 802.1p value for a policy condition.

**policy condition** *condition\_name* **802.1p** *802.1p\_value*[-*802.1p\_value*]

**policy condition** *condition\_name* **no 802.1p**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. Specify an existing condition name or a new condition.
<i>802.1p_value</i> [- <i>802.1p_value</i> ]	The 802.1p value, or a range of 802.1p values, in the 802.1Q VLAN tag for the flow. Use a hyphen to specify a range of values (e.g., 2-5). Only one entry is allowed per command line (a single 802.1p value or a range of values, not both). Valid 802.1p values range from 0 (lowest priority) to 7 (highest priority).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Rather than creating several policy conditions for contiguous 802.1p values, it is possible to specify a range of values with this command to apply multiple 802.1p values with one condition.
- Use the **no** form of the command to remove an 802.1p value or range of values for a condition; however, at least one classification parameter must be associated with a condition.
- When a range of values is configured for a single condition, removing a single value from within that range is not allowed. All 802.1p values are removed from a condition when the **no** form of this command is used.
- The **802.1p** policy condition classifies double-tagged traffic (for example, VLAN Stacking packets) based on the 802.1p value of the *outer* VLAN tag of the packet. Use the **inner 802.1p** condition to classify double-tagged traffic based on the 802.1p value of the *inner* VLAN tag of the packet.

### Examples

```
-> policy condition cond1 802.1p 0-7
-> policy condition cond2 802.1p 5
-> policy condition cond3 802.1p 2-5
-> policy condition cond3 no 802.1p
```

### Release History

Release 6.1; command was introduced.

Release 6.4.3; ability to specify a range of 802.1p values was added.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy condition inner 802.1p</a>	Configures an inner (customer) source 802.1p value for a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSCondition8021p
  alaQoSCondition8021pEnd
  alaQoSCondition8021pStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedCondition8021p
  alaQoSAppliedCondition8021pEnd
  alaQoSAppliedCondition8021pStatus
```

---

## policy condition inner 802.1p

Configures an inner (customer) source 802.1p value for a policy condition. This condition applies to double-tagged VLAN Stacking traffic and is used to classify such traffic based on the inner 802.1p bit value.

**policy condition** *condition\_name* **inner 802.1p** *802.1p\_value*[-*802.1p\_value*]

**policy condition** *condition\_name* **no inner 802.1p**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>802.1p_value</i> [- <i>802.1p_value</i> ]	The 802.1p value, or range of values, to match on the inner 802.1Q VLAN tag of double-tagged packets. Use a hyphen to specify a range of values (e.g., 2-5). Only one entry is allowed per command line (a single 802.1p value or a range of values, not both). Valid 802.1p values range from 0 (lowest priority) to 7 (highest priority).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Rather than creating several policy conditions for contiguous inner 802.1p values, it is possible to specify a range of values with this command to apply multiple 802.1p values with one condition.
- Use the **no** form of the command to remove an inner 802.1p value, or range of values, for a condition; however, at least one classification parameter must be associated with a condition.
- When a range of values is configured for a single condition, removing a single value from within that range is not allowed. All 802.1p values are removed from a condition when the **no** form of this command is used.
- Policies that use the inner 802.1p condition are referred to as QoS VLAN Stacking policies. These are separate policies from those configured through the VLAN Stacking Service application.
- Use the **source 802.1p** policy condition to classify double-tagged traffic based on the 802.1p value of the *outer* VLAN tag of the packet.
- Note that if the Quarantine Manager Remediation (QMR) feature is active on the switch, configuring VLAN Stacking services and inner VLAN or 802.1p policies is not available. QMR is considered active when there are MAC addresses present in the Quarantine MAC group.

### Examples

```
-> policy condition cond1 inner 802.1p 0-7
-> policy condition cond2 inner 802.1p 5
```

```
-> policy condition cond3 inner 802.1p 2-5
-> policy condition cond3 no inner 802.1p
-> policy condition cond2 no inner 802.1p
```

## Release History

Release 6.3.1; command was introduced.

Release 6.4.3; ability to specify a range of 802.1p values was added.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">policy condition 802.1p</a>	Configures the 802.1p value for a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionInner8021p
  alaQoSConditionInner8021pEnd
  alaQoSConditionInner8021pStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionInner8021p
  alaQoSAppliedConditionInner8021pEnd
  alaQoSAppliedConditionInner8021pStatus
```

---

## policy condition source port

Configures a source port number for a policy condition. Use the **no** form of the command to remove a source port number from a condition.

**policy condition** *condition\_name* **source port** *slot/port[-port]*

**policy condition** *condition\_name* **no source port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>slot/port</i>	The slot and port number (or range of ports) on which the frame is received.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a source port from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond2 source port 3/1
-> policy condition cond3 source port 3/2-4
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.



## **MIB Objects**

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceSlot
  alaQoSConditionSourcePort
  alaQoSConditionSourcePortEnd
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceSlot
  alaQoSAppliedConditionSourcePort
  alaQoSAppliedConditionSourcePortEnd
```

---

## policy condition destination port

Configures a destination port number for a policy condition.

**policy condition** *condition\_name* **destination port** *slot/port*[-*port*]

**policy condition** *condition\_name* **no destination port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>slot/port</i>	The slot and port number (or range of ports) on which the frame is received.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a destination port from a condition; however, at least one classification parameter must be associated with a condition.
- The destination port condition is only applied to bridged traffic, it is not applied to routed traffic.

### Examples

```
-> policy condition cond3 destination port 4/2
-> policy condition cond4 destination port 4/3-4
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

- alaQoSConditionName
- alaQoSConditionDestinationSlot
- alaQoSConditionDestinationPort
- alaQoSConditionDestinationPortEnd

alaQoSAppliedConditionTable

- alaQoSAppliedConditionName
- alaQoSAppliedConditionDestinationSlot
- alaQoSAppliedConditionDestinationPort
- alaQoSAppliedConditionDestinationPortEnd

---

## policy condition source port group

Associates a source port group with a policy condition. Use the **no** form of the command to remove a source port group from a condition.

**policy condition** *condition\_name* **source port group** *group\_name*

**policy condition** *condition\_name* **no source port group**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>group_name</i>	The name of the source port group. Port groups are configured through the <b>policy port group</b> command. See <a href="#">page 33-23</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a source port group from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond6 source port group portgr4
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">policy port group</a>	Configures a port group and its associated slot and port numbers.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionSourcePortGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionSourcePortGroup

---

## policy condition destination port group

Associates a destination port group with a policy condition.

**policy condition** *condition\_name* **destination port group** *group\_name*

**policy condition** *condition\_name* **no destination port**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>group_name</i>	The name of the destination port group. Port groups are configured through the <b>policy port group</b> command. See <a href="#">page 33-23</a> for more information about this command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a destination port group from a condition; however, at least one classification parameter must be associated with a condition.

### Examples

```
-> policy condition cond6 destination port group portgr4
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy port group</a>	Configures a port group and its associated slot and port numbers.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## **MIB Objects**

alaQoSConditionTable

    alaQoSConditionName

    alaQoSConditionDestinationPortGroup

alaQoSAppliedConditionTable

    alaQoSAppliedConditionName

    alaQoSAppliedConditionDestinationPortGroup

---

## policy condition vrf

Associates a Virtual Routing and Forwarding (VRF) instance with a policy condition.

**policy condition** *condition\_name* **vrf** {*vrf\_name* / **default**}

**policy condition** *condition\_name* **no vrf**

---

### Syntax Definitions

<i>condition_name</i>	The name of the condition. May be an existing condition name or a new condition.
<i>vrf_name</i>	The name of the VRF instance to which the QoS policy condition applies.
<b>default</b>	Specifies the default VRF instance.

### Defaults

By default, QoS policy conditions are not associated with any VRF instance. The policy applies across all instances.

### Platforms Supported

OmniSwitch 6855-U24X, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a VRF instance from a condition; however, at least one classification parameter must be associated with a condition.
- VRF policies are configured in the default VRF, similar to how all other QoS policies are configured. If the VRF name specified does not exist, the policy is not allocated any system resources.
- Policies that do not specify a VRF name are considered global policies and are applied across all VRF instances and VLANs.
- Policies that specify the default VRF apply only to traffic in the default VRF instance.
- Policies that specify a VRF name apply only to traffic in the VRF instance associated with that name.
- The **switch** network group is supported only in VRF policies that specify the default VRF instance. If this group is specified in a global policy (no VRF specified) then the policy is applied across all VRF instances.

### Examples

```
-> policy condition cond6 vrf engr-vrf
-> policy condition cond7 vrf default
-> policy condition cond6 no vrf
```

### Release History

Release 6.4.2; command was introduced.



## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy condition</a>	Creates a policy condition.
<a href="#">show policy condition</a>	Shows information about policy conditions configured on the switch.

## MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionVrfName
  alaQoSConditionVrfNameStatus

alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionVrfName
  alaQoSAppliedConditionVrfNameStatus
```

---



## Usage Guidelines

- Any condition parameters that the hardware supports will be used to classify the traffic; any condition parameters that are not supported by the hardware will not be used to classify traffic, and the event will be logged in the QoS log.
- Bandwidth and queue parameters may be specified when the action is created or may be specified as separate commands.
- Use the **qos apply** command to activate configuration changes.
- Use the **no** form of the command to remove a QoS action from the configuration.
- If the **snapshot** command is entered after the **policy action** command is configured, the resulting ASCII file will include the following additional syntax for the **policy action** command:

**from {cli | ldap | blt}**

This syntax indicates how the action was created. The **cli** and **ldap** options may be changed by a user modifying the ASCII file; however, changing this setting is not recommended. The **blt** option indicates a built-in action, this setting is not configurable.

## Examples

```
-> policy action action1 accept
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">policy condition</a>	Configures a condition associated with the action.
<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy action</a>	Displays information about policy actions.

## MIB Objects

```
alaQoSActionTable  
  alaQoSActionName  
  alaQoSActionSource  
  alaQoSActionDisposition  
  alaQoSActionMinimumBandwidth  
  alaQoSActionMaximumBandwidth  
  alaQoSActionPeakBandwidth  
  alaQoSActionPriority  
  alaQoSActionShared  
  alaQoSActionMaximumBuffers  
  alaQoSActionMaximumDepth  
  alaQoSActionCIR  
  alaQoSActionCIRStatus  
  alaQoSActionCBS  
  alaQoSActionCBSStatus  
  alaQoSActionPIR  
  alaQoSActionPIRStatus  
  alaQoSActionPBS
```

---

```
alaQoSActionPBSStatus
alaQoSActionCounterColor
alaQoSAction8021p
alaQoSActionTos
alaQoSActionTosRewriteMask
alaQoSActionDscp
alaQoSActionMapFrom
alaQoSActionMapTo
alaQoSActionMapGroup
alaQoSActionSourceRewriteIpAddr
alaQoSActionSourceRewriteIpMask
alaQoSActionSourceRewriteIpGroup
alaQoSActionDestinationRewriteIpAddr
alaQoSActionDestinationRewriteIpMask
alaQoSActionDestinationRewriteIpGroup
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionSource
  alaQoSAppliedActionDisposition
  alaQoSAppliedActionMinimumBandwidth
  alaQoSAppliedActionMaximumBandwidth
  alaQoSAppliedActionPeakBandwidth
  alaQoSAppliedActionPriority
  alaQoSAppliedActionShared
  alaQoSAppliedActionMaximumBuffers
  alaQoSAppliedActionMaximumDepth
  alaQoSAppliedActionCIR
  alaQoSAppliedActionCIRStatus
  alaQoSAppliedActionCBS
  alaQoSAppliedActionCBSStatus
  alaQoSAppliedActionPIR
  alaQoSAppliedActionPIRStatus
  alaQoSAppliedActionPBS
  alaQoSAppliedActionPBSStatus
  alaQoSAppliedActionCounterColor
  alaQoSAppliedAction8021p
  alaQoSAppliedActionTos
  alaQoSAppliedActionTosRewriteMask
  alaQoSAppliedActionDscp
  alaQoSAppliedActionMapFrom
  alaQoSAppliedActionMapTo
  alaQoSAppliedActionMapGroup
  alaQoSAppliedActionSourceRewriteIpAddr
  alaQoSAppliedActionSourceRewriteIpMask
  alaQoSAppliedActionSourceRewriteIpGroup
  alaQoSAppliedActionDestinationRewriteIpAddr
  alaQoSAppliedActionDestinationRewriteIpMask
  alaQoSAppliedActionDestinationRewriteIpGroup
```

---

## policy action disposition

Configures a disposition for a policy action.

**policy action** *action\_name* **disposition** {**accept** | **drop** | **deny**}

**policy action** *action\_name* **no disposition**

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<b>accept</b>	Specifies that the switch should accept the flow.
<b>drop</b>	Specifies that the switch should silently drop the flow.
<b>deny</b>	Specifies that the switch should drop the flow and issue an ICMP message indicating the flow was dropped for administrative reasons. Currently this option will provide the same result as <b>drop</b> ; that is, the flow is silently dropped.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>accept   drop   deny</b>	accept

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a disposition from an action.
- This command does not support Layer 2 conditions such as destination VLAN or destination MAC address.

### Examples

```
-> policy action a3 disposition deny
-> policy action a3 no disposition
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

**MIB Objects**

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionDisposition
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionDisposition
```

---

## policy action shared

Enables queues created by a particular action to be shared.

**policy action** *action\_name* **shared**

**policy action** *action\_name* **no shared**

---

### Syntax Definitions

*action\_name*                      The name of the action.

### Defaults

By default, queues created by an action are *not* shared.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If multiple rules have the same action, more than one flow may be scheduled on the same queue if the queue is defined as shared; otherwise, a separate queue is created for each flow.
- Note that flows must be sent over the same virtual port for the flows to share a queue. For example, flows with the same 802.1Q tag may share the same queue.
- Use the **no** form of the command to disable sharing.

### Example

```
-> policy action action5 shared  
-> policy action action5 no shared
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

**MIB Objects**

alaQoSActionTable

    alaQoSActionName

    alaQoSActionShared

alaQoSAppliedActionTable

    alaQoSAppliedActionName

    alaQoSAppliedActionShared

---



## policy action priority

Configures the priority for queuing a flow to which the QoS action applies.

**policy action** *action\_name* **priority** *priority\_value*

**policy action** *action\_name* **no priority**

---

### Syntax Definitions

*action\_name*                      The name of the action.

*priority\_value*                      The priority given to scheduling traffic on the output port. Values range from 0 (lowest) to 7 (highest).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a priority value from an action.
- This priority value is independent of 802.1Q, Type of Service (ToS), or Differentiated Services Code Point (DSCP) values.
- Note that the value displayed on the **show qos queue** screen may be different from the value entered here.

### Examples

```
-> policy action action1 priority 1
-> policy action action1 no priority
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                           |                                                                          |
|---------------------------|--------------------------------------------------------------------------|
| <b>qos apply</b>          | Applies configured QoS and policy settings to the current configuration. |
| <b>policy action</b>      | Creates a policy action.                                                 |
| <b>show policy action</b> | Displays information about policy actions.                               |

**MIB Objects**

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionPriority
  alaQoSActionPriorityStatus
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionPriority
  alaQoSAppliedActionPriorityStatus
```

---

## policy action maximum bandwidth

Configures a maximum bandwidth value for a policy action.

**policy action** *action\_name* **maximum bandwidth** *bps*

**policy action** *action\_name* **no maximum bandwidth**

---

### Syntax Definitions

*action\_name*

The name of the action.

*bps*

The desired value for maximum bandwidth, in bits per second. The value may be entered as an integer (for example, **10000**) or with abbreviated units (for example, **10k**). If the value is entered in bits per second, the switch rounds the value up to the nearest thousand.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a maximum bandwidth value from an action.
- Note that the bandwidth may be entered in bits per second. Alternatively, the bandwidth may be entered in abbreviated units (**1k**, **2k**, etc). If the bandwidth value is entered in bytes, the switch rounds the value to the nearest thousand bytes. For example, if you enter 1 to 1024, the result is 1K. If you enter 1025 to 2048, the result is 2K.

### Examples

```
-> policy action action4 maximum bandwidth 10000
-> policy action action4 maximum bandwidth 10k
-> policy action action4 no maximum bandwidth
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

## MIB Objects

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionMaximumBandwidth
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionMaximumBandwidth
```

---

## policy action maximum depth

Configures the maximum queue depth assigned to this action, in bytes. The queue depth determines the amount of buffer allocated to each queue. When the queue depth is reached, the switch starts dropping packets.

**policy action** *action\_name* **maximum depth** *bytes*

**policy action** *action\_name* **no maximum depth**

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<i>bytes</i>	The maximum queue depth, in bytes. The value may be entered as an integer (for example, <b>10000</b> ) or with abbreviated units (for example, <b>10k</b> ). If the value is entered in bytes, the switch rounds the value up to the nearest thousand.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a maximum depth value from a policy action.
- Note that the bandwidth may be entered in bytes. Alternatively, the bandwidth may be entered in abbreviated units (**1k**, **2k**, etc). If the bandwidth value is entered in bytes, the switch rounds the value to the nearest thousand bytes. For example, if you enter 1 to 1024, the result is 1K. If you enter 1025 to 2048, the result is 2K.

### Examples

```
-> policy action action2 maximum depth 100  
-> policy action action2 no maximum depth
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

## MIB Objects

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionMaximumDepth
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionMaximumDepth
```

---

## policy action cir

Configures a Tri-Color Marking (TCM) policy action. This type of action consists of parameters for Committed Information Rate (CIR), Committed Burst Size (CBS), Peak Information Rate (PIR), Peak Burst Size (PBS), and the counter color mode. TCM marks packets red, green, or yellow based on the parameter values of this policy action. The counter color mode determines which packets marked by this policy action are counted based on the resulting color of the packet.

**policy action** *action\_name* **cir** *bps* [**cbs** *byte*] [**pir** *bps*] [**pbs** *byte*] [**counter-color** [**red-nonred** | **green-nongreen** | **green-red** | **green-yellow** | **red-yellow**]]

**policy action** *action\_name* **no cir** *bps*

**policy action** *action\_name* **no pir** *bps*

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<i>bps</i>	The burst size value, in bits per second.
<i>byte</i>	The desired value for maximum bucket size, in bytes.
<b>green-red</b>	Count the number of packets marked green (low drop precedence) and the number of packets marked red (packet is dropped). Packets marked yellow (high drop precedence) are not counted.
<b>green-yellow</b>	Count the number of green and yellow packets. Red packets are not counted.
<b>red-yellow</b>	Count the number red and yellow packets. Green packets are not counted.
<b>red-nonred</b>	Count the number of red and non-red (yellow and green) packets.
<b>green-nongreen</b>	Count the number of green and non-green (yellow and red) packets.

### Defaults

<b>parameter</b>	<b>default</b>
<i>bps</i>	0
<i>byte</i>	10K (50K on 9000E)
<b>counter-color</b>	<b>red-yellow</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the TCM parameter values.

- The **cir** and **pir** *bits* and the **cbs** and **pbs** *bytes* parameter values may be entered as an integer (for example, **10000**) or with abbreviated units (for example, **10m**).
- The **cbs** and **pbs** parameters are optional. If not specified, the switch uses 10K for these values by default.
- This implementation of TCM supports two rate limiting modes: Single-Rate (srTCM) and Two-Rate (trTCM). The srTCM mode marks packets based only on the CIR and the two burst sizes: CBS and PBS. The trTCM mode marks packets based on both the CIR and PIR and their associated CBS and PBS values.
- There is no explicit CLI command to configure the mode (srTCM or trTCM) in which the TCM meter operates. Instead, the mode is determined by the CIR and PIR values configured for the policy action. If the PIR value is greater than the CIR value, trTCM is used. If the PIR value is less than the CIR value, srTCM is used.
- Configuring CIR and CBS is similar to configuring a maximum bandwidth. Configuring CIR and PIR is similar to configuring maximum depth.
- The number of packets counted as a result of the counter color mode setting is displayed using the **show active policy rule meter-statistics** command. These statistics are only shown for those rules that are configured with a TCM policy action.

## Examples

The following command examples configure srTCM (the default):

```
-> policy action A3 cir 10M
-> policy action A4 cir 10M cbs 4k
-> policy action A5 cir 10M cbs 4k pir 10M
-> policy action A6 cir 10M cbs 4k pir 10M pbs 4k
-> policy action a7 cir 5M cbs 2k counter-color green-nongreen
-> policy action A3 no cir
-> policy action A5 no pir
```

The following command examples configure trTCM (note that PIR is greater than CIR):

```
-> policy action A7 cir 10M cbs 4k pir 20M
-> policy action A8 cir 10M cbs 4k pir 20M pbs 40M
-> policy action a9 cir 5M cbs 1M pbs 10M pbs 2M counter-color green-yellow
-> policy action A7 no cir
```

## Release History

Release 6.4.3; command was introduced.



## Related Commands

<b>policy action</b>	Creates a policy action.
<b>show policy action</b>	Displays information about actions configured on the switch.
<b>show active policy rule</b>	Displays information about pending and applied policy rules that are active (enabled) on the switch.
<b>show active policy rule meter-statistics</b>	Displays TCM packet color statistics for a policy rule.

## MIB Objects

```
alaQoSActionTable
  alaQoSActionCIR
  alaQoSActionCIRStatus
  alaQoSActionCBS
  alaQoSActionCBSStatus
  alaQoSActionPIR
  alaQoSActionPIRStatus
  alaQoSActionPBS
  alaQoSActionPBSStatus
  alaQoSActionCounterColor
alaQoSAppliedActionTable
  alaQoSAppliedActionCIR
  alaQoSAppliedActionCIRStatus
  alaQoSAppliedActionCBS
  alaQoSAppliedActionCBSStatus
  alaQoSAppliedActionPIR
  alaQoSAppliedActionPIRStatus
  alaQoSAppliedActionPBS
  alaQoSAppliedActionPBSStatus
  alaQoSAppliedCounterColor
```

---

## policy action tos

Configures a Type of Service (ToS) bits value to be applied to packets in outgoing flows to which the specified policy applies.

**policy action** *action\_name* **tos** *tos\_value*

**policy action** *action\_name* **no tos**

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<i>tos_value</i>	The three-bit priority value in the IP header that should be set on outgoing frames in flows that match the specified policy. Values range from 0 (lowest priority) to 7 (highest priority).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a ToS value from a policy action.
- Note that specifying both ToS and DSCP in the same action is *not* allowed.

### Examples

```
-> policy action action3 tos 4
-> policy action action3 no tos
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

## **MIB Objects**

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionTos
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionTos
```

---

## policy action 802.1p

Configures a value to be set in the 802.1p bits of the 802.1Q byte of an outgoing frame for traffic that matches a policy with this action.

**policy action** *action\_name* **802.1p** *802.1p\_value*

**policy action** *action\_name* **no 802.1p**

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<i>802.1p_value</i>	The priority value to be set in 802.1Q frames. Values range from 0 (lowest priority) to 7 (highest priority).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove an 802.1p value from a policy action.
- Note that specifying both ToS and DSCP in the same action is not allowed.

### Examples

```
-> policy action action4 802.1p 7
-> policy action action4 no 802.1p
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

## **MIB Objects**

alaQoSActionTable

    alaQoSActionName  
    alaQoSAction8021p

alaQoSAppliedActionTable

    alaQoSAppliedActionName  
    alaQoSAppliedAction8021p

---

## policy action dscp

Configures a Differentiated Services Code Point (DSCP) value to be set in an outgoing flow for traffic that matches rules with this action.

**policy action** *action\_name* **dscp** *dscp\_value*

**policy action** *action\_name* **no dscp**

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<i>dscp_value</i>	The DSCP value to be set, in the range 0–63.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a DSCP value from a policy action.
- Note that specifying both ToS and DSCP in the same action is *not* allowed.

### Examples

```
-> policy action action2 dscp 61
-> policy action action2 no dscp
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">policy action</a>	Creates a policy action.
<a href="#">show policy action</a>	Displays information about policy actions.

## **MIB Objects**

alaQoSActionTable

    alaQoSActionName

    alaQoSActionDscp

alaQoSAppliedActionTable

    alaQoSAppliedActionName

    alaQoSAppliedActionDscp

---

## policy action map

Configures a mapping group for a policy action.

**policy action map {802.1p | tos | dscp} to {802.1p | tos| dscp} using *map\_group***

**policy action no map**

---

### Syntax Definitions

<b>802.1p</b>	Indicates that an 802.1p value should be mapped.
<b>tos</b>	Indicates that a ToS value should be mapped.
<b>dscp</b>	Indicates that a DSCP value should be mapped.
<i>map_group</i>	The name of the map group, configured through the <a href="#">policy map group</a> command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When remapping is configured with this command and a flow matches a policy with this remapping action, and the 802.1p, ToS, or DSCP setting in the incoming flow is specified by the map group, the value will be remapped in the outgoing flow according to the map group.
- If the 802.1p, ToS, or DSCP setting in the incoming flow is not a value specified in the map group, the switch will do one of two things:

If the *remap from* and *remap to* types are the same (802.1p to 802.1p, ToS to ToS, or DSCP to DSCP), the values in the outgoing flow will be unchanged. If the *remap from* and *remap to* types are not the same (for example: 802.1p to ToS), the switch will set the *remap to* value to zero (in this case, the ToS bit would be set to zero). The *remap to* value remains the same (in this case, the 802.1p bit would remain unchanged).

- Use the **no** form of the command to delete the map group from the configuration.

### Examples

```
-> policy action a1 map 802.1p to 802.1p using mapGroup2
-> policy action a2 map 802.1p to tos using mapGroup3
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>policy map group</b>	Configures a map group and its associated mappings for 802.1p, Type of Service (ToS), or Differentiated Services Code Point (DSCP) values.
<b>qos apply</b>	Applies configured QoS and policy settings to the current configuration.
<b>policy action</b>	Creates a policy action.
<b>show policy action</b>	Displays information about policy actions.
<b>show policy map group</b>	Displays information about all pending and applied policy map groups or a particular map group.

## MIB Objects

```
alaQoSActionTable
  alaQoSActionMapFrom
  alaQoSActionMapTo
  alaQoSActionMapGroup
alaQoSAppliedActionTable
  alaQoSAppliedActionMapFrom
  alaQoSAppliedActionMapTo
  alaQoSAppliedActionMapGroup
```

---

## policy action permanent gateway ip

Used for Policy Based Routing (PBR). Routed flows to which this action is applied will be directed to the IP address specified in the action regardless of whether or not a route already exists in the switch routing table.

**policy action** *action\_name* **permanent gateway ip** *ip\_address*

**policy action** *action\_name* **no permanent gateway ip**

---

### Syntax Definitions

*action\_name* The name of the action.

*ip\_address* The destination IP address to which packets will be routed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a gateway IP address from a policy action.
- If the gateway goes down, the traffic to be routed over the gateway will be dropped.

### Examples

```
-> policy action pbr2 permanent gateway ip 10.10.2.1  
-> policy action pbr2 no permanent gateway ip
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[qos apply](#) Applies configured QoS and policy settings to the current configuration.  
[show policy action](#) Displays information about policy actions.

## **MIB Objects**

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionPermanentGatewayIpAddr
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionPermanentGatewayIpAddr
```

---

## policy action port-disable

Administratively disables the source port of the traffic to which this action is applied.

**policy action** *action\_name* **port-disable**

**policy action** *action\_name* **no port-disable**

---

### Syntax Definitions

*action\_name*                      The name of the action.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove **port-disable** from the policy action.
- An SNMP trap is sent when a port is administratively disabled through a port disable action or a User-Ports shutdown function.
- To enable a port disabled by this action, use the **interfaces admin** command to administratively enable the port or disconnect and reconnect the port cable.

### Examples

```
-> policy action pd01 port-disable  
-> policy action pb02 no port-disable
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

- qos apply**                      Applies configured QoS and policy settings to the current configuration.
- show policy action**            Displays information about policy actions.

## **MIB Objects**

alaQoSActionTable

    alaQoSActionName

    alaQoSActionPortdisable

alaQoSAppliedActionTable

    alaQoSAppliedActionName

    alaQoSAppliedActionPortdisable

---

## policy action redirect port

Redirects all traffic (flooded, bridged, routed, and multicast) matching a redirect policy to the specified port instead of the port to which the traffic was destined.

**policy action** *action\_name* **redirect port** *slot/port*

**policy action** *action\_name* **no redirect port**

---

### Syntax Definitions

*action\_name*                      The name of the action.

*slot/port*                         The slot and port number (or range of ports) that will receive the redirected traffic.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove **redirect port** from the policy action.
- When redirecting routed traffic from VLAN A to VLAN B, the redirect port must belong to VLAN B (tagged or default VLAN).
- Routed packets (from VLAN A to VLAN B) are not modified after they are redirected; the source and MAC address remain the same. In addition, if the redirect port is tagged, the redirected packets will have a tag from the ingress VLAN A.
- If a route exists for the redirected flow, then redirected packets are the final post-routing packets.
- If a route does not exist for the redirected flow, the flow is not redirected to the specified port or link aggregate and is “blackholed”. As soon as a route is available, the flow is then redirected as specified in the policy.
- In most cases, a redirected flow will *not* trigger an update to the routing and ARP tables. If necessary, create a static route for the flow or assign the redirect port to the ingress VLAN (VLAN A) to send packets to the redirect port until a route is available.
- When redirecting bridged traffic on VLAN A, the redirect port must belong to VLAN A (tagged or default VLAN).

### Examples

```
-> policy action rp01 redirect port 1/12
-> policy action rp01 no redirect port
```

## Release History

Release 6.1.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy action](#)

Displays information about policy actions.

## MIB Objects

alaQoSActionTable

    alaQoSActionName

    alaQoSActionRedirectSlot

    alaQoSActionRedirectPort

alaQoSAppliedActionTable

    alaQoSAppliedActionName

    alaQoSAppliedActionRedirectSlot

    alaQoSAppliedActionRedirectPort

---

## policy action redirect linkagg

Redirects all traffic (flooded, bridged, routed, and multicast) matching a redirect policy to the specified link aggregate ID instead of the link aggregate to which the traffic was destined.

**policy action** *action\_name* **redirect linkagg** *link\_agg*

**policy action** *action\_name* **no redirect linkagg**

---

### Syntax Definitions

*action\_name* The name of the action.

*link\_agg* The link aggregate ID number (0–32) to assign to the specified VLAN. See [Chapter 8, “Link Aggregation Commands.”](#)

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove **redirect linkagg** from the policy action.
- When redirecting routed traffic from VLAN A to VLAN B, the redirect link aggregate ID must belong to VLAN B (tagged or default VLAN).
- Routed packets (from VLAN A to VLAN B) are not modified after they are redirected; the source and MAC address remain the same. In addition, if the redirect link aggregate ID is tagged, the redirected packets will have a tag from the ingress VLAN A.
- If a route exists for the redirected flow, then redirected packets are the final post-routing packets.
- If a route does not exist for the redirected flow, the flow is not redirected to the specified link aggregate ID and is “blackholed”. As soon as a route is available, the flow is then redirected as specified in the policy.
- In most cases, a redirected flow will *not* trigger an update to the routing and ARP tables. If necessary, create a static route for the flow or assign the redirect port or link aggregate ID to the ingress VLAN (VLAN A) to send packets to the redirect port until a route is available.
- When redirecting bridged traffic on VLAN A, the redirect port or link aggregate ID must belong to VLAN A (tagged or default VLAN).

### Examples

```
-> policy action rp01 redirect port 1/12
-> policy action rp01 no redirect port
```



## Release History

Release 6.1.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy action](#)

Displays information about policy actions.

## MIB Objects

alaQoSActionTable

    alaQoSActionName

    alaQoSActionRedirectAgg

alaQoSAppliedActionTable

    alaQoSAppliedActionName

    alaQoSAppliedActionRedirectAgg

---

## policy action no-cache

Prevents entries from being added to the hardware cache or TCAM and treats the policy as a software policy by sending all packets to the CPU to be processed.

**policy action** *action\_name* **no-cache**

**policy action** *action\_name* **no no-cache**

---

### Syntax Definitions

*action\_name*                      The name of the action.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove **no cache** from the policy action.
- Recommended for use on traffic destined for the switch.
- This command is useful to reduce hardware ACL entries by moving switch access ACLs to the CPU.

### Examples

```
-> policy action nc01 no-cache
-> policy action nc01 no no-cache
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

[qos apply](#)                      Applies configured QoS and policy settings to the current configuration.

[show policy action](#)            Displays information about policy actions.

### MIB Objects

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionNocache
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionNocache
```

---

## policy action mirror

Mirrors ingress, egress, or both ingress and egress packets that match a mirroring policy to the specified port.

**policy action** *action\_name* [**ingress** | **egress** | **ingress egress**] **mirror** *slot/port*

**policy action** *action\_name* **no mirror** *slot/port*

---

### Syntax Definitions

<i>action_name</i>	The name of the action.
<b>ingress</b>	Mirrors ingress packets.
<b>egress</b>	Mirrors egress packets.
<b>ingress egress</b>	Mirrors ingress and egress packets.
<i>slot/port</i>	The slot and port number that will receive the mirrored traffic.

### Defaults

---

parameter	default
<b>ingress   egress   ingress egress</b>	<b>ingress</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove **mirror** from the policy action.
- Use this command to configure a mirror-to-port (MTP) action that is used for policy based mirroring.
- Only one MTP session is supported at any given time. As a result, all mirroring policies should specify the same MTP port.
- Policy based mirroring and the port based mirroring feature can run simultaneously on the same switch.

### Examples

```
-> policy action a1 mirror 1/7 (default ingress)
-> policy action a1 ingress mirror 1/7
-> policy action a1 egress mirror 1/7
-> policy action a1 ingress egress mirror 1/7
-> policy action a1 no mirror
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy action**

Displays information about policy actions.

## MIB Objects

alaQoSActionTable

alaQoSActionName

alaQoSActionMirrorSlot

alaQoSActionMirrorPort

alaQoSActionMirrorMode

alaQoSActionMirrorModeStatus

---

## show policy classify

Sends hypothetical information to the Layer 2, Layer 3, or multicast classifier to see how the switch will handle the packet. Used to verify that a policy rule works a particular way.

This section describes the base command. Optional keywords are listed below and described as separate commands later in this chapter. (Note that options may be used in combination but are described separately for ease in explanation.)

### show policy classify {l2 | l3 | multicast} [applied]

[source port *slot/port*]

[destination port *slot/port*]

[source mac *mac\_address*]

[destination mac *mac\_address*]

[source vlan *vlan\_id*]

[destination vlan *vlan\_id*]

[source interface type {ethernet | wan | ethernet-10 | ethernet-100 | ethernet-1G | ethernet-10G}]

[destination interface type {ethernet | wan | ethernet-10 | ethernet-100 | ethernet-1G | ethernet-10G}]

[802.1p *value*]

[source ip *ip\_address*]

[destination ip *ip\_address*]

[multicast ip *ip\_address*]

[tos *tos\_value*]

[dscp *dscp\_value*]

[ip protocol *protocol*]

[source ip port *port*]

[destination ip port *port*]

---

### Syntax Definitions

<b>l2</b>	Uses the Layer 2 classifier for the hypothetical packet. Typically specified for port, MAC address, VLAN, interface type, or 802.1p.
<b>l3</b>	Uses the Layer 3 classifier for the hypothetical packet. Typically specified for interface type, IP address, ToS or DSCP, IP protocol, or TCP/UDP port.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet. Typically specified for multicast IP address (which is the multicast stream) and destination parameters (for the client issuing an IGMP request).
<b>applied</b>	Indicates that only applied policies should be examined.

### Defaults

By default, only pending policies are examined.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- If you specify multicast traffic, any destination parameters specified indicate the client(s) attempting to join a multicast group.
- Use the **qos apply** command to activate saved policies.
- See command descriptions in the next sections for more information about the individual options.

## Examples

```
-> show policy classify l3 source ip 1.2.3.4 destination ip 198.60.22.2
destination ip port 80 ip protocol 6
```

Packet headers:

L3:

```
*Port          :                0/0  -> 0/0
*MAC           :                000000:000000  -> 000000:000000
*VLAN          :                0  -> 0
*802.1p        : 0
```

L3/L4:

```
*IP            :                1.2.3.4  -> 198.60.22.2
TCP            :                0  -> 80
*TOS/DSCP      : 0/0
```

Using pending l3 policies

Classify L3:

```
*Matches rule 'filter1': action pri3 (accept)
```

- Source and destination are indicated to the left and right of the arrow (->) respectively. A zero displays for values not requested in the hypothetical packet.
- Note that some fields only display for particular traffic types.

### output definitions

<b>L2/L3/L4</b>	Indicates the type of traffic (Layer 2 or Layer 3/4).
<b>Port</b>	The physical slot/port of the theoretical traffic.
<b>IfType</b>	Displays for hypothetical Layer 2 packets only. The interface type of the packet.
<b>MAC</b>	The MAC address of the hypothetical packet.
<b>VLAN</b>	The VLAN ID of the hypothetical packet.
<b>802.1p</b>	The 802.1p value of the hypothetical packet.
<b>Mcast</b>	Displays for hypothetical multicast packets only. The multicast address of the hypothetical packet.
<b>IP</b>	The IP address of the hypothetical packet.
<b>TCP</b>	The TCP/UDP port of the hypothetical packet.
<b>TOS/DSCP</b>	The ToS or DSCP value of the hypothetical packet.

## Release History

Release 6.1; command was introduced.

## Related Commands

### **qos apply**

Applies configured QoS and policy settings to the current configuration.

## MIB Objects

```
alaQoSClassifyTable
  alaQoSClassifySourceSlot
  alaQoSClassifySourcePort
  alaQoSClassifyDestinationSlot
  alaQoSClassifyDestinationPort
  alaQoSClassifySourceMac
  alaQoSClassifyDestinationMac
  alaQoSClassifySourceVlan
  alaQoSClassifyDestinationVlan
  alaQoSClassifySourceInterfaceType
  alaQoSClassifyDestinationInterfaceType
  alaQoSClassify8021p
  alaQoSClassifySourceIp
  alaQoSClassifyDestinationIp
  alaQoSClassifyMulticastIp
  alaQoSClassifyTos
  alaQoSClassifyDscp
  alaQoSClassifyIpProtocol
  alaQoSClassifySourceIpPort
  alaQoSClassifyDestinationIpPort
  alaQoSClassifyExecute
  alaQoSClassifyL2SourceResultRule
  alaQoSClassifyL2SourceResultDisposition
  alaQoSClassifyL2DestinationResultRule
  alaQoSClassifyL2DestinationResultDisposition
  alaQoSClassifyL3ResultRule
  alaQoSClassifyL3ResultDisposition
  alaQoSClassifyIGMPResultRule
  alaQoSClassifyIGMPResultDisposition
  alaQoSClassifyMulticastResultRule
  alaQoSClassifyMulticastResultDisposition
```

---

## show policy classify source port

Specifies a source port for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {l2 | l3 | multicast} [applied] source port slot/port
```

---

### Syntax Definitions

<b>l2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>l3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>slot/port</i>	The slot and port number of the source address of the flow.

### Defaults

By default, only pending policies are examined.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify l2 source port 3/1
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.



## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

    alaQoSClassifySourceSlot

    alaQoSClassifySourcePort

---

## show policy classify destination port

Specifies a destination port for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {**I2** | **I3** | **multicast**} [**applied**] **destination port** *slot/port*

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>slot/port</i>	The slot and port number of the destination address of the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify I2 destination port 2/1
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy classify</a>	Describes the base command.

## **MIB Objects**

```
alaQoSClassifyTable  
  alaQoSClassifyDestinationSlot  
  alaQoSClassifyDestinationPort
```

---

## show policy classify source mac

Specifies a source MAC address for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] source mac mac_address
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>mac_address</i>	The source MAC address of the Layer 2 flow (for example, 00:20:da:05:f6:23) .

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify I2 source mac 00:20:da:05:f6:23
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

alaQoSClassifySourceMac

---

## show policy classify destination mac

Specifies a destination MAC address for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 multicast} [applied] destination mac mac_address
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>mac_address</i>	The destination MAC address of the Layer 2 flow (for example, 00:20:da:05:f6:23).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify I2 destination mac 00:20:da:05:f6:23
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

    alaQoSClassifyDestinationMac

---

## show policy classify source vlan

Specifies a source VLAN for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] source vlan vlan_id
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>vlan_id</i>	The destination VLAN ID for the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify I2 source vlan 2
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.



## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

  alaQoSClassifySourceVlan

---

## show policy classify destination vlan

Specifies a destination VLAN for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] destination vlan vlan_id
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>vlan_id</i>	The destination VLAN ID for the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify I2 destination vlan 3
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

alaQoSClassifySourceVlan

---

## show policy classify source interface type

Specifies a source interface type for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {**l2** | **l3** | **multicast**} [**applied**] **source interface type** {**ethernet** | **wan** | **ethernet-10** | **ethernet-100** | **ethernet-1G** | **ethernet-10G**}

---

### Syntax Definitions

<b>l2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>l3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<b>ethernet</b>	Indicates that the flow's source port is an Ethernet interface.
<b>wan</b>	Indicates that the flow's source port is a WAN interface. <i>Not supported currently.</i>
<b>ethernet-10</b>	Indicates that the flow's source port is 10 Mb Ethernet.
<b>ethernet-100</b>	Indicates that the flow's source port is 100 Mb Ethernet.
<b>ethernet-1G</b>	Indicates that the flow's source port is 1 gigabit Ethernet.
<b>ethernet-10G</b>	Indicates that the flow's source port is 10 gigabit Ethernet.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> policy classify l2 source interface type ethernet
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

alaQoSClassifySourceInterfaceType

---

## show policy classify destination interface type

Specifies a destination interface type for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {l2 | l3 | **multicast**} [**applied**] **destination interface type** {**ethernet** | **wan** | **ethernet-10** | **ethernet-100** | **ethernet-1G** | **ethernet-10G**}

---

### Syntax Definitions

<b>l2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>l3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<b>ethernet</b>	Indicates that the flow's destination port is an Ethernet interface.
<b>wan</b>	Indicates that the flow's destination port is a WAN interface. <i>Not supported currently.</i>
<b>ethernet-10</b>	Indicates that the flow's destination port is 10 Mb Ethernet.
<b>ethernet-100</b>	Indicates that the flow's destination port is 100 Mb Ethernet.
<b>ethernet-1G</b>	Indicates that the flow's destination port is 1 gigabit Ethernet.
<b>ethernet-10G</b>	Indicates that the flow's destination port is 10 gigabit Ethernet.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify l2 destination interface type ethernet-10
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

alaQoSClassifyDestinationInterfaceType

---

---

## show policy classify 802.1p

Specifies a destination interface type for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {**l2** | **l3** | **multicast**} [**applied**] **802.1p** *value*

---

### Syntax Definitions

<b>l2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>l3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>value</i>	The 802.1p value for the flow.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate saved policies.

### Examples

```
-> show policy classify l2 802.1p 4
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">qos apply</a>	Applies configured QoS and policy settings to the current configuration.
<a href="#">show policy classify</a>	Describes the base command.

### MIB Objects

```
alaQoSClassifyTable  
  alaQoSClassify8021p
```

---



## show policy classify source ip

Specifies a source IP address for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] source ip ip_address
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>ip_address</i>	The source IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify I3 source ip 1.2.3.4
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands****qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy classify**

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifySourceIp

---

## show policy classify destination ip

Specifies a destination IP address for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] destination ip ip_address
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>ip_address</i>	The destination IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify I3 destination ip 198.60.22.2
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands****qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy classify**

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifyDestinationIpPort

---

## show policy classify multicast ip

Specifies a multicast address for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] multicast ip ip_address
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>ip_address</i>	The multicast IP address (the address of the multicast stream).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify multicast multicast ip 224.22.22.1
```

```
Packet headers:
```

```
L2:
```

```
*Port          :                               0/0 (any)  -> 0/0 (any)
*MAC           :                               000000:000000  -> 080020:D1E51
*VLAN          :                               0           -> 0
*802.1p        : 0
```

```
L3/L4:
```

```
*Mcast         :                               224.22.22.1
*IP            :                               0.0.0.0   -> 0.0.0.0
*TOS/DSCP      : 0/0
```

```
Using pending multicast policies
```

```
Classify Multicast:
```

```
*No rule matched: (accept)
```

See the output example given on [page 33-167](#) for information about the displayed fields.

## Release History

Release 6.1; command was introduced.

## Related Commands

[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

## MIB Objects

alaQoSClassifyTable

    alaQoSClassifyMulticastIp

---

## show policy classify tos

Specifies a ToS value for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] tos tos_value
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>tos_value</i>	The Type of Service bits value included in the IP header. The three most significant bits of the byte determine the precedence (i.e, priority) of the frame (0 is the lowest, 7 is the highest).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.
- If a ToS value is specified, a DSCP value may not be specified.

### Examples

```
-> show policy classify I3 tos 7
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands**[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifyTos

---



## show policy classify dscp

Specifies a DiffServ Code Point (DSCP) value for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] dscp dscp_value
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>dscp_value</i>	The DiffServ Code Point value, in the range 0–63.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.
- If a DSCP value is specified, a ToS value may not be specified.

### Examples

```
-> show policy classify I3 dscp 63
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands****qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy classify**

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifyDscp

---

## show policy classify ip protocol

Specifies an IP protocol for a hypothetical packet to show how the QoS software in the switch will handle the packet.

```
show policy classify {I2 | I3 | multicast} [applied] ip protocol protocol
```

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>protocol</i>	The IP protocol number, for example, 6.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify I3 ip protocol 6
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands****qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy classify**

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifyIpProtocol

---

## show policy classify source ip port

Specifies a source IP port for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {**I2** | **I3** | **multicast**} [**applied**] **source ip port** *port*

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>port</i>	The well-known port number for the desired service. For example, the port number for Telnet is 23.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify I3 source ip port 80
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands****qos apply**

Applies configured QoS and policy settings to the current configuration.

**show policy classify**

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifySourceIpPort

---

## show policy classify destination ip port

Specifies a destination IP port for a hypothetical packet to show how the QoS software in the switch will handle the packet.

**show policy classify** {**I2** | **I3** | **multicast**} [**applied**] **destination ip port** *port*

---

### Syntax Definitions

<b>I2</b>	Uses the Layer 2 classifier for the hypothetical packet.
<b>I3</b>	Uses the Layer 3 classifier for the hypothetical packet.
<b>multicast</b>	Uses the multicast IGMP classifier for the hypothetical packet.
<b>applied</b>	Indicates that only applied policies should be examined.
<i>port</i>	The well-known port number for the desired service. For example, the port number for Telnet is 23.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to determine if the switch will classify the traffic condition specified and match it to a policy. By default the classifier only tests pending policies (policies that have not yet been applied). Use the **applied** keyword to test only those policies that have been applied.
- Use the **qos apply** command to activate policies.

### Examples

```
-> show policy classify I3 destination ip port 80
```

See the output example given on [page 33-167](#) for more information about the potential screen display.

### Release History

Release 6.1; command was introduced.

**Related Commands**[qos apply](#)

Applies configured QoS and policy settings to the current configuration.

[show policy classify](#)

Describes the base command.

**MIB Objects**

alaQoSClassifyTable

    alaQoSClassifyDestinationIpPort

---



## show policy network group

Displays information about pending and applied policy network groups.

**show [applied] policy network group** [*network\_group*]

---

### Syntax Definitions

<b>applied</b>	Indicates that only network groups that have been applied should be displayed.
<i>network_group</i>	The name of the policy network group for which you want to display information; or a wildcard sequence of characters for displaying information about network groups with similar names. Use an asterisk (*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy network groups displays unless *network\_group* is specified.
- The display may include any of the following characters:

character	definition
+	Indicates a new policy network group.
-	Indicates the policy network group is pending deletion.
#	Indicates that the policy network group differs between the pending/applied network groups.

### Examples

```
-> show policy network group
Group Name:          From  Entries
Switch               blt  4.0.1.166
                    10.0.1.166
                    143.209.92.166
                    192.85.3.1

+netgroup1          cli  143.209.92.0/255.255.255.0
                    172.28.5.0/255/255/255.0
```

*output definitions*

---

<b>Group Name</b>	The name of the port group, configured through the <b>policy network group</b> command.
<b>From</b>	The way the group was configured: <b>blt</b> indicates a built-in entry; <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView
<b>Entries</b>	The IP addresses associated with the network group.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[policy network group](#) Configures policy network groups.

**MIB Objects**

```
alaQoSNetworkGroupsTable
  alaNetworkGroupsName
  alaNetworkGroupsSource
alaNetworkGroupTable
  alaNetworkGroupIpAddr
  alaQoSNetworkGroupIpMask
```

---

## show policy service

Displays information about pending and applied policy services.

**show** [**applied**] **policy service** [*service\_name*]

---

### Syntax Definitions

**applied** Indicates that only services that have been applied should be displayed.

*service\_name* The name of the service for which you want to display information; or a wildcard sequence of characters for displaying information about services with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information about all policy services is displayed unless *service\_name* is specified.
- The display may include any of the following characters:

character	definition
+	Indicates a new policy service.
-	Indicates the policy service is pending deletion.
#	Indicates that the policy service differs between the pending/applied services.

### Examples

```
-> show policy service
  Service Name      From      IPProto  ScrPort  DstPort
telnet_service     cli       6 (TCP)  23
+ftp_service       cli       6 (TCP)  21
test_service       cli       6 (TCP)  21

-> show policy service telnet_service
  Service Name      From      IPProto  ScrPort  DstPort
telnet_service     cli       6 (TCP)  23

-> show applied policy service
  Service Name      From      IPProto  ScrPort  DstPort
telnet_service     cli       6 (TCP)  23
test_service       cli       6 (TCP)  21
```

*output definitions*


---

<b>Service Name</b>	The name of the port group, configured through the <b>policy service</b> command.
<b>From</b>	The way the service was configured: <b>blt</b> indicates a built-in entry; <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView.
<b>IPProto</b>	The IP protocol associated with the service.
<b>SrcPort</b>	A source port associated with the service.
<b>DstPort</b>	A destination port associated with the service.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[policy service](#) Configures a service that may be used as part of a policy service group.

**MIB Objects**

alaQoSServiceTable

```

  alaQoSServiceName
  alaQoSServiceSource
  alaQoSServiceIpProtocol
  alaQoSServiceSourceIpPort
  alaQoSServiceDestinationIpPort

```

alaQoSAppliedServiceTable

```

  alaQoSAppliedServiceName
  alaQoSAppliedServiceSource
  alaQoSAppliedServiceIpProtocol
  alaQoSAppliedSourceIpPort
  alaQoSAppliedServiceDestinationIpPort

```

---

## show policy service group

Displays information about pending and applied policy service groups.

**show [applied] policy service group** [*service\_group*]

---

### Syntax Definitions

**applied**

Indicates that only service groups that have been applied should be displayed.

*service\_group*

The name of the service group for which you want to display information; or a wildcard sequence of characters for displaying information about service groups with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy service groups displays unless *service\_group* is specified.
- The display may include any of the following characters:

<b>character</b>	<b>definition</b>
+	Indicates a new policy service group.
-	Indicates the policy service group is pending deletion.
#	Indicates that the policy service group differs between the pending/applied service groups.

### Examples

```
-> show policy service group
Group Name:           From  Entries
serv_group1          cli   telnet
                       ftp
serv_group2          cli   telnet
```

*output definitions*


---

<b>Group Name</b>	The name of the port group, configured through the <b>policy service group</b> command.
<b>From</b>	The origin of the service group: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView.
<b>Entries</b>	The services associated with the group. Services are configured through the <b>policy service</b> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**policy service group** Configures a service group and its associated services. A service group may be attached to a policy condition.

**MIB Objects**

```

alaQoSServiceGroupsTable
    alaQoSServiceGroupsName
    alaQoSServiceGroupsSource
alaQoSAppliedServiceGroupsTable
    alaQoSAppliedServiceGroupsName
    alaQoSAppliedServiceGroupsSource
alaQoSServiceGroupTable
    alaQoSServiceGroupServiceName
alaQoSAppliedServiceGroupTable
    alaQoSAppliedServiceGroupServiceName

```

---

## show policy mac group

Displays information about pending and applied MAC groups.

**show** [**applied**] **policy mac group** [*mac\_group*]

---

### Syntax Definitions

**applied**

Indicates that only MAC groups that have been applied should be displayed.

*mac\_group*

The name of the MAC group for which you want to display information; or a wildcard sequence of characters for displaying information about MAC groups with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy MAC groups displays unless *mac\_group* is specified.
- The display may include any of the following characters:

<b>character</b>	<b>definition</b>
+	Indicates a new policy MAC group.
-	Indicates the policy MAC group is pending deletion.
#	Indicates that the policy MAC group differs between the pending/applied MAC groups.

### Examples

```
-> show policy mac group
Group Name:                From  Entries
pubsl                       cli   0020da:05f623
                              0020da:05f624
                              143.209.92.166
                              192.85.3.1

+yuba                       cli   080020:D16E51
                              172.28.5.0/255/255/255.0
```

*output definitions*


---

<b>Group Name</b>	The name of the port group, configured through the <b>policy mac group</b> command.
<b>From</b>	The origin of the MAC group: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView.
<b>Entries</b>	The MAC addresses associated with the group.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[policy mac group](#) Configures policy MAC groups.

**MIB Objects**

```

alaQoSMACTable
  alaQoSMACTableName
  alaQoSMACTableSource
alaQoSAppliedMACTable
  alaQoSAppliedMACTableName
  alaQoSAppliedMACTableSource
alaQoSMACTable
  alaQoSMACTableMacAddr
  alaQoSMACTableMacMask
alaQoSAppliedMACTable
  alaQoSAppliedMACTableMacAddr
  alaQoSAppliedMACTableMacMask

```

---



## show policy port group

Displays information about pending and applied policy port groups.

**show** [**applied**] **policy port group** [*group\_name*]

---

### Syntax Definitions

**applied** Indicates that only policy port groups that have been applied should be displayed.

*group\_name* The name of the policy port group for which you want to display information; or a wildcard sequence of characters for displaying information about port groups with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy port groups displays unless *group\_name* is specified.
- The display may include any of the following characters:

<b>character</b>	<b>definition</b>
+	Indicates a new policy port group.
-	Indicates the policy port group is pending deletion.
#	Indicates that the policy port group differs between the pending/applied port groups.

### Examples

```
-> show policy port group
Group Name:           From  Entries
Slot01                b1t
Slot02                b1t
Slot03                b1t
Slot04                b1t
Slot05                b1t
Slot06                b1t
Slot07                b1t
```

Slot08	blt
pgroup1	cli 2/1 3/1 3/2
pgroup2	cli 2/2 2/3

**output definitions**


---

<b>Group Name</b>	The name of the port group, configured through the <b>policy port group</b> command or built-in port groups automatically set up by the switch ( <b>Slot01, Slot02, Slot03</b> , etc.).
<b>From</b>	The origin of the port group: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through Policy-View; <b>blt</b> indicates the entry was set up automatically by the switch based on the current hardware.
<b>Entries</b>	The slot/port combinations associated with the port group.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**policy port group** Configures a port group and its associated slot and port numbers.

**MIB Objects**

```

alaQoSPortGroupsTable
  alaQoSPortGroupsName
  alaQoSPortGroupsSource
alaQoSAppliedPortGroupsTable
  alaQoSAppliedPortGroupsName
  alaQoSAppliedPortGroupsSource
alaPortGroupTable
  alaQoSPortGroupSlot
  alaQoSPortGroupPort
alaAppliedPortGroupTable
  alaQoSAppliedPortGroupSlot
  alaQoSAppliedPortGroupPort

```

---

## show policy vlan group

Displays information about pending and applied policy VLAN groups.

**show** [**applied**] **policy vlan group** [*group\_name*]

---

### Syntax Definitions

#### **applied**

Displays only those policy VLAN groups that have been applied.

#### *group\_name*

The name of the policy VLAN group for which you want to display information; or a wildcard sequence of characters for displaying information about VLAN groups with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

By default, all VLAN groups are displayed with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the *group\_name* parameter to display information for a specific VLAN group.
- The display may include any of the following characters:

<b>character</b>	<b>definition</b>
+	Indicates a new policy port group.
-	Indicates the policy port group is pending deletion.
#	Indicates that the policy port group differs between the pending/applied port groups.

### Examples

```
-> show policy vlan group
Group Name      vlan                From
-----+-----+-----
Vlan_grp1      100                 cli
Vlan_grp1      101                 cli
Vlan_grp1      200                 cli
Vlan_grp2      1234                cli
Vlan_grp3      2000                cli
Vlan_grp3      2001                cli
Vlan_grp3      2003-2005           cli
Vlan_grp3      2500                cli
Vlan_grp3      3000                cli
```

```

-> show policy vlan group
Group Name      vlan      From
-----+-----+-----
Vlan_grp2      1234      cli

```

### *output definitions*

---

<b>Group Name</b>	The name of the VLAN group.
<b>VLAN</b>	The VLAN IDs associated with the VLAN group.
<b>From</b>	The origin of the VLAN group: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView; <b>blt</b> indicates the entry was set up automatically by the switch based on the current hardware.

---

### **Release History**

Release 6.4.3; command was introduced.

### **Related Commands**

[policy vlan group](#) Configures a VLAN group and its associated VLAN ID numbers.

### **MIB Objects**

```

alaQoSvlanGroupsTable
  alaQoSvlanGroupsName
  alaQoSvlanGroupsSource
  alaQoSvlanGroupsStatus
alaQoSAppliedVlanGroupsTable
  alaQoSAppliedVlanGroupsName
  alaQoSAppliedVlanGroupsSource
  alaQoSAppliedVlanGroupsStatus
alaQoSvlanGroupTable
  alaQoSvlanGroupVlan
  alaQoSvlanGroupVlanEnd
  alaQoSvlanGroupStatus
alaQoSAppliedVlanGroupTable
  alaQoSAppliedVlanGroupVlan
  alaQoSAppliedVlanGroupVlanEnd
  alaQoSAppliedVlanGroupStatus

```

---

## show policy map group

Displays information about pending and applied policy map groups.

**show** [**applied**] **policy map group** [*group\_name*]

---

### Syntax Definitions

**applied** Indicates that only map groups that have been applied should be displayed.

*group\_name* The name of the policy map group for which you want to display information; or a wildcard sequence of characters for displaying information about map groups with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy map groups displays unless *group\_name* is specified.
- The display may include any of the following characters:

character	definition
+	Indicates a new policy port group.
-	Indicates the policy port group is pending deletion.
#	Indicates that the policy port group differs between the pending/applied port groups.

### Examples

```
-> show policy map group
Group Name          From  Entries
+tosGroup           cli   1-2:4
                   4:5
```

#### output definitions

---

<b>Group Name</b>	The name of the map group, configured through the <b>policy map group</b> command.
<b>From</b>	The origin of the port group: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through Policy-View.
<b>Entries</b>	The slot/port combinations associated with the port group.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### [policy map group](#)

Configures a map group and its associated mappings for 802.1p, Type of Service (ToS), or Differentiated Services Code Point (DSCP) values.

## MIB Objects

```
alaQoSMapGroupsTable
  alaQoSMapGroupsName
  alaQoSMapGroupsSource
alaQoSAppliedMapGroupsTable
  alaQoSAppliedMapGroupsName
  alaQoSAppliedMapGroupsSource
alaQoSMapGroupTable
  alaQoSMapGroupKey
  alaQoSMapGroupKeyEnd
  alaQoSMapGroupValue
alaQoSAppliedMapGroupTable
  alaQoSAppliedMapGroupKey
  alaQoSAppliedMapGroupKeyEnd
  alaQoSAppliedMapGroupValue
```

---

## show policy action

Displays information about pending and applied policy actions configured on the switch.

**show** [**applied**] **policy action** [*action\_name*]

---

### Syntax Definitions

<b>applied</b>	Indicates that only actions that have been applied should be displayed.
<i>action_name</i>	The name of the action for which you want to display information; or a wildcard sequence of characters for displaying information about actions with similar names. Use an asterisk (*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy actions displays unless *action\_name* is specified.
- The display may include any of the following characters:

character	definition
+	Indicates a new policy action.
-	Indicates the policy action is pending deletion.
#	Indicates that the policy action differs between the pending/applied actions.

### Examples

```
-> show policy action
```

```

Action Name From  Disp  Pri Share Bandwidth          Burst size
           Min Max CIR PIR Max-Depth Bufs CBS  PBS To
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
A3          cli  accept  No          10M
+A4          cli  accept  No          10M
A5          cli  accept  No          10M 10M
A6          cli  accept  No
+A7          cli  accept  No
+A8          cli  accept  Yes
action1     cli  accept  No          10M 20M
action2     cli  accept  No          10M 20M

```

```
-> show policy action a5
```

Action Name	From	Disp	Pri	Share	Bandwidth				Burst size				
					Min	Max	CIR	PIR	Max-Depth	Bufs	CBS	PBS	To
A5	cli	accept	No				10M	10M				4K	

```
-> show applied policy action
```

Action Name	From	Disp	Pri	Share	Bandwidth				Burst size				
					Min	Max	CIR	PIR	Max-Depth	Bufs	CBS	PBS	To
A3	cli	accept	No				10M						
A5	cli	accept	No				10M	10M				4K	
A6	cli	accept	No										
action1	cli	accept	No				10M	20M				4K	
action2	cli	accept	No				10M	20M				4K	40M

```
-> show policy action action*
```

Action Name	From	Disp	Pri	Share	Bandwidth				Burst size				
					Min	Max	CIR	PIR	Max-Depth	Bufs	CBS	PBS	To
action1	cli	accept	No				10M	20M				4K	
action2	cli	accept	No				10M	20M				4K	40M

### output definitions

<b>Action Name</b>	The name of the action, configured through the <b>policy action</b> command.
<b>From</b>	Where the policy rule originated: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through PolicyView.
<b>Disp</b>	The disposition of the rule, either <b>accept</b> or <b>deny</b> .
<b>Pri</b>	The priority configured for the rule.
<b>Share</b>	Whether or not the rule specifies that the queue should be shared.
<b>Min Bandwidth</b>	The minimum bandwidth required by the rule.
<b>Max Bandwidth</b>	The maximum bandwidth required by the rule.
<b>Max Depth Bufs</b>	Maximum depth (in Kbytes) of queues for traffic.

### Release History

Release 6.1; command was introduced.

### Related Commands

#### **policy action**

Creates a policy action. A QoS action is a particular set of bandwidth and queue parameters that may be applied to a flow matching particular QoS conditions.



## **MIB Objects**

### alaQoSActionTable

- alaQoSActionName
- alaQoSActionSource
- alaQoSActionDisposition
- alaQoSActionShared
- alaQoSActionMinimumBandwidth
- alaQoSActionMaximumBandwidth
- alaQoSActionMaximumDepth

### alaQoSAppliedActionTable

- alaQoSAppliedActionName
- alaQoSAppliedActionSource
- alaQoSAppliedActionDisposition
- alaQoSAppliedActionShared
- alaQoSAppliedActionMinimumBandwidth
- alaQoSAppliedActionMaximumBandwidth
- alaQoSAppliedActionMaximumDepth

---

## show policy condition

Displays information about pending and applied policy conditions.

**show [applied] policy condition** [*condition\_name*]

---

### Syntax Definitions

<b>applied</b>	Indicates that only conditions that have been applied should be displayed.
<i>condition_name</i>	The name of the condition for which you want to display information; or a wildcard sequence of characters for displaying information about conditions with similar names. Use an asterisk (*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all policy conditions displays unless *condition\_name* is specified.
- The display may include any of the following characters:

character	definition
+	Indicates a new policy condition.
-	Indicates the policy condition is pending deletion.
#	Indicates that the policy condition differs between the pending/applied conditions.

### Examples

```
-> show policy condition
Condition Name:          From  Src  ->  Dest
pcond1                  cli
*IP      :                Any  ->  198.60.82.0/255.255.255.0

+c4                      cli
*IP      : 10.11.2.0/255/255/255.0  ->  Any
*TCP    :                Any  ->  600

-> show policy condition c*
Condition Name:          From  Src  ->  Dest
+c4                      cli
*IP      : 10.11.2.0/255/255/255.0  ->  Any
*TCP    :                Any  ->  600
```

*output definitions*


---

<b>Condition Name</b>	The name of the condition, configured through the <b>policy condition</b> command.
<b>From</b>	The origin of the condition: <b>cli</b> indicates that the entry was configured on the switch; <b>ldap</b> indicates the entry was configured through Policy-View.
<b>Src</b>	The source address associated with the condition.
<b>Dest</b>	The destination address associated with the condition.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**policy condition** Creates a policy condition. The condition determines what parameters the switch uses to classify incoming flows.

**MIB Objects**

```

alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSource
  alaQoSConditionSourceSlot
  alaQoSConditionSourcePort
  alaQoSConditionSourcePortGroup
  alaQoSConditionDestinationSlot
  alaQoSConditionDestinationPort
  alaQoSConditionDestinationPortGroup
  alaQoSConditionSourceInterfaceType
  alaQoSConditionDestinationInterfaceType
  alaQoSConditionSourceMacAddr
  alaQoSConditionSourceMacMask
  alaQoSConditionSourceMacGroup
  alaQoSConditionDestinationMacAddr
  alaQoSConditionDestinationMacMask
  alaQoSConditionDestinationMacGroup
  alaQoSConditionSourceVlan
  alaQoSConditionDestinationVlan
  alaQoSCondition8021p
  alaQoSConditionSourceIpAddr
  alaQoSConditionSourceIpMask
  alaQoSConditionSourceNetworkGroup
  alaQoSConditionDestinationIpAddr
  alaQoSConditionDestinationIpMask
  alaQoSConditionDestinationNetworkGroup
  alaQoSConditionMulticastIpAddr
  alaQoSConditionMulticastIpMask
  alaQoSConditionMulticastNetworkGroup
  alaQoSConditionTos
  alaQoSConditionDscp
  alaQoSConditionTcpFlags

```

alaQoSConditionIpProtocol  
alaQoSConditionSourceIpPort  
alaQoSConditionDestinationIpPort  
alaQoSConditionService  
alaQoSConditionServiceGroup

---

## show active policy rule

Displays information about applied policy rules that are active (enabled) on the switch.

**show active** [**bridged** | **routed** | **multicast**] **policy rule** [*rule\_name*]

---

### Syntax Definitions

<b>bridged</b>	Displays active rules that apply to bridged traffic.
<b>routed</b>	Displays active rules that apply to routed traffic.
<b>multicast</b>	Displays active rules that apply to multicast traffic.
<i>rule_name</i>	The name of the rule for which you want to display information; or a wildcard sequence of characters for displaying information about rules with similar names. Use an asterisk (*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all rules is displayed unless *rule\_name* is specified.
- Use the **show policy rule** command to display inactive as well as active policy rules.
- Information for all rule types is displayed unless a keyword (**bridged**, **routed**, **multicast**) is specified.
- Applied rules may or may not be active on the switch. Applied rules are inactive if they have been administratively disabled with the **disable** option in the **policy rule** command.
- The display may include any of the following characters:

---

<b>character</b>	<b>definition</b>
+	Indicates that the policy rule has been modified or has been created since the last <b>qos apply</b> .
-	Indicates the policy object is pending deletion.
#	Indicates that the policy object differs between the pending/applied objects.

---

- A match may show for a rule that is not the highest precedence rule for a particular flow, but only the rule with the highest precedence is actually applied.

## Examples

```

-> show active policy rule
      Policy
R1      From  Prec  Enab  Act  Refl  Log  Trap  Save  Def  Matches
(L2/3): cli    0   Yes  Yes   No   No   Yes  Yes  Yes  Yes   2
      C1 -> QoS_Action1

R2      cli    0   Yes  Yes   No   No   Yes  Yes  Yes  Yes   0
(L2/3): C2 -> QoS_Action1

R3      cli    0   Yes  Yes   No   No   Yes  Yes  Yes  Yes   0
(L2/3): C3 -> QoS_Action1

```

### output definitions

<b>Policy</b>	The name of the policy rule, configured through the <b>policy rule</b> command. A plus sign (+) preceding a policy rule name indicates that the policy rule has been modified or has been created since the last <b>qos apply</b> .
<b>From</b>	Where the rule originated.
<b>Prec</b>	The precedence of the rule. Precedence determines the order in which the switch will apply rules.
<b>Enab</b>	Whether or not the rule is administratively enabled. (By default, rules are enabled.)
<b>Act</b>	Whether or not the rule is enforceable by the switch (e.g., qos is enabled, rule is valid and enabled, validity period is active).
<b>Refl</b>	Whether the rule is reflexive or not.
<b>Log</b>	Whether or not the switch will log messages about specific flows coming into the switch that match this policy rule. Configured through the <b>policy rule</b> command.
<b>Trap</b>	Whether or not traps are enabled for the rule. Configured through the <b>policy rule</b> command. A trap is sent when a port is administratively disabled through a port disable action or a UserPort shutdown function.
<b>Save</b>	Whether the rule will be captured in an ASCII text file (using the <b>configuration snapshot</b> command), saved to the working directory after the <b>write memory</b> command or <b>reload issu</b> command is entered, or saved after a reboot. Configured through the <b>policy rule</b> command.
<b>Def</b>	Whether or not the rule is a member of the default policy list. Configured through the <b>policy rule</b> command.
<b>Matches</b>	The number of flows matching this rule. Note that for ingress maximum bandwidth policies, the value in this field indicates the number of packets that exceed the bandwidth limit, not the packets that match the rule.
<b>{L2/3}</b>	The condition and the action associated with the rule; configured through the <b>policy condition</b> and <b>policy action</b> commands respectively.

## Release History

Release 6.1; command was introduced.

Release 6.1.1; **Trap** column added; **Inact** column changed to **Act**.

Release 6.3.4; **Def** column added.

## Related Commands

[show policy rule](#)

Displays information for policy rules configured on the switch.

[show policy list](#)

Displays information for policy lists configured on the switch.

## MIB Objects

alaQoSRuleTable

alaQoSRuleName

alaQoSRuleEnabled

alaQoSRuleSource

alaQoSRulePrecedence

alaQoSRuleActive

alaQoSRuleReflexive

alaQoSRuleLog

alaQoSRuleTrapEvents

alaQoSRuleSave

alaQoSRuleDefaultList

alaQoSRuleCondition

alaQoSRuleAction

---

## show active policy rule meter-statistics

Displays Tricolor Marking (TCM) packet color statistics for the policy rule. These statistics are kept for those rules that consist of a TCM policy action (**policy action cir**). A counter color mode is specified with the TCM policy action. The counter color mode determines which counter color statistics are displayed with this command.

**show active policy rule** [*rule\_name*] **meter-statistics**

---

### Syntax Definitions

*rule\_name*                                      The name of the rule for which you want to display information; or a wildcard sequence of characters for displaying information about rules with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

By default, statistics are displayed for all rules.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the optional *rule\_name* parameter to display statistics for a specific policy rule.
- This command displays statistics for applied policy rules that are active (enabled) on the switch. Use the **show policy rule** command to display inactive as well as active policy rules.
- Applied rules may or may not be active on the switch. Applied rules are inactive if they have been administratively disabled with the **disable** option in the **policy rule** command.
- Statistics are shown only for two out of the five available counter colors. The two counters shown are determined by the counter color mode configured for the TCM policy action. See the **policy action cir** command for more information.
- A TCM action specifies the rates and burst sizes used to determine drop precedence for packets to which the action is applied. Packets are marked a certain color based on whether or not they conform to the specified rates and burst sizes. The packet color indicates the drop precedence (Green = low drop precedence, Yellow = high drop precedence, and Red = packet is always dropped).
- Counter color statistics are shown even if there is no bandwidth management configured for the rule. In this case, the green counter will display the number of packets that matched the rule and the nongreen counter is set to zero.

### Examples

The following command examples display statistics for the Green and Red counters. These are the two counters specified by the TCM policy action that is assigned to the “R1” and “R2” policy rules.

```
-> show active policy rule meter-statistics
Policy: R1, Counter Color Mode: GREEN_RED,
  Green      :      75,      Non-Green   :      0,
  Red        :      50,      Non-Red     :      0,
  Yellow     :           0
```



```
Policy: R2, Counter Color Mode: GREEN_RED,  
Green      :      70,      Non-Green :      0,  
Red        :      50,      Non-Red   :      0,  
Yellow     :           0
```

```
-> show active policy rule r2 meter-statistics  
Policy: R2, Counter Color Mode: GREEN_RED,  
Green      :      70,      Non-Green :      0,  
Red        :      50,      Non-Red   :      0,  
Yellow     :           0
```

### *output definitions*

---

<b>Policy</b>	The name of the policy rule, configured through the <a href="#">policy rule</a> command.
<b>Counter Color Mode</b>	The counter color mode configured for the TCM policy action using the <a href="#">policy action cir</a> command.
<b>Green</b>	Packets marked green as a result of the TCM policy action; green packets have a low drop precedence.
<b>Red</b>	Packets marked red as a result of the TCM policy action; red packets are always dropped.
<b>Yellow</b>	The number of packets marked yellow as a result of the TCM policy action; yellow packets have a high drop precedence.
<b>Non-Green</b>	The number of yellow and red packets combined.
<b>Non-Red</b>	The number of green and yellow packets combined.

---

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<a href="#">policy action cir</a>	Configures a TCM policy action, including the counter color mode for the action.
<a href="#">qos stats reset</a>	Resets QoS statistic counters to zero.
<a href="#">show policy action</a>	Displays information for policy actions configured on the switch.
<a href="#">show policy rule</a>	Displays information for policy rules configured on the switch.

## MIB Objects

```
alaQoSRuleTable  
  alaQoSRuleName  
  alaQoSRuleGreenCount  
  alaQoSRuleRedCount  
  alaQoSRuleYellowCount  
  alaQoSRuleNonGreenCount  
  alaQoSRuleNonRedCount  
alaQoSAppliedRuleTable  
  alaQoSAppliedRuleName  
  alaQoSAppliedRuleGreenCount
```

```
alaQoSAppliedRuleRedCount
alaQoSAppliedRuleYellowCount
alaQoSAppliedRuleNonGreenCount
alaQoSAppliedRuleNonRedCount
alaQoSActionTable
  alaQoSActionCounterColor
alaQoSAppliedActionTable
  alaQoSAppliedActionCounterColor
```

---

## show policy rule

Displays information about pending and applied policy rules.

```
show [applied] [bridged | routed | multicast] policy rule [rule_name]
```

---

### Syntax Definitions

<b>applied</b>	Indicates that only policy rules that have been applied should be displayed.
<b>bridged</b>	Displays rules that apply to bridged traffic.
<b>routed</b>	Displays rules that apply to routed traffic.
<b>multicast</b>	Displays rules that apply to multicast traffic.
<i>rule_name</i>	The name of the rule for which you want to display information; or a wildcard sequence of characters for displaying information about rules with similar names. Use an asterisk (*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all rules is displayed unless *rule\_name* is specified.
- Information for all rule types is displayed unless a keyword (**bridged**, **routed**, **multicast**) is specified.
- Use the **show active policy rule** command to display only active rules that are currently being enforced on the switch.
- The display may include any of the following characters:

---

<b>character</b>	<b>definition</b>
+	Indicates that the policy rule has been modified or has been created since the last <b>qos apply</b> .
-	Indicates the policy object is pending deletion.
#	Indicates that the policy object differs between the pending/applied objects.

---

## Examples

```

-> show policy rule
      Policy
r1      From Prec Enab  Act Refl Log Trap Save Def
(L2/3): cli    0  Yes   Yes  No  No  Yes  Yes Yes
        c1 -> a1

r2      cli    0  Yes   Yes  No  No  Yes  Yes Yes
(L2/3): c2 -> a2

+r3     cli    0  Yes   Yes  No  No  Yes  Yes No
(L2/3): c2 -> a3

+r4     cli    0  Yes   Yes  No  No  Yes  Yes No
(L2/3): c1 -> a1

-> show applied policy rule
      Policy
r1      From Prec Enab  Act Refl Log Trap Save Def
(L2/3): cli    0  Yes   Yes  No  No  Yes  Yes Yes

r2      cli    0  Yes   Yes  No  No  Yes  Yes Yes
(L2/3): c2 -> a2

```

### *output definitions*

<b>Policy</b>	The name of the policy rule, configured through the <b>policy rule</b> command. A plus sign (+) preceding a policy rule name indicates that the policy rule has been modified or has been created since the last <b>qos apply</b> .
<b>From</b>	Where the rule originated.
<b>Prec</b>	The precedence of the rule. Precedence determines the order in which the switch will apply rules. Configured through the
<b>Enab</b>	Whether or not the rule is enabled.
<b>Act</b>	Whether or not the rule is enforceable by the switch (e.g., qos is enabled, rule is valid and enabled, validity period is active).
<b>Refl</b>	Whether the rule is reflexive or not.
<b>Log</b>	Whether or not the switch will log messages about specific flows coming into the switch that match this policy rule. Configured through the <b>policy rule</b> command.
<b>Trap</b>	Whether or not traps are enabled for the rule. Configured through the <b>policy rule</b> command. A trap is sent when a port is administratively disabled through a port disable action or a UserPort shutdown function.
<b>Save</b>	Whether the rule will be captured in an ASCII text file (using the <b>configuration snapshot</b> command), saved to the working directory after the <b>write memory</b> command or <b>reload issu</b> command is entered, or saved after a reboot. Configured through the <b>policy rule</b> command.

*output definitions*

---

<b>Def</b>	Whether or not the rule is a member of the default policy list. Configured through the <b>policy rule</b> command.
<b>{L2/3}</b>	The condition and the action associated with the rule; configured through the <b>policy condition</b> and <b>policy action</b> commands respectively.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.1; **Trap** column added; **Inact** column changed to **Act**.

Release 6.3.4; **Def** column added.

**Related Commands**

**show active policy rule** Displays only those policy rules that are currently being enforced on the switch.

**show policy list** Displays information for policy lists configured on the switch.

**MIB Objects**

```
alaQoSRuleTable
  alaQoSRuleName
  alaQoSRuleEnabled
  alaQoSRuleSource
  alaQoSRulePrecedence
  alaQoSRuleActive
  alaQoSRuleReflexive
  alaQoSRuleLog
  alaQoSRuleTrapEvents
  alaQoSRuleSave
  alaQoSRuleDefaultList
  alaQoSRuleCondition
  alaQoSRuleAction
```

---



*output definitions*

---

<b>Days</b>	The days of the week the validity period is active, configured through the <b>policy validity period</b> command. If this field does not appear, then the validity period is not restricted to specific days.
<b>Months</b>	The months during which the validity period is active, configured through the <b>policy validity period</b> command. If this field does not appear, then the validity period is not restricted to specific months.
<b>Hours</b>	The time of day the validity period begins and ends, configured through the <b>policy validity period</b> command. If this field does not appear, then the validity period is not restricted to a specific time.
<b>Interval</b>	The date and time a validity period interval begins and ends, configured through the <b>policy validity period</b> command. If this field does not appear, then the validity period is not restricted to a specific date and time interval.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**policy validity period** Configures a validity period that specifies days, times, and/or months during which an associated policy rule is in effect.

**MIB Objects**

```
alaQoSValidityPeriodTable
  alaQoSValidityPeriodName
  alaQoSValidityPeriodSource
  alaQoSValidityPeriodDays
  alaQoSValidityPeriodDaysStatus
  alaQoSValidityPeriodMonths
  alaQoSValidityPeriodMonthsStatus
  alaQoSValidityPeriodHour
  alaQoSValidityPeriodHourStatus
  alaQoSValidityPeriodEndHour
  alaQoSValidityPeriodInterval
  alaQoSValidityPeriodIntervalStatus
  alaQoSValidityPeriodEndInterval
alaQoSAppliedValidityPeriodTable
  alaQoSAppliedValidityPeriodName
  alaQoSAppliedValidityPeriodSource
  alaQoSAppliedValidityPeriodDays
  alaQoSAppliedValidityPeriodDaysStatus
  alaQoSAppliedValidityPeriodMonths
  alaQoSAppliedValidityPeriodMonthsStatus
  alaQoSAppliedValidityPeriodHour
  alaQoSAppliedValidityPeriodHourStatus
  alaQoSAppliedValidityPeriodEndHour
  alaQoSAppliedValidityPeriodInterval
  alaQoSAppliedValidityPeriodIntervalStatus
  alaQoSAppliedValidityPeriodEndInterval
```

---

## show active policy list

Displays information about applied policy lists that are active (enabled) on the switch.

**show active policy list** [*list\_name*]

---

### Syntax Definitions

*list\_name* The name of the list for which you want to display information; or a wildcard sequence of characters for displaying information about lists with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all active rules is displayed unless a *list\_name* is specified.
- Use the [show policy list](#) command to display inactive as well as active policy lists.
- Applied lists may or may not be active on the switch. Applied lists are inactive if they have been administratively disabled with the **disable** option in the **policy list** command.
- The display may include any of the following characters:

character	definition
+	Indicates that the policy list has been modified or has been created since the last <b>qos apply</b> .
-	Indicates the policy list is pending deletion.
#	Indicates that the policy list differs between the pending/applied lists.

### Examples

```
-> show active policy list
Group Name                From  Type  Enabled  Entries
-----
list1                     cli   unp   Yes      r1
                           r2
+list2                    cli   unp   Yes      r3
egress_list1             cli   egress Yes      r1
                           r2
                           r3
```



*output definitions*

---

<b>Group Name</b>	The name of the policy list. Configured through the <b>policy list</b> command. A plus sign (+) preceding a policy list name indicates that the list was modified or created since the last <b>qos apply</b> .
<b>From</b>	Where the list originated.
<b>Type</b>	The type of rule ( <b>unp</b> or <b>egress</b> ). Configured through the <b>policy list</b> command. Note that the default policy list is not shown. Use the <b>show policy rule</b> command to display rules that are members of the default policy list.
<b>Enabled</b>	Whether or not the rule is enabled. Configured through the <b>policy list</b> command.
<b>Entries</b>	The QoS policy rules that are grouped together in this policy list. Configured through the <b>policy list</b> command.

---

**Release History**

Release 6.3.4; command was introduced.  
Release 6.4.3; **egress** policy list type supported.

**Related Commands**

**show policy list** Displays information about pending and applied policy lists.  
**show policy rule** Displays information about pending and applied policy rules

**MIB Objects**

```
alaQoSRuleGroupsTable
  alaQoSRuleDefaultList
  alaQoSRuleGroupsName
  alaQoSRuleGroupsSource
  alaQoSRuleGroupsType
  alaQoSRuleGroupsEnabled
  alaQoSRuleGroupsStatus
alaQoSAppliedRuleGroupsTable
  alaQoSAppliedRuleGroupsName
  alaQoSAppliedRuleGroupsSource
  alaQoSAppliedGroupsType
  alaQoSAppliedGroupsEnabled
  alaQoSAppliedRuleGroupsStatus
```

---

## show policy list

Displays information about pending and applied policy lists.

**show [applied] policy list** [*list\_name*]

---

### Syntax Definitions

**applied** Displays only those policy lists that have been applied to the switch configuration.

*list\_name* The name of the list for which you want to display information; or a wildcard sequence of characters for displaying information about lists with similar names. Use an asterisk (\*) to indicate a wildcard character.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Information for all rules is displayed unless a *list\_name* is specified.
- Use the [show active policy list](#) command to display only active policy lists that are currently enforced on the switch.
- The display may include any of the following characters:

character	definition
+	Indicates that the policy list has been modified or has been created since the last <b>qos apply</b> .
-	Indicates the policy list is pending deletion.
#	Indicates that the policy list differs between the pending/applied lists.

### Examples

```
-> show policy list
Group Name          From  Type  Enabled  Entries
list1               cli   unp   Yes      r1
                   r2
+list2              cli   unp   Yes      r3
egress_list1       cli   egress No       r1
                   r2
                   r3
```

```

-> show applied policy list
Group Name           From  Type  Enabled  Entries
list1                cli   unp   Yes      r1
                   r2

egress_list1        cli   egress No       r1
                   r2
                   r3

```

### *output definitions*

---

<b>Group Name</b>	The name of the policy list. Configured through the <b>policy list</b> command. A plus sign (+) preceding a policy list name indicates that the list was modified or created since the last <b>qos apply</b> .
<b>From</b>	Where the list originated.
<b>Type</b>	The type of rule ( <b>unp</b> or <b>egress</b> ). Configured through the <b>policy list</b> command. Note that the default policy list is not shown. Use the <b>show policy rule</b> command to display rules that are members of the default policy list.
<b>Enabled</b>	Whether or not the rule is enabled. Configured through the <b>policy list</b> command.
<b>Entries</b>	The QoS policy rules that are grouped together in this policy list. Configured through the <b>policy list</b> command.

---

## Release History

Release 6.3.4; command was introduced.  
 Release 6.4.3; **egress** policy list type supported.

## Related Commands

**show active policy list** Displays only those policy lists that are currently being enforced on the switch.

**show policy rule** Displays information about pending and applied policy rules

## MIB Objects

```

alaQoSRuleGroupsTable
  alaQoSRuleDefaultList
  alaQoSRuleGroupsName
  alaQoSRuleGroupsSource
  alaQoSRuleGroupsType
  alaQoSRuleGroupsEnabled
  alaQoSRuleGroupsStatus
alaQoSAppliedRuleGroupsTable
  alaQoSAppliedRuleGroupsName
  alaQoSAppliedRuleGroupsSource
  alaQoSAppliedGroupsType
  alaQoSAppliedGroupsEnabled
  alaQoSAppliedRuleGroupsStatus

```

---



# 34 Policy Server Commands

This chapter describes CLI commands used for managing policies downloaded to the switch from an attached LDAP server. Policy rules may be created on an attached server through the PolicyView GUI application. Policy rules may also be created on the switch directly through CLI or SNMP commands. This chapter describes commands related to managing LDAP policies only. See [Chapter 32, “QoS Commands,”](#) for information about commands for creating and managing policies directly on the switch.

The policy commands are based on RFC 2251 and RFC 3060.

MIB information for policy server commands is as follows:

*Filename:* alcatelIND1policy.mib  
*Module:* ALCATEL-IND1-POLICY-MIB

The policy server commands are summarized here:

---

**[policy server load](#)**  
**[policy server flush](#)**  
**[policy server](#)**  
**[show policy server](#)**  
**[show policy server long](#)**  
**[show policy server statistics](#)**  
**[show policy server rules](#)**  
**[show policy server events](#)**

---

## policy server load

Downloads policies from a LDAP server. These policies are created through the PolicyView management application.

**policy server load**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Policies are downloaded to the switch from the directory server with the highest preference setting; this server must be enabled and operational (able to bind).

### Examples

```
-> policy server load
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[policy server flush](#) Removes all cached LDAP policy data from the switch.

### MIB Objects

```
serverPolicyDecision
```

---

## policy server flush

Removes all cached LDAP policy data from the switch.

**policy server flush**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to remove LDAP policies. Policies configured through the CLI or SNMP are not removed.

### Examples

```
-> policy server flush
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### [policy server load](#)

Downloads policies from a LDAP server. These policies are created through the PolicyView management application.

### MIB Objects

```
serverPolicyDecision
```

---

## policy server

Configures operational parameters for an LDAP-enabled directory server on which policies are stored.

**policy server** *ip\_address* [**port** *port\_number*] [**admin** {**up** | **down**}] [**preference** *preference*] [**user** *user\_name* **password** *password*] [**searchbase** *search\_string*] [**ssl** | **no ssl**]

**no policy server** *ip\_address* [**port** *port\_number*]

---

### Syntax Definitions

<i>ip_address</i>	The IP address of the LDAP-enabled directory server.
<i>port_number</i>	The TCP/IP port number used by the switch to connect to the directory server.
<b>up</b>	Enables the specified policy server to download rules to the switch (servers are <b>up</b> by default.)
<b>down</b>	Prevents the specified policy server from downloading rules to the switch.
<i>preference</i>	Determines which directory server is used for policy downloads when multiple servers are configured. The range is 0–255. The server with the highest value is used as the policy server. If that server becomes unavailable, the server with the next highest preference value is used for policy downloads.
<i>user_name</i>	The user name for accessing the database entries on the directory server. When spaces are used in the user name, quotation marks must be included: “ <b>Directory Manager</b> ” is an example.
<i>password</i>	The password associated with the user name. The password must match the password defined on the directory server.
<i>search_string</i>	The root of the directory on the search that will be searched for policy information. Typically, the <i>search_string</i> includes <b>o=organization</b> and <b>c=country</b> . For example, <b>o=company</b> and <b>c=country</b> .
<b>ssl</b>	Enables a Secure Socket Layer between the switch and the policy server.
<b>no ssl</b>	Disables a Secure Socket Layer between the switch and the policy server.



## Defaults

<b>parameter</b>	<b>default</b>
<b>admin</b>	<b>up</b>
<i>port_number</i>	389 (SSL disabled) 636 (SSL enabled)
<i>preference</i>	0
<b>ssl   no ssl</b>	<b>no ssl</b>

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

If you change the port number, another entry is added to the policy server table; an existing port number is not changed. To remove a port number, use the **no** form of this command with the relevant policy server IP address and the port number you want to remove.

## Examples

```
-> policy server 222.22.22.2 port 345 user dirmgr password secret88 searchbase  
ou=qos,o=company,c=country
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[show policy server](#) Displays information about policies downloaded from an LDAP server.

## MIB Objects

```
DIRECTORYSERVERTABLE  
  directoryServerAddress  
  directoryServerPort  
  directoryServerAdminStatus  
  directoryServerPreference  
  directoryServerUserId  
  directoryServerAuthenticationType  
  directoryServerPassword  
  directoryServerSearchbase  
  directoryServerEnableSSL
```

---

## show policy server

Displays information about servers from which policies may be downloaded to the switch.

**show policy server**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays basic information about policy servers. Use the **show policy server long** command to display more details about the servers.

### Examples

```
-> show policy server
```

```
Server  IP Address  port  enabled  status  primary
-----+-----+-----+-----+-----+-----
   1    208.19.33.112  389    Yes     Up      X
   2    208.19.33.66   400    No      Down    -
```

### *output definitions*

---

<b>Server</b>	The index number corresponding to the LDAP server.
<b>IP Address</b>	The IP address of the LDAP server.
<b>port</b>	The TCP/IP port number used by the switch to connect to the policy server.
<b>enabled</b>	Whether or not the policy server is enabled.
<b>status</b>	The state of the policy server, <b>Unkn</b> , <b>Up</b> or <b>Down</b> .
<b>primary</b>	Indicates whether the server is the primary server; this server will be used for the next download of policies; only one server is a primary server.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [policy server](#)

Configures operational parameters for an LDAP-enabled directory server on which policies are stored.

## MIB Objects

```
directoryServerTable
  directoryServerAddress
  directoryServerPort
  directoryServerAdminState
```

---

## show policy server long

Displays more detailed information about an LDAP policy server.

**show policy server long**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays detailed information about policy servers. Use the **show policy server** command to display basic information about policy servers.

### Examples

```
-> show policy server long
LDAP server 0
  IP address       : 155.132.44.98,
  TCP port         : 16652,
  Enabled          : Yes,
  Operational status : Unkn,
  Preference       : 99,
  Authentication   : password,
  SSL              : Disabled,
  login DN         : cn=Directory Manager,
  searchbase       : ou:4.1, cn=policyRoot, o=company.fr
  Last load time   : 09/13/01 16:38:18
LDAP server 1
  IP address       : 155.132.48.27,,
  TCP port         : 21890,
  Enabled          : Yes,
  Operational status : Unkn,
  Preference       : 50,
  Authentication   : password,
  SSL              : Disabled,
  login DN         : cn=Directory Manager,
  searchbase       : o=company.fr
  Last load time   : 00/00/00 00:00:00
```

### *output definitions*

---

<b>IP address</b>	The IP address of the policy server.
<b>TCP port</b>	The TCP/IP port number used by the switch to connect to the policy server.

*output definitions (continued)*

---

<b>Enabled</b>	Whether or not the policy server is enabled via the PolicyView application.
<b>Operational status</b>	The state of the policy server, <b>Up</b> or <b>Down</b> .
<b>Preference</b>	Determines which directory server is used for policy downloads when multiple servers are configured. The range is 0–255. The server with the highest value is used as the policy server. If that server becomes unavailable, the server with the next highest preference value is used for policy downloads.
<b>Authentication</b>	Displays <b>password</b> if a user name and password was specified for the server through the <b>policy server</b> command. Displays <b>anonymous</b> if a user name and password are not configured.
<b>login DN</b>	The directory user name.
<b>searchbase</b>	The searchbase name, which is the root of the directory that will be searched for policy download information.
<b>Last load time</b>	The date and time that policies were last downloaded. Values of zero indicate that no policies have been downloaded.

---

**Release History**

Release 6.1; command was introduced.

**MIB Objects**

```
directoryServerTable
  directoryServerAddress
  directoryServerPort
  directoryServerPreference
  directoryServerAuthenticationType
  directoryServerSearchbase
  directoryServerUserId
  directoryServerPassword
  directoryServerCacheChange
  directoryServerLastChange
  directoryServerAdminStatus
  directoryServerOperStatus
```

---

## show policy server statistics

Displays statistics about policy directory servers.

**show policy server statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays statistics about server downloads. For information about server parameters, use the **show policy server** command.

### Examples

```
-> show policy server statistics
Server  IP Address      port  accesses  delta  successes delta  errors  delta
-----+-----+-----+-----+-----+-----+-----+-----+-----
   1    155.132.44.98 16652    793     793     295     295     0       0
   2    155.132.48.27 21890     0       0       0       0     0       0
```

### output definitions

---

<b>Server</b>	The index number corresponding to the server.
<b>IP Address</b>	The IP address of the LDAP server.
<b>port</b>	The TCP/IP port number used by the switch to connect to the policy server.
<b>accesses</b>	The number of times the server was polled by the switch to download policies.
<b>delta</b>	The change in the number of accesses since the last time the policy server was accessed.
<b>successes</b>	The number of times the server was polled by the switch to download policies and the policies were successfully downloaded.
<b>delta</b>	The change in the number of successful policy downloads since the last time the policy server was accessed.
<b>errors</b>	The number of errors returned by the server.
<b>delta</b>	The change in the number of errors returned by the server since the last time the policy server was accessed.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### [policy server](#)

Configures operational parameters for an LDAP-enabled directory server on which policies are stored.

## MIB Objects

policyStatsTable

    policyStatsAddress

    policyStatsServerPort

    policyStatsAccessCount

    policyStatsSuccessAccessCount

    policyStatsNotFoundCount

---

## show policy server rules

Displays the names of policies originating on a directory server that have been downloaded to the switch.

**show policy server rules**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays information about policies created on directory servers only. [Chapter 32, “QoS Commands,”](#) for information about configuring and displaying policies directly on the switch.

### Examples

```
-> show policy server rules
Num      name          prio      scope      status
-----+-----+-----+-----+-----
1         QoSRule1       0         Provisioned Active
2         QoSrule2       0         Provisioned Active
```

Fields are defined here:

#### *output definitions*

---

<b>Num</b>	An index number corresponding to the policy rule.
<b>name</b>	The name of the policy rule; only rules configured through PolicyView are displayed in this table.
<b>prio</b>	The priority or preference of the rule. Indicates the order in which rules will be checked for matching to incoming traffic. If two or more rules apply to the traffic, the rule with the highest preference is applied. Preference is determined when the rule is created.
<b>scope</b>	The type of rule. <b>Provisioned</b> is the only type valid currently.
<b>status</b>	The status of the rule: <b>Active</b> indicates that the rule has been pushed to the QoS software in the switch and is available to apply to traffic; <b>notInService</b> means the rule may be pushed to the QoS software in the future but is not available yet (typically because of a variable validity period); <b>notReady</b> indicates that the rule will never be pushed to the QoS software because its validity period has expired or because it has been disabled through SNMP.

---



## Release History

Release 6.1; command was introduced.

## Related Commands

### [policy server load](#)

Downloads policies from a LDAP server. These policies are created through the PolicyView management application.

## MIB Objects

```
policyRuleNamesTable  
  policyRuleNamesIndex  
  policyRuleNamesName  
  policyRuleOperStatus
```

---

## show policy server events

Displays any events related to a directory server on which policies are stored.

**show policy server events**

---

### Syntax Definitions

N/A

### Defaults

The display is limited to 50 events.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The Policy Manager initialization event is always the first event logged.

### Examples

```
-> show policy server events
  Event Time                event description
-----+-----
09/13/01 16:38:15 Policy manager log init
09/13/01 16:38:17 LDAP server 155.132.44.98/16652 defined
09/13/01 16:38:17 LDAP server 155.132.44.98/21890 defined
09/13/01 16:38:18 PDP optimization: PVP day-of-week all 1
09/13/01 16:38:18 PDP optimization: PVP Month all 1
09/13/01 16:38:18 PDP optimization: PVP Month all 1
09/13/01 16:38:18 PDP optimization: PVP Month all 1
09/13/01 16:38:18 PDP optimization: PVP Month all 1
09/13/01 16:38:18 IP address and mask make bad address change on desination IP
address 155.132.44.98:155.132.44.101
```

:

#### *output definitions*

---

<b>Event Time</b>	The date and time the policy event occurred.
<b>event description</b>	A description of the event.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [policy server](#)

Configures operational parameters for an LDAP-enabled directory server on which policies are stored.

## MIB Objects

```
policyEventTable
  policyEventCode
  policyEventDetailString
  policyEventIndex
  policyEventTime
```

---



# 35 802.1X Commands

This chapter includes information about commands used for configuring and viewing port-specific 802.1X parameters. Included in this command set are specific commands used to configure Access Guardian policies (also referred to as device classification policies) for 802.1X ports.

MIB information for the 802.1X port commands is as follows:

*Filename:* IEEE\_8021X.mib  
*Module:* IEEE8021-PAE-MIB

A summary of the available commands is listed here:

---

<b>802.1X port commands</b>	<b>802.1x</b> <b>802.1x initialize</b> <b>802.1x re-authenticate</b> <b>802.1x supp-polling retry</b> <b>show 802.1x</b> <b>show 802.1x statistics</b> <b>show 802.1x non-supplicant</b>
<b>Access Guardian commands</b>	<b>802.1x supplicant bypass</b> <b>802.1x non-supplicant allow-eap</b> <b>802.1x supplicant policy authentication</b> <b>802.1x non-supplicant policy authentication</b> <b>802.1x non-supplicant policy</b> <b>802.1x policy default</b> <b>802.1x captive-portal policy authentication</b> <b>802.1x captive-portal name</b> <b>802.1x captive-portal session-limit</b> <b>802.1x captive-portal inactivity-logout</b> <b>802.1x captive-portal retry-count</b> <b>802.1x captive-portal address</b> <b>802.1x captive-portal proxy-server-url</b> <b>802.1x captive-portal proxy-server-port</b> <b>802.1x captive-portal dns-keyword-list</b> <b>802.1x captive-portal success-redirect-url</b> <b>802.1x captive-portal fail-redirect-url</b> <b>802.1x auth-server-down</b> <b>802.1x auth-server-down policy</b> <b>802.1x auth-server-down re-authperiod</b> <b>show 802.1x device classification policies</b> <b>show 802.1x captive-portal configuration</b> <b>show 802.1x auth-server-down</b>

---

## 802.1x

Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.

**802.1x** *slot/port* [**direction** {**both** | **in**}] [**port-control** {**force-authorized** | **force-unauthorized** | **auto**}] [**quiet-period** *seconds*] [**tx-period** *seconds*] [**supp-timeout** *seconds*] [**server-timeout** *seconds*] [**max-req** *max\_req*] [**re-authperiod** *seconds*] [**reauthentication** | **no reauthentication**]

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>both</b>	Configures bidirectional control on the port.
<b>in</b>	Configures control over incoming traffic only.
<b>force-authorized</b>	Forces the port control to be authorized, which means that the port is open without restrictions and behaves as any other non-802.1X port. Devices do not need to authenticate to traffic through the port.
<b>force-unauthorized</b>	Forces the port control to be unauthorized, which means the port cannot accept any traffic.
<b>auto</b>	Configures the switch to dynamically control the port control status based on authentication exchanges between the 802.1X end station and the switch. Initially the port is in an unauthorized state; it becomes authorized if a device successfully completes an 802.1X authentication exchange with the switch.
<b>quiet-period</b> <i>seconds</i>	The time during which the port will not accept an 802.1X authentication attempt; the timer is activated after any authentication failure. During the time period specified, the switch will ignore and discard all Extensible Authentication Protocol over LAN (EAPOL) packets. The range is 0 to 65535 seconds.
<b>tx-period</b> <i>seconds</i>	The time before an EAP Request Identity will be re-transmitted. The range is 1 to 65535 seconds.
<b>supp-timeout</b> <i>seconds</i>	The number of seconds before the switch will time out an 802.1X user who is attempting to authenticate. The value should be modified to be a greater value if the authentication process will require additional steps by the user (for example, entering a challenge).
<b>server-timeout</b> <i>seconds</i>	The timeout for the authentication server for authentication attempts. This value is always superseded by the value configured for the RADIUS authentication server configured through the <b>aaa radius-server</b> command.
<i>max_req</i>	The maximum number of times the switch will retransmit a request for authentication information (request identity, password, challenge, etc.) to the 802.1X user before it times out the authentication session based on the <b>supp-timeout</b> . The range is 1 to 10.

<b>re-authperiod</b> <i>seconds</i>	The amount of time that must expire before the switch requires re-authentication of the Supplicant on this port. Only applicable when re-authentication is enabled.
<b>reauthentication</b>	Specifies that the port will be reauthenticated after the <b>re-authperiod</b> timer expires.
<b>no reauthentication</b>	Specifies that the port will not be reauthenticated unless the <b>802.1x re-authenticate</b> command is entered.

### Defaults

parameter	default
<b>both</b>   <b>in</b>	both
<b>force-authorized</b>   <b>force-unauthorized</b>   <b>auto</b>	auto
<b>quiet-period</b> <i>seconds</i>	60
<b>tx-period</b> <i>seconds</i>	30
<b>supp-timeout</b> <i>seconds</i>	30
<i>max_req</i>	2
<b>re-authperiod</b> <i>seconds</i>	3600
<b>reauthentication</b>   <b>no reauthentication</b>	no reauthentication

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To set the port to accept any traffic without requiring 802.1X authentication, use the **force-authorized** option.
- Use the **vlan port 802.1x** command with the **disable** option to disable 802.1X authentication on the port.
- Before any device is authenticated through an 802.1X port, the port will only process 802.1X frames (EAPoL frames) from an unknown source.
- Note that multiple devices can be authenticated on a given 802.1X port. Each device MAC address received on the port is authenticated and learned separately. Only those that authenticate successfully are allowed on the port, as described above. Those that fail authentication are blocked from accessing the 802.1X port.

### Examples

```
-> 802.1x port 3/1 quiet-period 30
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">aaa authentication 802.1x</a>	Enables/disables the switch for 802.1X authentication.
<a href="#">vlan port 802.1x</a>	Enables or disables 802.1X port-based access control on a mobile port.
<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
<a href="#">802.1x captive-portal address</a>	Displays information about ports configured for 802.1X.

## MIB Objects

```
dot1xPaePortTable
  dot1xPaePortNumber
  dot1xPaePortInitialize
  dot1xPaePortReauthenticate
dot1xAuthConfigTable
  dot1xAuthAdminControlledDirections
  dot1xAuthOperControlledDirections
  dot1xAuthAuthControlledPortStatus
  dot1xAuthAuthControlledPortControl
  dot1xAuthQuietPeriod
  dot1xAuthTxPeriod
  dot1xAuthSuppTimeout
  dot1xAuthServerTimeout
  dot1xAuthMaxReq
  dot1xAuthReAuthPeriod
  dot1xAuthReAuthEnabled
```

---







## 802.1x supp-polling retry

Configures the number of times to poll a device for EAP frames to determine whether or not the device is an 802.1x client.

**802.1x slot/port supp-polling retry retries**

---

### Syntax Definitions

<i>slot</i>	The slot number of the 802.1x port.
<i>port</i>	The 802.1x port number.
<i>retries</i>	The number of times a device is polled for EAP frames (0–99).

### Defaults

By default, the number of retries is set to 2.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guideline

- The polling interval is 0.5 seconds between each retry.
- If no EAP frames are received from a device connected to an 802.1x port, the device is considered a non-802.1x client (non-supPLICANT).
- Specify **0** for the number of retries to bypass polling attempts and automatically classify the device connected to the 802.1x port as a non-supPLICANT.
- Any devices previously authenticated on the port remain authenticated; however, re-authentication will not occur.
- If a guest VLAN is configured on the 802.1x port, the non-802.1x client is assigned to the guest VLAN. If a guest VLAN does not exist, the device is blocked from accessing the 802.1x port.

### Examples

```
-> 802.1x 3/1 supp-polling retry 5
-> 802.1x 3/9 supp-polling retry 10
-> 802.1x 2/1 supp-polling retry 0
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; command modified to accept **0** for the number of retries.

## Related Commands

**show 802.1x**

Displays information about ports configured for 802.1X.

**show 802.1x non-supplicant**

Displays a list of all non-802.1x supplicants learned on one or more 802.1x ports.

## MIB Objects

alaDot1xSuppPollingCnt

---

## 802.1x supplicant bypass

Configures whether or not MAC authentication is applied first to any client device (supplicant or non-supplicant) that is trying to connect through the specified 802.1x port.

**802.1x slot/port supplicant bypass {enable | disable}**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>enable</b>	Enables supplicant bypass on the specified port; MAC authentication is performed first.
<b>disable</b>	Disables supplicant bypass on the specified port; 802.1x authentication is attempted first.

### Defaults

By default, supplicant bypass is disabled; 802.1x authentication is attempted first.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command together with the **802.1x non-supplicant allow-eap** command to initiate MAC authentication first on any device and then specify whether or not subsequent 802.1x authentication is also performed on that same device.
- This command is only supported on 802.1x ports configured for auto access control mode. See the **802.1x** command for more information about configuring the access control mode.
- Configuring 802.1x supplicant bypass is not allowed on ports where the 802.1x supplicant polling retry count is set to zero. Both operations are mutually exclusive on the same port.
- If supplicants are already connected to the specified port when 802.1x bypass is enabled for that port, the supplicants are automatically logged off to undergo authentication according to the enabled bypass configuration.
- When the 802.1x bypass configuration is modified or disabled, any non-supplicant devices are automatically logged off the port. This will free up those devices to undergo the authentication specified by the new bypass configuration.
- If re-authentication is configured for the 802.1x port and supplicant bypass is enabled, the MAC authentication followed by 802.1x authentication are initially performed as configured. However, only 802.1x authentication is performed during the re-authentication process, so there is no recheck to see if the MAC address of the user device is restricted.

### Examples

```
-> 802.1x 3/1 supplicant bypass enable  
-> 802.1x 3/1 supplicant bypass disable
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

<a href="#">802.1x</a>	Configures 802.1x parameters for the specified port.
<a href="#">802.1x non-suppliant allow-eap</a>	Configures whether or not subsequent 802.1x authentication is attempted based on the MAC authentication results.
<a href="#">show 802.1x</a>	Displays the 802.1x configuration for the port.

## MIB Objects

alaDot1xAuthPolicyTable  
alaDot1xSuppliantBypass

---

## 802.1x non-supplicant allow-eap

Configures whether or not the switch attempts subsequent 802.1x authentication for a device connected to an 802.1x bypass-enabled port. When 802.1x bypass is enabled on the port, MAC authentication is performed first on any device connected to that port. This command specifies the conditions under which 802.1x authentication is performed or bypassed after the initial MAC authentication process.

**802.1x slot/port non-supplicant allow-eap {pass | fail | noauth | none}**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>pass</b>	Allows 802.1x (EAP frame) authentication if the supplicant passes MAC authentication.
<b>fail</b>	Allows 802.1x (EAP frame) authentication if the supplicant fails MAC authentication.
<b>noauth</b>	Allows 802.1x (EAP frame) authentication if there is no MAC authentication configured on the port.
<b>none</b>	Prevents 802.1x authentication; only MAC authentication is performed on any device accessing this port.

### Defaults

By default, only MAC authentication is applied to the supplicant device (802.1x classification is not performed on the supplicant device).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The port specified with this command must also have 802.1x bypass enabled (see the [802.1x supplicant bypass](#) command). If bypass is not enabled, this command is not configurable and MAC authentication will not take precedence over 802.1x authentication.
- Using this command with the **none** parameter is similar to setting the supplicant polling retry counter to zero (see the [802.1x supp-polling retry](#) command). However, the functionality configured with each command differs as follows:
  - When the supplicant polling retry is set to zero, EAP frames are ignored. MAC authentication is only triggered when a non-EAP frame is received, which is when the supplicant times out and is in an open state.
  - When the allow EAP is set to none, EAP frames are ignored but MAC authentication is triggered when the first EAP frame is received and the supplicant is not in an open state.
- When successful MAC authentication returns a VLAN ID or User Network Profile (UNP) and the 802.1x bypass operation is configured to initiate 802.1x authentication when a device passes MAC authentication, the device is *not* moved into that VLAN or UNP. Instead, the device is moved into the

VLAN or UNP returned by 802.1x authentication. If 802.1x authentication does not provide such information, the device is moved based on the supplicant device classification policies.

### Examples

```
-> 802.1x 3/1 non-supPLICant allow-eap pass
-> 802.1x 4/1 non-supPLICant allow-eap fail
-> 802.1x 5/1 non-supPLICant allow-eap noauth
-> 802.1x 6/1 non-supPLICant allow-eap none
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<a href="#">802.1x</a>	Configures 802.1x parameters for the specified port.
<a href="#">802.1x supplicant bypass</a>	Configures the 802.1x bypass operation status for the 802.1x port.
<a href="#">show 802.1x</a>	Displays the 802.1x configuration for the port.
<a href="#">show 802.1x device classification policies</a>	Displays device classification policies configured for an 802.1x port.

### MIB Objects

```
alaDot1xAuthPolicyTable
  alaDot1xSBAAllowEAP
```

---



## 802.1x supplicant policy authentication

Configures a supplicant device classification policy for an 802.1x port. This type of policy uses 802.1x authentication via a remote RADIUS server. A supplicant is any device that uses the 802.1x protocol for authentication.

**802.1x slot/port supplicant policy authentication** [[pass] {group-mobility | user-network-profile profile\_name | vlan vid | default-vlan | block | captive-portal}...] [[fail] {user-network-profile profile\_name | vlan vid | block | captive-portal}...]

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>pass</b>	Indicates which policies to apply if 802.1x authentication is successful but does not return a VLAN ID.
<b>fail</b>	Indicates which policies to apply if 802.1x authentication fails or if successful authentication returns a VLAN ID that does not exist.
<b>group-mobility</b>	Use Group Mobility rules for device classification.
<i>profile_name</i>	The name of an existing User Network Profile (UNP) to use for device classification.
<i>vid</i>	Use this VLAN ID number for device classification.
<b>default-vlan</b>	Assigns supplicant to the default VLAN for the 802.1x port.
<b>block</b>	Blocks supplicant access on the 802.1x port.
<b>captive-portal</b>	Use Captive Portal for web-based device classification.

### Defaults

When 802.1x is enabled on the port, a default supplicant policy is defined for the port. This policy uses the **group-mobility** and **default-vlan** parameters for the **pass** case and the **block** parameter for the **fail** case.

When the **802.1x supplicant policy authentication** command is used without specifying any parameters, the following values for the **pass** and **fail** case are configured by default:

parameter	default
<b>pass</b>	block
<b>fail</b>	block

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Supplicant device classification policies are applied only when successful 802.1x authentication *does not* return a VLAN ID, returns a VLAN ID that does not exist, or authentication fails.

- When authentication does return a VLAN ID that exists in the switch configuration, the supplicant is assigned to that VLAN and no further classification is performed.
- If this command is used without specifying any of the optional policy keywords or a **pass/fail** parameter (e.g. **802.1x 1/10 supplicant authentication**), the resulting policy will block supplicants if successful 802.1x authentication *does not* return a VLAN ID, returns a VLAN ID that does not exist, or authentication fails.
- When multiple parameters are configured, the policy is referred to as a compound supplicant policy. Such policies use the **pass** and **fail** parameters to specify which policies to use when 802.1x authentication is successful and which to use when it fails.
- The **pass** keyword is implied and therefore an optional keyword. If the **fail** keyword is not used, the default action is to block the device when authentication fails.
- The order in which parameters are specified determines the order in which they are applied. However, this type of policy must end with either the **default-vlan**, **block**, or **captive-portal** parameters, referred to as terminal parameters (or policies). This applies to both pass and fail policies. If a terminal parameter is not specified, the **block** parameter is used by default.
- If the **captive-portal** parameter is specified with this command, then the Captive Portal authentication policy is applied to supplicant traffic. See the **802.1x captive-portal policy authentication** command page for more information.
- A User Network Profile (UNP) specifies a VLAN assignment for the device, whether or not Host Integrity Check (HIC) is required for the device, and if any QoS access control list (ACL) policies are applied to the device. See the **aaa user-network-profile** command page for information about how to create a UNP.
- Configuring supplicant classification policies is only supported on 802.1x enabled mobile ports.
- Each 802.1x port can have one supplicant policy and one non-supplicant policy for handling 802.1x and non-802.1x devices, respectively. Configuring a new supplicant or non-supplicant policy overwrites any policies that may already exist for the port.

## Examples

```
-> 802.1x 3/1 supplicant policy authentication
-> 802.1x 4/1 supplicant policy authentication vlan 27 default-vlan
-> 802.1x 5/1 supplicant policy authentication group-mobility captive-portal
-> 802.1x 5/10 supplicant policy authentication pass group-mobility default-vlan
fail vlan 43 block
-> 802.1x 6/1 supplicant policy authentication pass group-mobility default-vlan
fail captive-portal
-> 802.1x 4/10 supplicant policy authentication pass user-network-profile fail
captive-portal
```

## Release History

Release 6.1.2; command was introduced.

Release 6.3.4; **user-network-profile**, **captive-portal** parameters added.

## Related Commands

<b>802.1x non-suppliant policy authentication</b>	Configures MAC authentication device classification policies for non-suplicants.
<b>802.1x non-suppliant policy</b>	Configures device classification policies that do not perform 802.1x or MAC authentication for non-suplicants.
<b>802.1x policy default</b>	Resets the device classification policy to the default policy value for the 802.1x port.
<b>show 802.1x device classification policies</b>	Displays device classification policies configured for an 802.1x port.
<b>show 802.1x non-suppliant aaa certificate-password</b>	Displays a list of all non-suplicants learned on all 802.1x ports. Displays a list of all users for one or more 802.1X ports.

## MIB Objects

alaDot1xAuthPolicyTable  
alaDot1xSuppPolicy

---

## 802.1x non-suppliant policy authentication

Configures a non-suppliant device classification policy for an 802.1x port. This type of policy uses MAC authentication via a remote RADIUS server. A non-suppliant is a device that does not support using the 802.1x protocol for authentication.

**802.1x slot/port non-suppliant policy authentication** [[**pass**] {**group-mobility** | **user-network-profile profile\_name** | **vlan vid** | **default-vlan** | **block** | **captive-portal**}] [[**fail**] {**group-mobility** | **user-network-profile profile\_name** | **vlan vid** | **default-vlan** | **block** | **captive-portal**}]

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>pass</b>	Indicates which policies to apply if MAC authentication is successful but does not return a VLAN ID or the VLAN ID returned does not exist.
<b>fail</b>	Indicates which policies to apply if MAC authentication fails.
<b>group-mobility</b>	Use Group Mobility rules for device classification.
<i>profile_name</i>	The name of an existing User Network Profile (UNP) to use for device classification.
<b>vlan vid</b>	Use this VLAN ID number for device classification.
<b>default-vlan</b>	Assigns suppliant to the default VLAN for the 802.1x port.
<b>block</b>	Blocks suppliant traffic on the 802.1x port.
<b>captive-portal</b>	Use Captive Portal for web-based device classification.

### Defaults

When 802.1x is enabled on the port, all non-suppliant traffic is blocked by default.

### Platforms Supported

OmniSwitch 6400, 6800, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Non-suppliant device classification policies are applied only when successful MAC authentication *does not* return a VLAN ID, returns a VLAN ID that does not exist, or MAC authentication fails.
- When MAC authentication does return a VLAN ID that exists in the switch configuration, the suppliant is assigned to that VLAN and no further classification is performed.
- When multiple parameters are configured, the policy is referred to as a compound non-suppliant policy. Such policies use the **pass** and **fail** parameters to specify which policies to use when MAC authentication is successful and which to use when it fails.
- The **pass** keyword is implied and therefore an optional keyword. If the **fail** keyword is not used, the default action is to block the device when authentication fails.

- The order in which the parameters are specified determines the order in which they are applied. However, this type of policy must end with either the **default-vlan** or **block**, or **captive-portal** parameters, referred to as terminal parameters (or policies). This applies to both pass and fail policies. If a terminal parameter is not specified, the **block** parameter is used by default.
- If the **captive-portal** parameter is specified with this command, then the Captive Portal authentication policy is applied to supplicant traffic. See the [802.1x captive-portal policy authentication](#) command page for more information.
- A User Network Profile (UNP) specifies a VLAN assignment for the device, whether or not Host Integrity Check (HIC) is required for the device, and if any QoS access control list (ACL) policies are applied to the device. See the [aaa user-network-profile](#) command page for information about how to create a UNP.
- Configuring non-suppliant classification policies is only supported on 802.1x enabled mobile ports.
- Each 802.1x port can have one supplicant policy and one non-suppliant policy for handling 802.1x and non-802.1x devices, respectively. Configuring a new supplicant or non-suppliant policy overwrites any policies that may already exist for the port.

## Examples

```
-> 802.1x 3/1 non-suppliant policy authentication
-> 802.1x 4/1 non-suppliant policy authentication pass group-mobility fail
default-vlan
-> 802.1x 5/1 non-suppliant policy authentication group-mobility captive-portal
-> 802.1x 5/10 non-suppliant policy authentication vlan 27 fail vlan 500 default-
vlan
-> 802.1x 2/1 non-suppliant policy authentication vlan 10 default-vlan
-> 802.1x 6/1 non-suppliant policy authentication pass group-mobility default-vlan
fail captive-portal
-> 802.1x 4/10 non-suppliant policy authentication pass user-network-profile fail
captive-portal
```

## Release History

Release 6.1.2; command was introduced.

Release 6.3.4; **user-network-profile**, **captive-portal** parameters added.

## Related Commands

<b>802.1x supplicant policy authentication</b>	Configures 802.1x authentication device classification policies for supplicants.
<b>802.1x non-suppliant policy</b>	Configures device classification policies that do not perform 802.1x or MAC authentication for non-suplicants.
<b>802.1x policy default</b>	Resets the device classification policy to the default policy value for the 802.1x port.
<b>show 802.1x device classification policies</b>	Displays device classification policies configured for an 802.1x port.
<b>show 802.1x non-suppliant</b>	Displays a list of all non-suplicants learned on all 802.1x ports.

## MIB Objects

alaDot1xAuthPolicyTable  
alaDot1xNonSuppPolicy

---

## 802.1x non-suppliant policy

Configures a non-suppliant device classification policy for an 802.1x port. This type of policy does not perform any authentication. A non-suppliant is a device that does not support using the 802.1x protocol for authentication.

**802.1x slot/port non-suppliant policy {group-mobility | user-network-profile profile\_name | vlan vid | default-vlan | block | captive-portal}**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>group-mobility</b>	Use Group Mobility rules for device classification.
<i>profile_name</i>	The name of an existing User Network Profile (UNP) to use for device classification.
<b>vlan vid</b>	Use this VLAN ID number for device classification.
<b>default-vlan</b>	Assign suppliant to the default VLAN for the 802.1x port.
<b>block</b>	Block suppliant traffic on the 802.1x port.
<b>captive-portal</b>	Use Captive Portal for web-based device classification.

### Defaults

By default no device classification policies are configured for an 802.1x port.

### Platforms Supported

OmniSwitch 6400, 6800, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Because this policy does not use 802.1x or MAC authentication, only one classification parameter is specified and non-suplicants are only classified for assignment to non-authenticated VLANs.
- Note that if a non-suppliant policy is not configured for an 802.1x port, then non-suplicants are automatically blocked from accessing the port.
- If the **captive-portal** parameter is specified with this command, then the Captive Portal authentication policy is applied to non-suppliant traffic. See the [802.1x captive-portal policy authentication](#) command page for more information.
- A User Network Profile (UNP) specifies a VLAN assignment for the device, whether or not Host Integrity Check (HIC) is required for the device, and if any QoS access control list (ACL) policies are applied to the device. See the [aaa user-network-profile](#) command page for information about how to create a UNP.
- Configuring non-suppliant classification policies is only supported on 802.1x enabled mobile ports.
- Each 802.1x port can have one suppliant policy and one non-suppliant policy for handling 802.1x and non-802.1x devices, respectively. Configuring a new suppliant or non-suppliant policy overwrites any policies that may already exist for the port.

## Examples

```
-> 802.1x 4/1 non-suppliant policy group-mobility
-> 802.1x 5/10 non-suppliant policy vlan 500
-> 802.1x 6/1 non-suppliant policy user-network-profile
-> 802.1x 4/10 non-suppliant policy captive-portal
```

## Release History

Release 6.1.2; command was introduced.

Release 6.3.4; **user-network-profile**, **captive-portal** parameters added.

## Related Commands

<a href="#">802.1x supplicant policy authentication</a>	Configures 802.1x authentication device classification policies for supplicants.
<a href="#">802.1x non-suppliant policy authentication</a>	Configures MAC authentication device classification policies for non-suplicants.
<a href="#">802.1x policy default</a>	Resets the device classification policy to the default policy value for the 802.1x port.
<a href="#">show 802.1x device classification policies</a>	Displays device classification policies configured for an 802.1x port.
<a href="#">show 802.1x non-suppliant</a>	Displays a list of all non-suplicants learned on all 802.1x ports.

## MIB Objects

```
alaDot1xAuthPolicyTable
  alaDot1xNonSuppPolicy
```

---



## 802.1x policy default

Resets the device classification policy to the default value for the 802.1x port.

**802.1x slot/port {supplicant | non-supplicant} policy default**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>supplicant</b>	Reset the supplicant policy to the default policy value.
<b>non-supplicant</b>	Reset the non-supplicant policy to the default policy value.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The default non-supplicant policy blocks all non-supplicants from accessing the 802.1x port.
- The default supplicant policy blocks supplicants that fail authentication. If authentication is successful but does not return a VLAN ID, then Group Mobility rules are examined. If no rules exist or match supplicant traffic, then the supplicant is assigned to the default VLAN for the 802.1x port.

### Examples

```
-> 802.1x 3/1 supplicant policy default  
-> 802.1x 4/1 non-supplicant policy default
```

### Release History

Release 6.1.2; command was introduced.

## Related Commands

<b>802.1x supplicant policy authentication</b>	Configures 802.1x authentication device classification policies for supplicants.
<b>802.1x non-supplicant policy authentication</b>	Configures MAC authentication device classification policies for non-supplicants.
<b>802.1x non-supplicant policy</b>	Configures device classification policies that do not perform 802.1x or MAC authentication for non-supplicants.
<b>show 802.1x device classification policies</b>	Displays device classification policies configured for an 802.1x port.
<b>show 802.1x non-supplicant</b>	Displays a list of all non-supplicants learned on all 802.1x ports.

## MIB Objects

alaDot1xAuthPolicyTable  
alaDot1xSuppPolicy

---

## 802.1x captive-portal policy authentication

Configures a Captive Portal device classification policy for an 802.1x port. This type of policy is applied to both supplicants and non-supplicants that were classified by a supplicant or non-supplicant policy to use Captive Portal web-based authentication.

**802.1x slot/port captive-portal policy authentication pass {group-mobility | user-network-profile profile\_name | vlan vid | default-vlan | block} [fail] {group-mobility | vlan vid | default-vlan | block}**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>pass</b>	Indicates which policies to apply if authentication is successful but does not return a VLAN ID or the VLAN ID returned does not exist.
<b>fail</b>	Indicates which policies to apply if authentication fails.
<b>group-mobility</b>	Use Group Mobility rules for device classification.
<i>profile_name</i>	The name of a User Network Profile to use for device classification.
<b>vlan vid</b>	Use this VLAN ID number for device classification.
<b>default-vlan</b>	Assigns the device to the default VLAN for the 802.1x port.
<b>block</b>	Blocks device traffic on the 802.1x port.

### Defaults

A default Captive Portal policy is automatically configured when 802.1x is enabled on a port. This default policy uses the **default-vlan** parameter for the **pass** case and the **block** parameter for the **fail** case.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Captive Portal device classification policies are applied only when successful web-based authentication *does not* return a VLAN ID, returns a VLAN ID that does not exist, or when web-based authentication fails.
- When web-based authentication does return a VLAN ID that exists in the switch configuration, the device is assigned to that VLAN and no further classification is performed.
- When multiple parameters are configured, the policy is referred to as a compound non-supplicant policy. Such policies use the **pass** and **fail** parameters to specify which policies to use when MAC authentication is successful and which to use when it fails.
- If the **fail** keyword is not used, the default action is to block the device when authentication fails.
- The order in which the parameters are specified determines the order in which they are applied. However, this type of policy must end with either the **default-vlan** or **block** parameters, referred to as terminal parameters (or policies). This applies to both pass and fail policies.

- Captive Portal policies are applied only to 802.1x enabled mobile ports that are configured with an 802.1x supplicant or non-supplicant policy that specifies the use of Captive Portal web-based authentication.

## Examples

```
-> 802.1x 3/1 captive-portal policy authentication pass vlan 100 block fail vlan 10
-> 802.1x 4/1 captive-portal policy authentication pass group-mobility
```

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>802.1x supplicant policy authentication</b>	Configures 802.1x authentication device classification policies for supplicants.
<b>802.1x non-supplicant policy</b>	Configures device classification policies that do not perform 802.1x or MAC authentication for non-supplicants.
<b>802.1x captive-portal session-limit</b>	Configures the length of a Captive Portal session and the number of login attempts allowed before the device is classified as a failed login.
<b>show 802.1x device classification policies</b>	Displays device classification policies configured for an 802.1x port.
<b>show 802.1x captive-portal configuration</b>	Displays the global Captive Portal configuration for the switch.

## MIB Objects

```
alaDot1xAuthPolicyTable
  alaDot1xCaptivePortalPolicy
```

---

## 802.1x captive-portal session-limit

Configures the length of an active Captive Portal session.

**802.1x slot/port captive-portal session-limit time**

---

### Syntax Definitions

*slot/port*

The slot and port number of the 802.1x port.

*time*

The amount of time the Captive Portal session remains active. Valid range is from 1—999 hours.

### Defaults

parameter	default
<i>time</i>	12 hours

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The parameters configured with this command apply to the Captive Portal configuration for the specified 802.1x port.
- At the end of the Captive Portal session time limit, the user is automatically logged out of the session and is no longer allowed to access the network.

### Examples

```
-> 802.1x 3/1 captive-portal session-limit 8 retry-count 5  
-> 802.1x 4/1 captive-portal session-limit 4 retry-count 2
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

### **802.1x captive-portal retry-count**

Configures the number of login attempts allowed before the Captive Portal fail policy is applied to the device.

### **802.1x captive-portal policy authentication**

Configures a Captive Portal device classification policy for an 802.1x port.

### **show 802.1x captive-portal configuration**

Displays the global Captive Portal configuration for the switch.

## MIB Objects

```
alaDot1xAuthPolicyTable  
alaDot1xCaptivePortalSessionLimit
```

---

## 802.1x captive-portal name

Configures the name of the redirect URL that is used for accessing a public certificate.

**802.1x captive-portal name** *cp\_url\_name*

**802.1x captive-portal no name**

---

### Syntax Definitions

*cp\_url\_name*                      The name to be used for the redirect URL.

### Defaults

By default, the name of the redirect URL is set to “captive-portal”.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to change the Captive Portal redirect URL name (captive-portal) to match the common name (cn) used by the public certificate on the switch. Matching these two names prevents a certificate warning message caused when these names do not match.
- Use the **no** form of this command to remove the configured Captive Portal redirect URL name. This reverts the URL name back to the default of “captive-portal”.
- This feature is not supported on HTTPS sessions.

### Examples

```
-> 802.1x captive-portal name certname  
-> 802.1x captive-portal no name
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<a href="#">aaa certificate-password</a>	Configures the password for accessing a public certificate on the switch.
<a href="#">show 802.1x captive-portal configuration</a>	Displays the global Captive Portal configuration for the switch.

### MIB Objects

```
alaDot1xAuthPolicyTable  
  alaDot1xCPortalRedirectString
```

---

## 802.1x captive-portal inactivity-logout

Configures whether or not a user MAC address is flushed from the Captive Portal user table due to inactivity.

**802.1x slot/port captive-portal inactivity-logout {enable | disable}**

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the 802.1x port.
<b>enable</b>	Enables inactivity logout.
<b>disable</b>	Disables inactivity logout.

### Defaults

By default, inactivity logout is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This timer is based on the MAC address aging timer. If a user is flushed from the MAC address table due to inactivity, the user MAC address is also flushed from the Captive Portal user table.

### Examples

```
-> 802.1x 3/1 captive-portal inactivity-logout enable
-> 802.1x 3/1 captive-portal inactivity-logout disable
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

<a href="#">802.1x captive-portal retry-count</a>	Configures the number of login attempts allowed before the Captive Portal fail policy is applied to the device.
<a href="#">802.1x captive-portal policy authentication</a>	Configures a Captive Portal device classification policy for an 802.1x port.
<a href="#">show 802.1x captive-portal configuration</a>	Displays the global Captive Portal configuration for the switch.

### MIB Objects

```
alaDot1xAuthPolicyTable
  alaDot1xCPortalInactivityLogout
```

---



## 802.1x captive-portal retry-count

Configures the number of login attempts allowed before the Captive Portal fail policy is applied to the device.

**802.1x slot/port captive-portal retry-count** *retries*

---

### Syntax Definitions

*slot/port*                      The slot and port number of the 802.1x port.  
*retries*                         The number of login attempts allowed (1–99).

### Defaults

parameter	default
<i>retries</i>	3

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The parameters configured with this command apply to the Captive Portal configuration for the specified 802.1x port.
- When a device has failed the allowed number of login attempts, the **fail** case for the Captive Portal policy configured for the 802.1x port is applied. To allow an unlimited number of login attempts, specify zero for the retry count value.

### Examples

```
-> 802.1x 3/1 captive-portal session-limit 8 retry-count 5  
-> 802.1x 4/1 captive-portal session-limit 4 retry-count 2
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

- |                                                    |                                                                              |
|----------------------------------------------------|------------------------------------------------------------------------------|
| <b>802.1x captive-portal session-limit</b>         | Configures the length of an active Captive Portal session.                   |
| <b>802.1x captive-portal policy authentication</b> | Configures a Captive Portal device classification policy for an 802.1x port. |
| <b>show 802.1x captive-portal configuration</b>    | Displays the global Captive Portal configuration for the switch.             |

## MIB Objects

alaDot1xAuthPolicyTable  
alaDot1xCaptivePortalRetryCnt

---

---

## 802.1x captive-portal address

Configures a different subnet for the Captive Portal IP address (10.123.0.1).

**802.1x captive-portal address** *ip\_address*

---

### Syntax Definitions

*address*

The IP address for the Captive Portal login page. This IP address must use the following octet values: 10.x.0.1, where “x” is used to specify a new subnet value.

### Defaults

By default, the Captive Portal IP address is set to 10.123.0.1.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the 10.123.0.1 subnet is already in use on the network, use this command to change the second octet of this IP address. Note that the second octet is the only configurable part of the Captive Portal IP address that is allowed.
- This IP address is used exclusively by the Captive Portal feature to serve various pages and to assign a temporary IP address for a client device that is attempting web-based authentication.

### Examples

```
-> 802.1x captive-portal address 10.11.0.1  
-> 802.1x captive-portal address 10.124.0.1
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

**show 802.1x captive-portal configuration** Displays the global Captive Portal configuration for the switch.

### MIB Objects

```
alaDot1xCportalConfig  
  alaDot1xCPortalIpAddress
```

---



### Related Commands

**show 802.1x captive-portal  
configuration**

Displays the global Captive Portal configuration for the switch.

### MIB Objects

alaDot1xCportalConfig  
alaDot1xCPortalProxyURL

---

---

## 802.1x captive-portal proxy-server-port

Configures Captive Portal to work with a specific proxy server port.

**802.1x captive-portal proxy-server-port** *proxy\_port*

**802.1x captive-portal no proxy-server-port** *proxy\_port*

---

### Syntax Definitions

*proxy\_port*                      The configured port for the proxy server. Valid range is between 1024-49151.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is only necessary if the port required is not 80 or 8080.

### Examples

```
-> 802.1x captive-portal proxy-server-port 1200
-> 802.1x captive-portal no proxy-server-port
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

**[show 802.1x captive-portal configuration](#)**      Displays the global Captive Portal configuration for the switch.

### MIB Objects

```
alaDot1xCportalConfig
  alaDot1xCPortalProxyPort
```

---

## 802.1x captive-portal dns-keyword-list

Configures a list of up to four DNS strings (keywords) that are used to identify DNS packets to which Captive Portal will accept and reply.

**802.1x captive-portal dns-keyword-list** {*keyword1* [*keyword2*] [*keyword3*] [*keyword4*]}

**802.1x captive-portal no dns-keyword-list**

---

### Syntax Definitions

*keyword* The DNS string that Captive Portal will look for in DNS packets. Up to four strings are supported. Each string may contain up to 63 characters.

### Defaults

By default, Captive Portal replies to DNS packets containing the following pre-defined DNS strings:

<b>www</b>	<b>captive-portal</b>
<b>http</b>	<b>go.microsoft</b>
<b>proxy</b>	<b>mozilla</b>
<b>wpad</b>	

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The DNS strings configured with this command are added to the list of the pre-defined DNS strings, as shown above. Note that the pre-defined strings are not configurable and will always remain on the list.
- Use the **no** form of this command to remove all the user-defined keywords from the DNS keyword list.
- Any DNS packets received that do not contain the specified DNS strings (pre-defined or user-defined) are dropped.
- Up to four keywords are configurable. Each time this command is used, the user-defined keyword strings are overwritten with the new strings. For example, if the DNS string list contains four user-defined strings, the next time this command is used and only two strings are specified, the four existing strings are removed and only the two new strings are added to the list.

### Examples

```
-> 802.1x captive-portal dns-keyword-list univ.intranet.jp  
-> 802.1x captive-portal dns-keyword-list univ.intranet1.jp univ.intranet2.jp  
-> 802.1x captive-portal dns-keyword-list univ.intranet1.jp univ.intranet2.jp  
univ.intrante3.jp univ.intranet4.jp
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show 802.1x captive-portal configuration**      Displays the global Captive Portal configuration for the switch.

## MIB Objects

```
alaDot1xCportalConfig  
  alaDot1xCPortalDnsKeyword1  
  alaDot1xCPortalDnsKeyword2  
  alaDot1xCPortalDnsKeyword3  
  alaDot1xCPortalDnsKeyword4
```

---



## 802.1x captive-portal success-redirect-url

Configures Captive Portal to redirect the user to a specific site upon successful authentication. This command specifies the URL of an HTTP site where a Java script is defined that specifies the actual destination URL.

**802.1x captive-portal success-redirect-url** *redirect\_url*

**802.1x captive-portal no success-redirect-url**

---

### Syntax Definitions

*redirect\_url*

The internal HTTP server URL, up to 63 characters, for the redirect Java script (for example, **http://test-cp.com/success.html**).

### Defaults

No success redirect URL is configured.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a success redirect URL configuration.
- Make sure the HTTP server URL and Java script exist and are reachable by the user during the authentication phase.
- A Java script is only needed to redirect a user to a website outside of the network; a script is not needed to redirect users to an intranet site.
- After the user attempts to authenticate through the Captive Portal login page, the Captive Portal status page displays and attempts to run the Java script that is located at the URL site specified with this command.
- If the redirect URL is not configured or is invalid, the Captive Portal status page remains open and displays an error message regarding the attempted redirection.

### Examples

The following command example configures the success URL to point to the **success.html** Java script on the **test-cp.com** HTTP server.

```
-> 802.1x captive-portal success-redirect-url http://test-cp.com/success.html
```

The following is an example Java script (**success.html**) in which the “TARGET” field specifies the actual URL to which the user is redirected.

```
<html>
<head> <meta http-equiv="expires" content="Tue, 20 Aug 1996 14:25:47 GMT">
<meta http-equiv=Pragma content=no-cache>
<meta http-equiv=cache-control content=no-cache,no-store,must-revalidate,proxy-
```

```
revalidate>  
</head>  
<body>  
<script type="text/javascript">  
    var TARGET = "http://www.google.com";  
    top.location = TARGET;  
</script>  
</body>
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

### [show 802.1x captive-portal configuration](#)

Displays the global Captive Portal configuration for the switch.

### [802.1x captive-portal fail-redirect-url](#)

Configures Captive Portal to redirect the user to a specific site if authentication fails.

## MIB Objects

```
alaDot1xCportalConfig  
    alaDot1xCPortalPostAuthSuccessRedirectURL
```

---

## 802.1x captive-portal fail-redirect-url

Configures Captive Portal to redirect the user to a specific site if authentication fails (user login is invalid or user bypasses authentication). This command specifies the URL of an HTTP server where a Java script is defined that specifies the actual destination URL.

**802.1x captive-portal fail-redirect-url** *redirect\_url*

**802.1x captive-portal no fail-redirect-url**

---

### Syntax Definitions

*redirect\_url*

The internal HTTP server URL, up to 63 characters, for the redirect Java script (for example, **http://test-cp.com/fail.html**).

### Defaults

No fail redirect URL is configured.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a fail redirect URL configuration.
- Make sure the HTTP server URL and Java script exist and are reachable by the user during the authentication phase.
- A Java script is only needed to redirect a user to a website outside of the network; a script is not needed to redirect users to an intranet site.
- After the user attempts to authenticate through the Captive Portal login page, the Captive Portal status page displays and attempts to run the Java script that is located at the URL site specified with this command.
- If the redirect URL is not configured or is invalid, the Captive Portal status page remains open and displays an error message regarding the attempted redirection.

### Examples

The following command example configures the fail URL to point to the **fail.html** Java script on the **test-cp.com** HTTP server.

```
-> 802.1x captive-portal fail-redirect-url http://test-cp.com/fail.html
```

The following is an example Java script (named **fail.html**) in which the "TARGET" field specifies the actual URL to which the user is redirected:

```
<html>  
<head> <meta http-equiv="expires" content="Tue, 20 Aug 1996 14:25:47 GMT">  
<meta http-equiv=Pragma content=no-cache>  
<meta http-equiv=cache-control content=no-cache,no-store,must-revalidate,proxy-revalidate>  
</head>
```

```
<body>
<script type="text/javascript">
  var TARGET = "http://www.mycompany.com";
  top.location = TARGET;
</script>
</body>
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

- |                                                            |                                                                                                   |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| <a href="#">show 802.1x captive-portal configuration</a>   | Displays the global Captive Portal configuration for the switch.                                  |
| <a href="#">802.1x captive-portal success-redirect-url</a> | Configures Captive Portal to redirect the user to a specific site upon successful authentication. |

## MIB Objects

```
alaDot1xCportalConfig
  alaDot1xCPortalPostAuthFailRedirectURL
```

---

## 802.1x auth-server-down

Enables or disables the authentication server down classification policy.

**802.1x auth-server-down** {enable | disable}

---

### Syntax Definitions

enable	Enables the auth-server-down policy.
disable	Disables the auth-server-down policy.

### Defaults

By default, authentication server down policy is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is global and applies to all 802.1x ports on the switch.

### Examples

```
-> 802.1x auth-server-down enable  
-> 802.1x auth-server-down disable
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show 802.1x auth-server-down** Displays the configured authentication server down classification policy.

### MIB Objects

alaDot1xAuthSvrTimeoutStatus

---

## 802.1x auth-server-down policy

Configures the policy for classifying devices attempting to authenticate when the RADIUS servers are not reachable.

**802.1x auth-server-down policy** {**user-network-profile** *profile\_name* | **block**}

---

### Syntax Definitions

<i>profile_name</i>	The name of an existing User Network Profile (UNP) to use for device classification.
<b>block</b>	Blocks device access on the 802.1x port.

### Defaults

By default, this policy is configured to block access to such devices and is disabled for the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **user-network-profile** parameter to classify device traffic into a specific profile when the RADIUS server is down.
- Use the **block** parameter to block device traffic on the 802.1x port when the RADIUS server is down.
- This command applies to all 802.1x-enabled ports on the switch.
- When device authentication fails due to an unreachable RADIUS server, an event message is sent to the switch logging utility (swlog). See the “Switch Logging Command” chapter for more information.

### Examples

```
-> 802.1x auth-server-down policy user-network-profile unp1
-> 802.1x auth-server-down policy block
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

- 802.1x auth-server-down** Enables or disables the authentication server down policy.
- 802.1x auth-server-down re-authperiod** Configures the amount of time to wait before re-authentication is attempted for devices classified by the server down policy.
- show 802.1x auth-server-down** Displays the configured authentication server down policy.

### MIB Objects

`alaDot1xAuthServerTimeoutPolicy`

---





## show 802.1x

Displays information about ports configured for 802.1X.

**show 802.1x** [*slot/port*]

---

### Syntax Definitions

*slot*                                      The slot of the port for which you want to display information.  
*port*                                        The port for which you want to display 802.1X information.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you do not specify a particular slot/port, information for all 802.1X ports is displayed.

### Examples

```
-> show 802.1x 1/13
```

```
802.1x configuration for slot 1 port 13:
```

```
direction                                = both,  
operational directions                 = both,  
port-control                            = auto,  
quiet-period (seconds)                 = 60,  
tx-period (seconds)                     = 30,  
supp-timeout (seconds)                 = 30,  
server-timeout (seconds)               = 30,  
max-req                                 = 2,  
re-authperiod (seconds)                = 3600,  
reauthentication                        = no  
Supplicant polling retry count         = 2  
Captive Portal Session Limit (hrs)     = 12  
Captive Portal Login Retry Count       = 3  
Supplicant Bypass                      = enable  
Supplicant Bypass allow-eap Branch     = pass,  
Captive Portal Inactivity Logout       = disable
```

*output definitions*

<b>direction</b>	Whether the port is configured for control on bidirectional traffic or incoming traffic only ( <b>both</b> or <b>in</b> ). Configured through the <b>802.1x</b> command.
<b>operational directions</b>	The operational state of controlled direction on the port, which is set automatically by the switch. If the value of <b>direction</b> is <b>both</b> , the value of operational directions is <b>both</b> . If the value of <b>direction</b> is <b>in</b> , the operational state is set to <b>in</b> on initialization and when the port's MAC address becomes operable. If the port's MAC address becomes inoperable, the operational direction is set to <b>both</b> .
<b>port-control</b>	The value of the port control parameter for the port ( <b>auto</b> , <b>force-authorized</b> , or <b>force-unauthorized</b> ). Configured through the <b>802.1x</b> command.
<b>quiet-period</b>	The time during which the port will not accept an 802.1X authentication attempt; the timer is activated after any authentication failure. The range is 0 to 65535 seconds. Configured through the <b>802.1x</b> command.
<b>tx-period</b>	The time before an EAP Request Identity will be transmitted. The range is 1 to 65535 seconds. Configured through the <b>802.1x</b> command.
<b>supp-timeout</b>	The number of seconds before the switch will time out an 802.1x user who is attempting to authenticate. Configured through the <b>802.1x</b> command.
<b>server-timeout</b>	The timeout for the authentication server for authentication attempts. Configured for the switch port through the <b>802.1x</b> command. However, this value is always superseded by the value configured for the RADIUS authentication server configured through the <b>aaa radius-server</b> command.
<b>max-req</b>	The maximum number of times the switch will retransmit a request for authentication information (request identity, password, challenge, etc.) to the 802.1X user before it times out the authentication session based on the <b>supp-timeout</b> . The range is 1 to 10. Configured through the <b>802.1x</b> command.
<b>re-authperiod</b>	The amount of time that must expire before the switch requires re-authentication of the Supplicant on this port. Only applicable when re-authentication is enabled. Configured through the <b>802.1x</b> command.
<b>reauthentication</b>	Whether or not the port will be re-authenticated after the re-authperiod expires. Configured through the <b>802.1x</b> command.
<b>Supplicant polling retry count</b>	The number of times a device is polled for EAP frames to determine whether or not the device is an 802.1x client. Configured through the <b>802.1x supp-polling retry</b> command.
<b>Captive Portal Session Limit (hrs)</b>	The amount of time, in hours, that a Captive Portal session can remain active. Configured through the <b>802.1x captive-portal session-limit</b> command.
<b>Captive Portal Login Retry Count</b>	The number of login attempts allowed before the Captive Portal fail policy is applied to the device. Configured through the <b>802.1x captive-portal retry-count</b> command.
<b>Supplicant Bypass</b>	The status of 802.1x authentication bypass ( <b>enable</b> or <b>disable</b> ). Configured through the <b>802.1x supplicant bypass</b> command.

*output definitions (continued)*

<b>Supplicant Bypass allow-eap Branch</b>	Specifies the conditions under which subsequent 802.1x authentication is attempted based on the outcome of the initial MAC authentication ( <b>pass</b> , <b>fail</b> , <b>noauth</b> , or <b>none</b> ). Configured through the <b>802.1x non-supplicant allow-eap</b> command. This value only applies when <b>Supplicant Bypass</b> is set to <b>enable</b> .
<b>Captive Portal Inactivity Logout</b>	Whether or not a user MAC address is removed from the Captive Portal user table when the same MAC ages out of the switch MAC address table due to inactivity ( <b>enabled</b> or <b>disabled</b> ). Configured through the <b>802.1x captive-portal inactivity-logout</b> command.

### Release History

Release 6.1; command was introduced.  
 Release 6.3.4; Captive Portal fields added.  
 Release 6.4.4; **Supplicant Bypass**, **Supplicant Bypass allow-eap Branch**, **Captive Portal Inactivity Logout** fields added.

### Related Commands

**show 802.1x users** Displays information about users connected to the 802.1x port..  
**show 802.1x statistics** Displays 802.1x port statistics..

### MIB Objects

```

dot1xAuthConfigTable
  dot1xAuthAdminControlledDirections
  dot1xAuthOperControlledDirections
  dot1xAuthAuthControlledPortControl
  dot1xAuthQuietPeriod
  dot1xAuthTxPeriod
  dot1xAuthSuppTimeout
  dot1xAuthServerTimeout
  dot1xAuthMaxReq
  dot1xAuthReAuthPeriod
  dot1xAuthReAuthEnabled
  alaDot1xSuppPollingCnt
  alaDot1xCPortalSessionLimit
  alaDot1xCPortalRetryCnt
  alaDot1xSupplicantBypass
  alaDot1xSBAAllowEAP
  alaDot1xCPortalInactivityLogout
  
```

## show 802.1x users

Displays a list of all users for one or more 802.1X ports.

**show 802.1x users** [*slot/port*] [**unp** | **detail**]

---

### Syntax Definitions

<i>slot</i>	The slot of the port for which you want to display information.
<i>port</i>	The port for which you want to display 802.1X information.
<b>unp</b>	Lists all the users associated with user network profiles.
<b>detail</b>	Lists additional details .

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you do not specify a particular slot/port, all users associated with 802.1X ports are displayed.

### Examples

```
->show 802.1x users
```

Slot Port	MAC Address	Port State	Classification Policy	User Name	Dynamic UNP
3/1	00:60:4f:11:22:33	Authenticated	Basic-UNP-AAA Rule	user50	Enabled
3/1	00:60:4f:44:55:66	Authenticated	Basic-UNP-AAA Rule	user51	Enabled

```
->show 802.1x users 3/1
```

Slot Port	MAC Address	Port State	Classification Policy	User Name	Dynamic UNP
3/1	00:60:4f:11:22:33	Authenticated	Basic-UNP-AAA Rule	user50	Enabled
3/1	00:60:4f:44:55:66	Authenticated	Basic-UNP-AAA Rule	user51	Enabled

### output definitions

---

<b>Slot/Port</b>	The 802.1X slot and port number that provides access to the user.
<b>MAC Address</b>	The source MAC address of the 802.1X user.

*output definitions (continued)*

---

<b>Port State</b>	The current state of the 802.1X port for a specific user: <ul style="list-style-type: none"><li>• <b>Initialize</b></li><li>• <b>Disconnected</b></li><li>• <b>Connecting</b></li><li>• <b>Authenticating</b></li><li>• <b>Authenticated</b></li><li>• <b>Authenticated-L</b></li><li>• <b>Authenticated-T</b> - Supplicant learned according to the auth-server-down policy</li><li>• <b>Aborting</b></li><li>• <b>Held</b></li><li>• <b>Force-Authenticated</b></li><li>• <b>Force-Unauthenticated</b></li></ul>
<b>Classification Policy</b>	The 802.1x device classification policy that was applied to the device.
<b>User Name</b>	The user name that is used for authentication.
<b>Dynamic UNP</b>	The status of dynamic UNP; <b>enabled</b> or <b>disabled</b> .

---

### Release History

Release 6.1; command was introduced.  
Release 6.1.2; **Classification Policy** field added.  
Release 6.4.4; **unp** and **detail** parameters added.

### Related Commands

**802.1x** Configures 802.1X parameters on a particular slot/port.

### MIB Objects

```
alaDot1xPortTable
  alaDot1xPortSlotNumber
  alaDot1xPortPortNumber
  alaDot1xPortMACAddress
  alaDot1xPortUserName
  alaDot1xPortState
  alaDot1xHicEnabledMAC
  alaDot1xNonSupplicantHicEnabledMAC
  alaDot1xHicFlag

alaDot1xAuthPolicyTable
  alaDot1xSuppPolicy
  alaDot1xNonSuppPolicy
```

---

## show 802.1x statistics

Displays statistics for all 802.1X ports or for a particular 802.1X port.

**show 802.1x statistics** [*slot/port*]

---

### Syntax Definitions

*slot*                                      The slot of the port for which you want to display 802.1X statistics.

*port*                                        The port for which you want to display 802.1X statistics.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you do not specify a particular slot/port, information for each 802.1X port is displayed.

### Examples

```
-> show 802.1x statistic 1/13
802.1x slot/port = 1/13
  Last EAPOL frame source           = 00:0d:0c:00:00:02
  Last EAPOL frame version          = 1,
  EAPOL frames received              = 3,
  EAPOL frames transmitted          = 3,
  EAPOL start frames received       = 1,
  EAPOL logoff frames received      = 0,
  EAP Resp/Id frames received       = 1,
  EAP Response frames received     = 1,
  EAP Req/Id frames transmitted     = 1,
  EAP Req frames transmitted        = 1,
  EAP length error frames received  = 0,
  Invalid EAPOL frames received     = 0,
```

### *output definitions*

---

<b>Slot</b>	The slot number of the 802.1X port.
<b>Port</b>	The 802.1X port number.
<b>Last EAPOL frame version</b>	The protocol version number carried in the most recently received EAPOL frame.
<b>Last EAPOL frame source</b>	The source MAC address carried in the most recently received EAPOL frame.
<b>EAPOL frames received</b>	The number of valid EAPOL frames of any type that have been received by the switch.

*output definitions (continued)*

<b>EAPOL frames transmitted</b>	The number of EAPOL frames of any type that have been transmitted by the switch.
<b>EAPOL Start frames received</b>	The number of EAPOL Start frames that have been received by the switch.
<b>EAPOL Logoff frames received</b>	The number of EAPOL Logoff frames that have been received by the switch.
<b>EAP Resp/Id frames received</b>	The number of EAP Resp/Id frames that have been received by the switch.
<b>EAP Response frames received</b>	The number of valid EAP Response frames (other than Resp/Id frames) that have been received by the switch.
<b>EAP Req/Id frames transmitted</b>	The number of EAP Req/Id frames that have been transmitted by the switch.
<b>EAP Req frames transmitted</b>	The number of valid EAP Request frames (other than Req/Id frames) that have been transmitted by the switch.
<b>EAP length error frames received</b>	The number of EAPOL frames that have been received by the switch for which the Packet Body Length field is invalid.
<b>Invalid EAPOL frames received</b>	The number of EAPOL frames that have been received by the switch for which the frame type is not recognized by the switch.

## Release History

Release 6.1; command was introduced.

## Related Commands

**802.1x captive-portal address** Displays information about ports configured for 802.1X.

## MIB Objects

```
dot1xAuthStatsTable
  dot1xAuthEapolFramesRx
  dot1xAuthEapolFramesTx
  dot1xAuthEapolStartFramesRx
  dot1xAuthEapolLogoffFramesRx
  dot1xAuthEapolRespIdFramesRx
  dot1xAuthEapolRespFramesRx
  dot1xAuthEapolReqIdFramesTx
  dot1xAuthEapolReqFramesTx
  dot1xAuthInvalidEapolFramesRx
  dot1xAuthEapLengthErrorFramesRx
  dot1xAuthLastEapolFrameVersion
  dot1xAuthLastEapolFrameSource
```

---

## show 802.1x device classification policies

Displays device classification policies configured for 802.1x ports.

**show 802.1x device classification policies** [*slot/port*]

---

### Syntax Definitions

*slot/port*

The slot and port number of the 802.1x port for which you want to display the policy configuration.

### Defaults

All device classification policies for all 802.1x ports are displayed.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* parameter to display device classification policies for a specific 802.1X port.

### Examples

```
-> show 802.1x device classification policies
Device classification policies on 802.1x port 2/26
  Supplicant:
    authentication:
      pass: group-mobility, default-vlan (default)
      fail: block (default)
  Non-Supplicant:
    block (default)
  Captive Portal:
    authentication:
      pass: default-vlan (default)
      fail: block (default)
Device classification policies on 802.1x port 2/48
  Supplicant:
    authentication:
      pass: vlan 500, block
      fail: block (default)
  Non-Supplicant:
    block (default)
  Captive Portal:
    authentication:
      pass: default-vlan (default)
      fail: block (default)
```



```
-> show 802.1x device classification policies 2/48
Device classification policies on 802.1x port 2/48
  Supplicant:
    authentication:
      pass: vlan 500, block
      fail: block (default)
  Non-Supplicant:
    block (default)
  Captive Portal:
    authentication:
      pass: default-vlan (default)
      fail: block (default)
```

### *output definitions*

---

<b>Supplicant:</b>	Displays the supplicant device classification policy configured for the 802.1x port.
<b>Non-Supplicant:</b>	Displays the non-supplicant device classification policy configured for the 802.1x port.
<b>Captive Portal</b>	Displays the Captive Portal device classification policy configured for the 802.1x port.

---

### **Release History**

Release 6.1.2; command was introduced.

### **Related Commands**

- [802.1x captive-portal address](#) Displays information about ports configured for 802.1X.
- [show 802.1x non-supplicant](#) Displays a list of all non-supplicants learned on all 802.1x ports.

### **MIB Objects**

```
alaDot1xAuthPolicyTable
  alaDot1xSuppPolicy
  alaDot1xNonSuppPolicy
```

---

## show 802.1x non-supplicant

Displays a list of all non-802.1x supplicants learned on one or more 802.1x ports.

**show 802.1x non-supplicant** [*slot/port*] [**unp** | **detail**]

---

### Syntax Definitions

<i>slot/port</i>	The slot/port number of the 802.1x port for which you want to display information.
<b>unp</b>	Lists all the users associated with user network profiles.
<b>detail</b>	Lists additional details .

### Defaults

All non-supplicants associated with all 802.1X ports are displayed.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* parameter to display a list of non-supplicants learned on a specific 802.1x port.

### Examples

```
->show 802.1x non-supplicant
```

Slot Port	MAC Address	MAC Authent Status	Classification Policy	Vlan Learned	Dynamic UNP
03/3	00:61:22:15:22:33	N/A	Basic-UNP-Usr	Cfg 20	Enabled
03/3	00:61:22:44:75:66	N/A	Basic-UNP-Usr	Cfg 20	Enabled
03/11	00:00:39:47:4f:0c	Failed	Vlan ID	1001	Disabled
03/11	00:00:39:c9:5a:0c	Authenticated	Group Mobility	12	Disabled
03/11	00:b0:d0:52:47:35	Authenticated	Group Mobility	12	Disabled
03/11	00:c0:4f:0e:70:68	Authenticated	MAC Authent	14	Disabled

```
->show 802.1x non-supplicant 3/3
```

Slot Port	MAC Address	MAC Authent Status	Classification Policy	Vlan Learned	Dynamic UNP
03/3	00:61:22:15:22:33	N/A	Basic-UNP-Usr	Cfg 20	Enabled
03/3	00:61:22:44:75:66	N/A	Basic-UNP-Usr	Cfg 20	Enabled

*output definitions*

<b>Slot/Port</b>	The 802.1X slot and port number that provides access to the non-802.1x device.
<b>MAC Address</b>	The source MAC address of the non-802.1x device connected to the 802.1x port.
<b>MAC Authent Status</b>	Indicates whether or not MAC authentication failed. <ul style="list-style-type: none"> <li>• <b>Success</b> - Non-supplicant learned according to the Success policy.</li> <li>• <b>Failed</b> - Non-supplicant learned according to the Failed policy</li> <li>• <b>Fail (timeout)</b> - Non-Supplicant learned according to the auth-server-down policy.</li> </ul>
<b>Classification Policy</b>	The 802.1x device classification policy that was applied to the device.
<b>VLAN Learned</b>	The VLAN ID of the VLAN in which the source MAC address of the non-802.1x device was learned.
<b>Dynamic UNP</b>	The status of dynamic UNP; enabled or disabled.

**Release History**

Release 6.1; command was introduced.

Release 6.1.2; **Authentication Status** and **Classification Policy** columns added.

Release 6.4.4; **unp** and **detail** parameters added.

**Related Commands**

- [802.1x captive-portal address](#) Displays information about ports configured for 802.1X.
- [show 802.1x device classification policies](#) Displays device classification policies configured for an 802.1x port.

**MIB Objects**

```
alaDot1xPortTable
  alaDot1xNonSupplicantSlotNum
  alaDot1xNonSupplicantPortNum
  alaDot1xNonSupplicantMACAddress
  alaDot1xNonSupplicantVlanID
  alaDot1xHicEnabledMAC
  alaDot1xNonSupplicantHicEnabledMAC
  alaDot1xHicFlag
```

## show 802.1x auth-server-down

Displays the configured authentication server down classification policy.

**show 802.1x auth-server-down**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show 802.1x auth-server-down
```

```
Status = Enabled
Re-authentication Interval = 30 seconds
Classification policy = block
```

```
-> show 802.1x auth-server-down
```

```
Status = Disabled
Re-authentication Interval = 30 seconds
Classification policy = block
```

### *output definitions*

---

<b>Status</b>	Authentication server down policy status: <b>Enabled</b> or <b>Disabled</b>
<b>Re-authentication Interval</b>	The amount of time for the device to authenticate again with the RADIUS server when the device is classified according to the Auth-server-policy.
<b>Classification Policy</b>	The 802.1x device classification policy that was applied to the device.

---

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- 802.1x auth-server-down** Enables or disables the authentication server down policy.
- 802.1x auth-server-down re-authperiod** Configures the re-authentication time for the device to authenticate again with the RADIUS server when it is classified according to the Auth-server-down policy
- 802.1x auth-server-down policy** Configures the policy for classifying the device when the authentication server is not reachable

## MIB Objects

```
alaDot1xAuthSvrTimeout  
  alaDot1xAuthSvrTimeoutStatus  
  alaDot1xAuthSvrTimeoutReAuthPeriod  
  alaDot1xAuthServerTimeoutPolicy
```

---

---

## show 802.1x captive-portal configuration

Displays the global Captive Portal configuration for the switch.

**show 802.1x captive-portal configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

This command displays the Captive Portal IP address and the proxy server URL.

### Examples

```
-> show 802.1x captive-portal configuration
```

```
Captive Portal Global Configuration:
```

```
  Captive Portal IP address = 10.123.0.1
```

```
  Proxy Server URL = proxy
```

```
  Proxy Server Port = 8080
```

```
  Redirect URL string = captive-portal
```

```
  Post Auth Success Redirect URL = http://test-cp.com/fail.html
```

```
  Post Auth Fail Redirect URL = http://test-cp.com/success.html
```

```
  DNS Keyword 1 = univ.intranet1.jp
```

```
  DNS Keyword 2 = univ.intranet2.jp
```

```
  DNS Keyword 3 = univ.interanet3.jp
```

```
  DNS Keyword 4 = univ.intranet4.jp
```

*output definitions*

---

<b>Captive Portal IP address</b>	The Captive Portal IP address. Configured through the <b>802.1x captive-portal address</b> command.
<b>Proxy Server URL</b>	The website URL for the client proxy web server. Configured through the <b>802.1x captive-portal proxy-server-url</b> command.
<b>Proxy Server Port</b>	The port number for the configured proxy. Configured through the <b>802.1x captive-portal proxy-server-port</b> command.
<b>Post Auth Success Redirect URL</b>	The internal HTTP server URL for the intermediate Java script used to redirect the user upon successful authentication. Configured through the <b>802.1x captive-portal success-redirect-url</b> command.
<b>Redirect URL String</b>	The name of the redirect URL to be used with a public certificate. Configured through the <b>802.1x captive-portal name</b> command.
<b>Post Auth Fail Redirect URL</b>	The internal HTTP server URL for the intermediate Java script used to redirect the user when authentication fails. Configured through the <b>802.1x captive-portal fail-redirect-url</b> command.
<b>DNS Keyword</b>	A user-defined DNS string. Captive Portal replies to DNS packets that contain this string. Configured through the <b>802.1x captive-portal proxy-server-port</b> command.

---

**Release History**

Release 6.3.4; command was introduced.

Release 6.4.3; **Post Auth Success Redirect URL**, **Post Auth Fail Redirect URL**, and **DNS Keyword** fields added.

Release 6.4.4; **Proxy Server Port** and **Redirect URL String** fields added.

**Related Commands**

**show 802.1x device classification policies**

Displays device classification policies configured for 802.1x ports.

**MIB Objects**

```
alaDot1xCportalConfig
  alaDot1xCportalIpAddress
  alaDot1xCportalProxyURL
  alaDot1xCportalProxyPort
  alaDot1xCportalRedirectString
  alaDot1xCportalPostAuthSuccessRedirectURL
  alaDot1xCportalPostAuthFailRedirectURL
  alaDot1xCportalDnsKeyword1
  alaDot1xCportalDnsKeyword2
  alaDot1xCportalDnsKeyword3
  alaDot1xCportalDnsKeyword4
```

---





# 36 AAA Commands

This chapter includes descriptions for authentication, authorization, and accounting (AAA) commands. The commands are used for configuring the type of authentication as well as the AAA servers and the local user database on the switch.

- **Authenticated VLANs.** Authenticates users through the switch into particular VLANs. User information is stored on an external RADIUS, TACACS+, or LDAP server.
- **Authenticated Switch Access.** Authenticates users into the switch to manage the switch. User information is stored on a RADIUS, TACACS+, LDAP, or ACE/Server; or information may be stored locally in the switch user database.
- **Local user database.** User information may be configured for Authenticated Switch Access. For functional management access, users may be allowed to access specific command families or domains. Alternately, users may be configured with a profile that specifies access to particular ports or VLANs.

MIB information for the AAA commands is as follows:

*Filename:* alcatelIND1AAA.mib  
*Module:* ALCATEL-IND1-AAA-MIB

*Filename:* alcatelIND1Dot1x.mib  
*Module:* ALCATEL-IND1-DOT1X-MIB

A summary of the available commands is listed here:

---

<b>Authentication servers</b>	<a href="#">aaa radius-server</a> <a href="#">aaa radius agent preferred</a> <a href="#">aaa tacacs+-server</a> <a href="#">aaa ldap-server</a> <a href="#">aaa ace-server clear</a> <a href="#">show aaa server</a>
<b>Authenticated VLANs</b>	<a href="#">aaa authentication vlan single-mode</a> <a href="#">aaa authentication vlan multiple-mode</a> <a href="#">aaa vlan no</a> <a href="#">aaa accounting mac</a> <a href="#">aaa avlan dns</a> <a href="#">aaa avlan default dhcp</a> <a href="#">aaa accounting command</a> <a href="#">avlan port-bound</a> <a href="#">avlan auth-ip</a> <a href="#">aaa avlan http language</a> <a href="#">show aaa authentication vlan</a> <a href="#">show aaa accounting vlan</a> <a href="#">show avlan user</a> <a href="#">show aaa avlan config</a> <a href="#">show aaa avlan auth-ip</a>

---

---

<b>Authenticated Switch Access</b>	<b>aaa authentication</b> <b>aaa authentication default</b> <b>aaa accounting session</b> <b>aaa accounting command</b> <b>show aaa authentication</b> <b>show aaa accounting</b>
<b>802.1X Port-Based Network Access Control</b>	<b>aaa authentication 802.1x</b> <b>aaa authentication mac</b> <b>aaa certificate-password</b> <b>aaa accounting 802.1x</b> <b>aaa accounting mac</b> <b>show aaa authentication mac</b> <b>show aaa accounting 802.1x</b> <b>show aaa accounting mac</b>
<b>Local User Database and Partitioned Management</b>	<b>user</b> <b>password</b> <b>user password-size min</b> <b>user password-expiration</b> <b>show user</b> <b>show aaa hic server</b>
<b>Password Policy</b>	<b>user password-size min</b> <b>user password-expiration</b> <b>user password-policy cannot-contain-username</b> <b>user password-policy min-uppercase</b> <b>user password-policy min-lowercase</b> <b>user password-policy min-digit</b> <b>user password-policy min-nonalpha</b> <b>user password-history</b> <b>user password-size min</b> <b>user password-min-age</b> <b>user password-expiration</b> <b>show user</b> <b>show user password-size</b> <b>show user password-expiration</b> <b>show user password-policy</b>
<b>User Lockout Settings</b>	<b>user lockout-window</b> <b>user lockout-threshold</b> <b>user lockout-duration</b> <b>user lockout unlock</b> <b>show user</b> <b>show user lockout-setting</b>
<b>Administrative User Logout</b>	<b>aaa admin-logout</b>
<b>End-user Profiles</b>	<b>user</b> <b>end-user profile</b> <b>end-user profile port-list</b> <b>end-user profile vlan-range</b> <b>show end-user profile</b>

---

---

<b>User Network Profiles</b>	<code>aaa user-network-profile</code> <code>aaa classification-rule mac-address</code> <code>aaa classification-rule mac-address-range</code> <code>aaa classification-rule ip-address</code> <code>show aaa user-network-profile</code> <code>show aaa classification-rule</code>
<b>Host Integrity Check</b>	<code>aaa hic server-name</code> <code>aaa hic redundancy background-poll-interval</code> <code>aaa hic server-failure mode</code> <code>aaa hic server-failure policy user-network-profile change</code> <code>aaa hic allowed-name</code> <code>aaa hic</code> <code>aaa hic web-agent-url</code> <code>aaa hic custom-proxy-port</code> <code>show aaa hic</code> <code>show aaa hic host</code> <code>show aaa hic server</code> <code>show aaa hic server-failure policy</code> <code>show aaa hic allowed</code>
<b>User Authentication Status</b>	<code>show aaa-device all-users</code> <code>show aaa-device supplicant-users</code> <code>show aaa-device non-supplicant-users</code> <code>show aaa-device captive-portal-users</code>

---

## aaa radius-server

Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.

```
aaa radius-server server-name [host {hostname | ip_address} [hostname2 | ip_address2]] [key secret]  
[retransmit retries] [timeout seconds] [auth-port auth_port] [acct-port acct_port]  
[vrf-name vrf_name]
```

```
no aaa radius server server-name
```

---

### Syntax Definitions

<i>server-name</i>	The name of the RADIUS server. This name is used in the related CLI commands to refer to the server.
<i>hostname</i>	The host name (DNS name) of the primary RADIUS server. The host name or IP address is required when creating a server.
<i>ip_address</i>	The IP address of the primary RADIUS server. An IP address or host name is required when creating a server.
<i>hostname2</i>	The host name (DNS name) of an optional backup RADIUS server.
<i>ip_address2</i>	The IP address of an optional backup RADIUS server.
<i>secret</i>	The text string shared secret known to the switch and the server, but which is not sent over the network. It can be any text or hexadecimal string but <b>MUST</b> match the secret configured on the server. The secret is case-sensitive. It is required when creating a server.
<i>retries</i>	The number of retries the switch makes to authenticate a user before trying the backup server ( <i>hostname2</i> or <i>ip_address2</i> ).
<i>seconds</i>	The timeout for server replies to authentication requests.
<i>auth_port</i>	The UDP destination port for authentication requests.
<i>acct_port</i>	The UDP destination port for accounting requests.
<i>vrf_name</i>	Specifies the VRF instance to which the RADIUS server belongs.

## Defaults

parameter	default
<i>retries</i>	3
<i>seconds</i>	2
<i>auth_port</i>	1812
<i>acct_port</i>	1813

## Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

OmniSwitch 9000E, 6855-U24X; **vrf-name** parameter supported.

## Usage Guidelines

- A host name (or IP address) and a secret are required when configuring a server.
- The server and the backup server must both be RADIUS servers.
- Configuring multiple RADIUS servers is possible, but all RADIUS servers must belong to the same VRF instance.
- If the **vrf-name** parameter is not specified, the default VRF instance is assigned.
- Use the **no** form of the command to remove a RADIUS server from the configuration. Only one server may be removed at a time. Note that if any Authenticated Switch Access (such as telnet) is configured for the server, remove the switch access configuration first before attempting to remove the server.
- To move the RADIUS servers to a different VRF instance, first remove each server from the current VRF instance and then add each server to the new VRF instance.

## Examples

```
-> aaa radius-server pubs2 host 10.10.2.1 key wwwtoe timeout 5 vrf-name  
Management-vrf  
-> no aaa radius-server pubs2
```

## Release History

Release 6.1; command was introduced.

Release 6.4.2; **vrf-name** parameter introduced.

## Related Commands

<b>show aaa server</b>	Displays information about AAA servers.
<b>aaa authentication vlan single-mode</b>	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
<b>aaa authentication vlan multiple-mode</b>	Specifies the AAA servers to be used for Authenticated VLANs in multiple-authority mode.
<b>aaa authentication</b>	Specifies the AAA servers to be used for Authenticated Switch Access.
<b>aaa accounting mac</b>	Specifies the accounting servers to be used for Authenticated VLANs.
<b>aaa accounting session</b>	Specifies the accounting servers to be used for Authenticated Switch Access.

## MIB Objects

```
aaaServerTable
  aaasProtocol
  aaasHostName
  aaasIpAddress
  aaasHostName2
  aaasIpAddress2
  aaasRadKey
  aaasRetries
  aaasTimeout
  aaasRadAuthPort
  aaasRadAcctPort
  aaasVrfName
```

---

## aaa radius agent preferred

Configures the source IP address field of the Radius packet.

**aaa radius agent preferred** {**default** | **no-loopback** | *ip\_address*}

**no aaa radius agent preferred**

---

### Syntax Definitions

<b>default</b>	The Loopback0 address, if configured, will be used for the source IP address field. If no Loopback0 is configured, the first IP address on the switch will be used.
<b>no-loopback</b>	The Loopback0 address should not be used for the source IP address field and the first available IP address on the switch should be used for this field.
<i>ip_address</i>	The IP address to be used in the source IP field.

### Defaults

By default, the radius agent setting is set to the **default** parameter.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When configuring a specific IP address, that address must already exist on the switch.
- Use the **no** form of the command to clear a specific IP address and change the behavior back to **default**.

### Examples

```
-> aaa radius agent preferred 192.168.10.1
-> aaa radius agent preferred no-loopback
-> aaa radius agent preferred default
```

### Release History

Release 6.3.4; command was introduced.

Release 6.4.3; command was deprecated, use [ip managed-interface](#).

### Related Commands

[show aaa server](#) Displays information about AAA servers.

**MIB Objects**

radiusAgentVal  
ipedrUsrConfiguredIPaaSRetries

---



## aaa tacacs+-server

Configures or modifies a TACACS+ server for Authenticated VLANs or Authenticated Switch Access.

```
aaa tacacs+-server server-name [host {hostname | ip_address} {hostname2 | ip_address2}] [key secret][timeout seconds] [port port]
```

```
no aaa tacacs+-server server-name
```

---

### Syntax Definitions

<i>server-name</i>	The name of the TACACS+ server.
<i>hostname</i>	The host name (DNS name) of the primary TACACS+ server. The host name or IP address is required when creating a server.
<i>ip_address</i>	The IP address of the primary TACACS+ server. An IP address or host name is required when creating a server.
<i>hostname2</i>	The host name (DNS name) of an optional backup TACACS+ server.
<i>ip_address2</i>	The IP address of an optional backup TACACS+ server.
<i>secret</i>	The shared secret known to the switch and the server, but which is not sent over the network. Can be any text or hexadecimal string but <b>MUST</b> match the secret configured on the server. The secret is case-sensitive. required when creating a server.
<i>seconds</i>	The timeout for server replies to authentication requests.
<i>port</i>	The port number for the primary TACACS+ server.

### Defaults

<b>parameter</b>	<b>default</b>
<i>seconds</i>	2
<i>port</i>	49

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove a TACACS+ server from the configuration. Only one server may be deleted at a time. Note that if any Authenticated Switch Access (such as telnet) is configured for the server, remove the switch access configuration first before attempting to remove the server.
- A host name (or IP address) and a secret are required when configuring a server.
- The server and the backup server must both be TACACS+ servers.

---

## Examples

```
-> aaa tacacs+-server tpub host 10.10.2.2 key otna timeout 10
-> no aaa tacacs+-server tpub
```

## Release History

Release 6.1.3; command was introduced.

## Related Commands

<a href="#">show aaa server</a>	Displays information about AAA servers.
<a href="#">aaa authentication vlan single-mode</a>	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
<a href="#">aaa authentication vlan multiple-mode</a>	Specifies the AAA servers to be used for Authenticated VLANs in multiple-authority mode.
<a href="#">aaa authentication</a>	Specifies the AAA servers to be used for Authenticated Switch Access.
<a href="#">aaa accounting mac</a>	Specifies the accounting servers to be used for Authenticated VLANs.
<a href="#">aaa accounting session</a>	Specifies the accounting servers to be used for Authenticated Switch Access.

## MIB Objects

```
aaaServerTable
  aaasName
  aaasProtocol
  aaasHostName
  aaasIpAddress
  aaasHostName2
  aaasIpAddress2
  aaasTacacsKey
  aaasTimeout
  aaasTacacsPort
```

---

## aaa ldap-server

Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.

```
aaa ldap-server server_name [host {hostname | ip_address} [{hostname2 | ip_address2}]] [port]
[dn dn_name] [password super_password] [base search_base] [type server_type] [retransmit retries]
[timeout seconds] [ssl | no ssl] [port port]
```

```
no aaa ldap-server server-name
```

---

### Syntax Definitions

<i>server_name</i>	The name of the LDAP server.
<i>hostname</i>	The host name (DNS) of the primary LDAP server. The host name or IP address is required when creating a new server.
<i>ip_address</i>	The IP address of the primary LDAP server.
<i>hostname2</i>	The host name (DNS) of the backup LDAP server.
<i>ip_address2</i>	The IP address of a backup host for the LDAP server.
<i>dn_name</i>	The super-user or administrative distinguished name in the format recognized by the LDAP-enabled directory servers. For example: <b>cn=manager</b> . Must be different from the <i>search_base</i> name and must be in a format supported by the server. Required when creating a new server.
<i>super_password</i>	The super-user password recognized by the LDAP-enabled directory servers. The password may be clear text or hexadecimal format. Required when creating a new server.
<i>search_base</i>	The search base recognized by the LDAP-enabled directory servers. For example, <b>o=company</b> or <b>c=country</b> . Must be different from the <i>dn_name</i> . Required when creating a new server.
<i>server-type</i>	The different directory server types used in LDAP Authentication: <b>Generic</b> = Generic Schema <b>Netscape</b> = Netscape Directory Server <b>Novell</b> = Novell NDS <b>Sun</b> = Sun Directory Services <b>Microsoft</b> = Microsoft AD.
<i>retries</i>	The number of retries the switch makes to the LDAP server to authenticate a user before trying the backup server.
<i>seconds</i>	The timeout in seconds for server replies to authentication requests from the switch.

<b>ssl</b>	Enables a secure switch layer (SSL) between the switch and the LDAP server.
<b>no ssl</b>	Disables a secure switch layer (SSL) between the switch and the LDAP server.
<i>port</i>	The port number for the primary LDAP server and any backup server. Must match the port number configured on the server.

## Defaults

Defaults for optional parameters are as follows:

parameter	default
<i>port</i>	389 (SSL disabled) 636 (SSL enabled)
<i>retries</i>	3
<i>seconds</i>	2
<b>ssl   no ssl</b>	<b>no ssl</b>

## Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

## Usage Guidelines

- The *dn\_name* must be different from the *search\_base* name.
- Use the **no** form of the command to remove an LDAP server from the configuration. Only one server may be removed at a time. Note that if any Authenticated Switch Access (such as telnet) is configured for the server, remove the switch access configuration first before attempting to remove the server.
- The port number configured on the switch must match the port number configured for the server.
- When communicating with the LDAP server, the Loopback0 address is used if configured, otherwise the VLAN's IP address is used.

## Examples

```
-> aaa ldap-server topanga5 host 10.10.3.4 dn cn=manager password tpub base c=us
retransmit 4
-> no aaa ldap-server topanga5
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>show aaa server</b>	Displays information about AAA servers.
<b>aaa authentication vlan single-mode</b>	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
<b>aaa authentication vlan multiple-mode</b>	Configures AAA servers for Authenticated VLANs in multiple-authority mode.
<b>aaa authentication</b>	Specifies the AAA servers to be used for authenticated switch access.
<b>aaa accounting mac</b>	Specifies the accounting servers to be used for Authenticated VLANs.
<b>aaa accounting session</b>	Specifies the accounting servers to be used for Authenticated Switch Access.

## MIB Objects

```
aaaServerTable
  aaasProtocol
  aaasHostName
  aaasIpAddress
  aaasHostName2
  aaasIpAddress2
  aaasLdapPort
  aaasLdapDn
  aaasLdapPasswd
  aaasLdapSearchBase
  aaasLdapServType
  aaasRetries
  aaasTimeout
  aaasLdapEnableSsl
```

---

---

## aaa ace-server clear

Clears the ACE secret on the switch. An ACE/Server generates “secrets” that it sends to clients for authentication. The shared secret between the switch and the ACE/Server cannot be configured on the switch but can be cleared on the switch.

**aaa ace-server** *server-name* **clear**

---

### Syntax Definitions

*server-name* The name of the ACE Server. Usually only one ACE server is configured for a switch.

### Defaults

The default server name is provided as ACE

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Clear the ACE secret on the switch if the server and the switch get out of sync. See RSA Security’s ACE/Server documentation for more information.
- If you clear the secret on the switch, it must also be cleared on the server.

### Examples

```
-> aaa ace-server clear
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[aaa authentication](#) Specifies servers for Authenticated Switch Access.  
[show aaa server](#) Displays information about AAA servers configured for the switch.

### MIB Objects

aaaServerTable  
aaasAceClear

---

## aaa authentication vlan single-mode

Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.

**aaa authentication vlan single-mode** *server1* [*server2*] [*server3*] [*server4*]

**no aaa authentication vlan**

---

### Syntax Definitions

*server1*                      The name of the RADIUS, TACACS+, or LDAP authentication server used for authenticating users through all Authenticated VLANs on the switch. At least one server is required. RADIUS, TACACS+, and LDAP server names are set up through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

*server2...server4*            The names of backup servers for authenticating users through Authenticated VLANs. Up to 3 backups may be specified; include a space between each server name. These backups are only used if *server\_name1* becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the authentication server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable Authenticated VLANs in single mode.
- The servers may be RADIUS, TACACS+, or LDAP servers. Up to 4 servers (total) may be configured in single mode. Each server name should be separated by a space.
- The switch uses *only the first available server* in the list to check for user information. For example, if *server1* is not available, the switch will poll *server2*. If user information is not found on the first available server, the authentication request will fail.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

### Examples

```
-> aaa authentication vlan single-mode pubs1 pubs2 pubs3
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>aaa radius-server</b>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<b>aaa ldap-server</b>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<b>show aaa server</b>	Displays information about a particular AAA server or AAA servers.
<b>show aaa authentication vlan</b>	Displays information about servers configured for Authenticated VLANs.

## MIB Objects

```
aaaAuthVlanTable  
  aaatvName1  
  aaatvName2  
  aaatvName3  
  aaatvName4
```

---



## aaa authentication vlan multiple-mode

Specifies the AAA servers to be used in multiple-authority mode for Authenticated VLANs.

```
aaa authentication vlan multiple-mode vlan_id server1 [server2] [server3] [server4]
```

```
no aaa authentication vlan vlan_id
```

---

### Syntax Definitions

<i>vlan_id</i>	The VLAN associated with the server or chain of servers.
<i>server1</i>	The name of the RADIUS, TACACS+, or LDAP authentication server used for this Authenticated VLAN in multiple mode. At least one server is required. RADIUS, TACACS+, and LDAP server names are set up through the <a href="#">aaa radius-server</a> , <a href="#">aaa tacacs+-server</a> , and <a href="#">aaa ldap-server</a> commands.
<i>server2...server4</i>	The names of backup servers for authenticating users through this VLAN. Up to 3 backups may be specified; include a space between each server name. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the authentication server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to remove Authenticated VLANs in multiple mode.
- The servers may be RADIUS, TACACS+, or LDAP servers, or both. Up to 4 servers (total) may be configured for each VLAN in multiple mode. Each server name should be separated by a space.
- The switch uses **only the first available server** in the list to check for user information. For example, if *server1* is not available, the switch will poll *server2*. If user information is not found on the first available server, the authentication request will fail.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

### Examples

```
-> aaa authentication vlan multiple-mode 2 pubs1 pubs2
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>aaa radius-server</b>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<b>aaa ldap-server</b>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<b>show aaa server</b>	Displays information about a particular AAA server or AAA servers.
<b>show aaa authentication vlan</b>	Displays information about servers configured for Authenticated VLANs.

## MIB Objects

```
aaaAuthVlanTable  
  aaatvVlan  
  aaatvName1  
  aaatvName2  
  aaatvName3  
  aaatvName4
```

---

## aaa vlan no

Removes a user from an Authenticated VLAN. You must know the MAC address associated with the user.

**aaa avlan no** [**mac-address**] *mac\_address*

---

### Syntax Definitions

<b>mac-address</b>	Optional syntax.
<i>mac_address</i>	The MAC address of the user who should be removed from an Authenticated VLAN.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **show avlan user** command to display user MAC addresses.

### Examples

```
-> aaa avlan no 00:20:da:05:f6:23
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">aaa authentication vlan single-mode</a>	Specifies the AAA servers to be used in single-authority mode for Layer 2 Authentication.
<a href="#">aaa authentication vlan multiple-mode</a>	Specifies the AAA servers to be used in multiple-authority mode for Authenticated VLANs.
<a href="#">show avlan user</a>	Displays MAC addresses for Authenticated VLAN users on the switch.

### MIB Objects

aaaAuthenticatedUserTable  
aaaaMacAddress

---

---

## aaa avlan dns

Configures a DNS host name. When clients authenticate via a Web browser, they will be able to enter the DNS host name rather than enter the IP address.

```
aaa avlan dns [name] dns_name
```

```
no aaa avlan dns [name] dns_name
```

---

### Syntax Definitions

*dns\_name*                                      The name of the DNS host.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a host name from the configuration.

### Examples

```
-> aaa avlan dns wolfie  
-> no aaa avlan dns
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show aaa avlan config](#)                      Displays the current DNS and DHCP configuration for Authenticated VLANs.

### MIB Objects

```
aaaAvlanConfigTable  
    aaaAvlanDnsName
```

---

## aaa avlan default dhcp

Configures the gateway address for a DHCP server.

```
aaa avlan default dhcp [gateway] ip_address
```

```
no aaa avlan default dhcp [gateway]
```

---

### Syntax Definitions

*ip\_address*                      The IP address of the AVLAN default gateway.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove an AVLAN default gateway from the configuration.

### Examples

```
-> aaa avlan dhcp 128.23.4.1  
-> no aaa avlan dhcp
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show aaa avlan config](#)              Displays the current DNS and DHCP configuration for Authenticated VLANs.

### MIB Objects

```
aaaAvlanConfigTable  
    aaaAvlanDhcpDefGateway
```

---

## aaa authentication

Configures the interface for Authenticated Switch Access and specifies the server(s) to be used. This type of authentication gives users access to manage the switch.

**aaa authentication** {**console** | **telnet** | **ftp** | **http** | **snmp** | **ssh** | **default**} *server1* [*server2...*] [**local**]

**no aaa authentication** [**console** | **telnet** | **ftp** | **http** | **snmp** | **ssh** | **default**]

---

### Syntax Definitions

<b>console</b>	Configures Authenticated Switch Access through the console port.
<b>telnet</b>	Configures Authenticated Switch Access for any port used for Telnet.
<b>ftp</b>	Configures Authenticated Switch Access for any port used for FTP.
<b>http</b>	Configures Authenticated Switch Access for any port used for Web-based management.
<b>snmp</b>	Configures Authenticated Switch Access for any port used for SNMP.
<b>ssh</b>	Configures Authenticated Switch Access for any port used for Secure Shell.
<b>default</b>	Configures Authenticated Switch Access for any port using any service ( <b>telnet</b> , <b>ftp</b> , etc.). Note that SNMP access is enabled only if an LDAP or local server is specified with the command.
<i>server1</i>	The name of the authentication server used for Authenticated Switch Access. At least one server is required. The server may be a RADIUS, TACACS+, LDAP, ACE/Server, or the local user database. RADIUS, TACACS+, and LDAP server names are set up through the <a href="#">aaa radius-server</a> , <a href="#">aaa tacacs+-server</a> , and <a href="#">aaa ldap-server</a> commands. If an ACE/Server will be used, specify <b>ace</b> for the server name. (Only one ACE/Server may be specified.)
<i>server2...</i>	The names of backup servers for Authenticated Switch Access. Up to 3 backups may be specified (including <b>local</b> ). These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the authentication server.
<b>local</b>	Specifies that the local user database will be a backup for the authentication servers. If you want to use the local user database as the only authentication server, specify <b>local</b> for <i>server1</i> .

### Defaults

- At switch startup, Authenticated Switch Access is available through console port via the local database. Authentication for other management interfaces (Telnet, FTP, etc.) is disabled.
- By default, the telnet, ftp, http, and snmp login is disabled
- The default user on the switch is **admin**, and **switch** is the password.

## Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to remove the Authenticated Switch Access configuration for the specified interface type. If the switch access configuration for an external authentication server is not removed first, attempting to remove the server configuration from the switch will fail.
- The server type may be RADIUS, TACACS+, LDAP, ACE/Server, or the local user database. Up to 4 servers may be configured for an interface type; at least one is required. Each server name should be separated by a space.
- The switch uses *only the first available server* in the list to check for user information. For example, if *server1* is not available, the switch will poll *server2*. If user information is not found on the first available server, the authentication request will fail.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.
- If the local switch database will be used as the only authentication server, specify **local** for *server1*. If **local** is specified as a backup server, it should be entered last in the list of servers. The local user database is always available if the switch is up.
- Only LDAP or the local database may be used for authenticated SNMP management.
- An ACE/Server cannot be specified for SNMP access.
- If Secure Shell (**ssh**) is enabled, Telnet and FTP should be disabled.

## Examples

```
-> aaa authentication telnet pubs1
-> no aaa authentication telnet
-> aaa authentication default pubs2 pubs3
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">aaa tacacs+-server</a>	Configures or modifies a TACAS+ server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">aaa ldap-server</a>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">user</a>	Configures user information for the local database on the switch.
<a href="#">show aaa server</a>	Displays information about servers configured for Authenticated Switch Access.

**MIB Objects**

```
aaaAuthSTable
  aaatsInterface
  aaasName
  aaatsName1
  aaatsName2
  aaatsName3
  aaatsName4
  aaatsRowStatus
```

---



## aaa authentication default

Sets the authenticated switch access type to the default server setting.

**aaa authentication {console | telnet | ftp | http | snmp | ssh} default**

---

### Syntax Definitions

<b>console</b>	Configures the default Authenticated Switch Access server setting for the console port.
<b>telnet</b>	Configures the default Authenticated Switch Access server setting for Telnet.
<b>ftp</b>	Configures the default Authenticated Switch Access server setting for FTP.
<b>http</b>	Configures the default Authenticated Switch Access server setting for Web-based management.
<b>snmp</b>	Configures the default Authenticated Switch Access server setting for any port used for SNMP.
<b>ssh</b>	Configures the default Authenticated Switch Access server setting for any port used for Secure Shell.

### Defaults

By default, the default Authenticated Switch Access server setting does not include any servers.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **aaa authentication** command to set the default servers.

### Examples

```
-> aaa authentication telnet default  
-> aaa authentication default default
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">aaa tacacs+-server</a>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">user</a>	Configures user information for the local database on the switch.
<a href="#">show aaa server</a>	Displays information about servers configured for Authenticated Switch Access.

## MIB Objects

```
aaaAuthSatable  
  aaatsName1  
  aaatsName2  
  aaatsName3  
  aaatsName4
```

---

## aaa authentication 802.1x

Enables/disables the switch for 802.1X authentication.

**aaa authentication 802.1x** *server1* [*server2*] [*server3*] [*server4*]

**no aaa authentication 802.1x**

---

### Syntax Definitions

<i>server1</i>	The name of the RADIUS authentication server used for 802.1X authentication. ( <i>Note that only RADIUS servers are supported for 802.1X authentication.</i> ) At least one server is required. RADIUS server names are set up through the <a href="#">aaa radius-server</a> command.
<i>server2...server4</i>	The names of backup servers for authenticating 802.1X users. Up to 3 backups may be specified; include a space between each server name. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the authentication server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable 802.1x authentication for the switch.
- Use the [vlan port 802.1x](#) command to enable or disable ports for 802.1X. Use the [802.1x](#) command to configure authentication parameters for a dedicated 802.1X port.
- Up to 4 RADIUS servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The switch uses *only the first available server* in the list to check for user information. For example, if *server1* is not available, the switch will poll *server2*. If user information is not found on the first available server, the authentication request will fail.
- RADIUS servers may each have an additional backup specified through the [aaa radius-server](#) command.
- Before any device is authenticated through an 802.1X port, the port will only process 802.1X frames (EAPoL frames) from an unknown source.
- Note that multiple supplicants can be authenticated on a given 802.1X port. Each supplicant MAC address received on the port is authenticated and learned separately. Only those that authenticate successfully are allowed on the port; those that fail authentication are blocked on the 802.1X port.

## Examples

```
-> aaa authentication 802.1x rad1 rad2  
-> no aaa authentication 802.1x
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">802.1x</a>	Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.
<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
<a href="#">vlan port 802.1x</a>	Enables or disables 802.1X port-based access control on a mobile port.
<a href="#">show aaa authentication 802.1x</a>	Displays information about the global 802.1X configuration on the switch.

## MIB Objects

AaaAuth8021XTable

```
aaatxName1  
aaatxName2  
aaatxName3  
aaatxName4  
aaatxOpen
```

---

## aaa authentication mac

Enables/Disables the switch for MAC authentication. This type of authentication is available in addition to 802.1x authentication and is designed to handle devices that do not support an 802.1x authentication method (non-suplicants).

**aaa authentication MAC** *server1* [*server2*] [*server3*] [*server4*]

**no aaa authentication MAC**

---

### Syntax Definitions

<i>server1</i>	The name of the RADIUS authentication server used for MAC authentication. (Note that only RADIUS servers are supported for MAC authentication.) At least one server is required. RADIUS server names are set up through the <a href="#">aaa radius-server</a> command.
<i>server2...server4</i>	The names of backup servers used for MAC authentication. Up to 3 backups may be specified; include a space between each server name. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the authentication server.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Up to 4 RADIUS servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- Use the **no** form of this command to disable MAC authentication for the switch.
- The switch uses **only the first available server** in the list to check for user information. For example, if *server1* is not available, the switch will poll *server2*. If user information is not found on the first available server, the authentication request will fail.
- RADIUS servers may each have an additional backup specified through the [aaa radius-server](#) command.
- MAC authentication verifies the source MAC address of a non-suppliant device via a remote RADIUS server. Similar to 802.1x authentication, this method sends RADIUS frames to the server with the MAC address embedded in the username and password attributes.
- Note that the same RADIUS servers can be used for 802.1x (suppliant) and MAC (non-suppliant) authentication. Using different servers for each type of authentication is allowed but not required.
- Use the [vlan port 802.1x](#) command to enable or disable ports for 802.1X. Use the [802.1x non-suppliant policy authentication](#) command to configure a MAC authentication policy for a dedicated 802.1X port.

- Multiple supplicants and non-supplicants can be authenticated on a given 802.1X port. Each device MAC address received on the port is authenticated and learned separately. If no MAC authentication policies exist on the port, non-supplicants are blocked.

## Examples

```
-> aaa authentication mac rad1 rad2  
-> no aaa authentication mac
```

## Release History

Release 6.1.2; command was introduced.

## Related Commands

<a href="#">802.1x</a>	Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.
<a href="#">802.1x non-supplicant policy authentication</a>	Configures MAC authentication device classification policies for non-supplicants.
<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
<a href="#">vlan port 802.1x</a>	Enables or disables 802.1X port-based access control on a mobile port.
<a href="#">show aaa authentication mac</a>	Displays information about the global 802.1X configuration on the switch.

## MIB Objects

AaaAuthMACTable

```
aaaMacSrvrName1  
aaaMacSrvrName2  
aaaMacSrvrName3  
aaaMacSrvrName4
```

---



---

## aaa accounting 802.1x

Enables/disables accounting for 802.1X authentication sessions. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**aaa accounting 802.1x** *server1* [*server2...*] [**local**]

**no aaa accounting 802.1x**

---

### Syntax Definitions

<i>server1</i>	The name of the RADIUS, TACACS+, or LDAP server used for 802.1X accounting. At least one server is required. RADIUS, TACACS+, and LDAP server names are set up through the <a href="#">aaa radius-server</a> , <a href="#">aaa tacacs+-server</a> , and <a href="#">aaa ldap-server</a> commands.
<i>server2...</i>	The names of backup servers for 802.1X accounting. Up to 3 backups may be specified (including <b>local</b> ); include a space between each server name. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the accounting server.
<b>local</b>	Local accounting is done through the Switch Logging feature in the switch. See <a href="#">Chapter 51, “Switch Logging Commands,”</a> for information about Switch Logging commands.

### Defaults

Accounting is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable accounting for 802.1X ports.
- Up to 4 accounting servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The servers may be RADIUS, TACACS+, or LDAP servers, and/or the local Switch Logging facility.
- If **local** is specified as *server1*, the switch will **only** use the local Switching Logging facility for accounting.
- If **local** is specified as a backup, it should be entered last in the list of servers. The Switch Logging facility is always available if the switch is up.
- The switch uses **only the first available server** in the list for accounting. For example, if *server1* is not available, the switch will use *server2*.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.



## Examples

```
-> aaa accounting 802.1x rad1 local  
-> no aaa accounting 802.1x
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">802.1x</a>	Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.
<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
<a href="#">show aaa accounting 802.1x</a>	Displays information about accounting servers for 802.1X sessions.

## MIB Objects

```
aaaAcct8021xTable  
  aaacxName1  
  aaacxName2  
  aaacxName3  
  aaacxName4
```

---

## aaa accounting mac

Enables/disables accounting for 802.1X non-supPLICANT (MAC-based) authentication sessions. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**aaa accounting mac** *server1* [*server2...*] [**local**]

**no aaa accounting mac**

---

### Syntax Definitions

<i>server1</i>	The name of the RADIUS, TACACS+, or LDAP server used for accounting. At least one server is required. RADIUS, TACACS+, and LDAP server names are set up through the <a href="#">aaa radius-server</a> , <a href="#">aaa tacacs+-server</a> , and <a href="#">aaa ldap-server</a> commands.
<i>server2...</i>	The names of backup servers for accounting. Up to 3 backups may be specified (including <b>local</b> ); include a space between each server name. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the accounting server.
<b>local</b>	Local accounting is done through the Switch Logging feature in the switch. See <a href="#">Chapter 51, “Switch Logging Commands,”</a> for information about Switch Logging commands.

### Defaults

Accounting is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable accounting.
- Up to 4 accounting servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The servers may be RADIUS, TACACS+, or LDAP servers, and/or the local Switch Logging facility.
- If **local** is specified as *server1*, the switch will **only** use the local Switching Logging facility for accounting.
- If **local** is specified as a backup, it should be entered last in the list of servers. The Switch Logging facility is always available if the switch is up.
- The switch uses **only the first available server** in the list for accounting. For example, if *server1* is not available, the switch will use *server2*.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

## Examples

```
-> aaa accounting mac radl local  
-> no aaa accounting mac
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

[aaa radius-server](#)

Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.

[show aaa accounting mac](#)

Displays information about accounting servers for 802.1X non-suppliant sessions.

## MIB Objects

```
aaaAcctMACTable  
  aaaAcctSvrInterface  
  aaaAcctSvr1  
  aaaAcctSvr2  
  aaaAcctSvr3  
  aaaAcctSvr4  
  aaaAcctSvrRowStatus
```

---

## aaa accounting vlan

Specifies a server or servers to be used for accounting with Authenticated VLANs. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**aaa accounting vlan** [*vlan\_id*] *server1* [*server2...*] [**local**]

**no accounting vlan** [*vlan\_id*]

---

### Syntax Definitions

<i>vlan_id</i>	Required only for multiple mode. The VLAN associated with the accounting server or chain of accounting servers.
<i>server1</i>	The name of the RADIUS, TACACS+, or LDAP server used for accounting with Authenticated VLANs. At least one server is required. RADIUS and LDAP server names are set up through the <b>aaa radius-server</b> , <b>aaa tacacs+-server</b> , and <b>aaa ldap-server</b> commands. If the local accounting feature will be used as the only accounting mechanism, specify <b>local</b> for <i>server1</i> .
<i>server2...</i>	The names of backup servers. Up to 3 backups may be specified (including <b>local</b> ); include a space between each server name. Backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the accounting server.
<b>local</b>	Local accounting is done through the Switch Logging feature in the switch. See <a href="#">Chapter 51, “Switch Logging Commands,”</a> for information about Switch Logging commands.

### Defaults

Accounting is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable accounting for Authenticated VLANs.
- Up to 4 accounting servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The servers may be RADIUS, TACACS+, LDAP servers, and/or the local Switch Logging facility.

- If **local** is specified as *server1*, the switch will **only** use the local Switching Logging facility for accounting.
- If **local** is specified as a backup, it should be entered last in the list of servers. The Switch Logging facility is always available if the switch is up.
- The switch uses **only the first available server** in the list for accounting. For example, if *server1* is not available, the switch will use *server2*.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the **aaa radius-server**, **aaa tacacs+-server**, and **aaa ldap-server** commands.

## Examples

```
-> aaa accounting vlan ldap1 ldap2 ldap3 radius1
-> no accounting vlan
-> aaa accounting vlan 4 radius1 ldap2 local
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>aaa radius-server</b>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<b>aaa tacacs+-server</b>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<b>show aaa accounting</b>	Displays information about accounting servers configured for Authenticated VLANs.

## MIB Objects

```
aaaAcctVlanTable
  aaacvName1
  aaccvName2
  aaacvName3
  aaacvName4
  aaacvRowStatus
```

---

## aaa accounting session

Configures an accounting server or servers for authenticated switch sessions. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**aaa accounting session** [*server\_name1*] [*server\_name2...*] [**local**]

**no aaa accounting session**

---

### Syntax Definitions

*server\_name1*

The name of the RADIUS, TACACS+, or LDAP server used for accounting of authenticated switch sessions. At least one server is required. RADIUS, TACACS+, and LDAP server names are set up through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

*server\_name2...*

The names of backup servers. Up to 3 backups may be specified (including **local**); each server name should be separated by a space. These backups are only used if *server1* becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the accounting server.

**local**

Local accounting is done through the Switching Logging feature on the switch. See [Chapter 51, “Switch Logging Commands,”](#) for information about Switch Logging commands.

### Defaults

Accounting is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable accounting for Authenticated Switch Access.
- Up to 4 accounting servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The servers may be RADIUS, TACACS+, LDAP servers, and/or the local Switch Logging facility.
- If **local** is specified as *server1*, the switch will **only** use the local Switching Logging facility for accounting.
- If **local** is specified as a backup, it should be entered last in the list of servers. The Switch Logging facility is always available if the switch is up.
- The switch uses **only the first available server** in the list for accounting. For example, if *server1* is not available, the switch will use *server2*.
- RADIUS, TACACS+, and LDAP servers may each have an additional backup specified through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

## Examples

```
-> aaa accounting session ldap1 radius2 local  
-> no aaa accounting session
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[show aaa accounting](#)

Displays information about accounting servers configured for Authenticated Switch Access.

## MIB Objects

```
aaaAcctsaTable  
  aaacsName1  
  aaacsName2  
  aaacsName3  
  aaacsName4  
  aaacsRowStatus
```

---

## aaa accounting command

Enables or disables the server for command accounting. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**aaa accounting command** *server1* [*server2...*] [**local**]

**no accounting command**

---

### Syntax Definitions

<i>server1</i>	The name of the TACACS+ server used for command accounting. At least one server is required. TACACS+ server names are set up through the <a href="#">aaa tacacs+-server</a> commands.
<i>server2...</i>	The names of TACACS+ backup servers. Up to 3 backups may be specified; each server name should be separated by a space. These backups are only used if <i>server1</i> becomes unavailable. They are polled in the order they are listed in this command. The first available server becomes the accounting server.
<b>local</b>	Local accounting is done through the Switching Logging feature on the switch. See <a href="#">Chapter 51, “Switch Logging Commands,”</a> for information about Switch Logging commands.

### Defaults

Accounting is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to disable command accounting.
- Up to 4 accounting servers (total) may be specified. At least one server is required. Each server name should be separated by a space.
- The servers can be only TACACS+ servers.
- The switch uses *only the first available server* in the list for accounting. For example, if *server1* is not available, the switch will use *server2*.
- TACACS+ server may each have an additional backup specified through the [aaa tacacs+-server](#) command.

### Examples

```
-> aaa accounting command tacacs1 tacacs2 tacacs3
-> no aaa accounting command
```



## Release History

Release 6.1.3; command was introduced.

## Related Commands

[show aaa accounting](#)

Displays information about accounting servers configured for Authenticated Switch Access.

## MIB Objects

```
aaaAcctCmdTable  
  aaacmdSrvName1  
  aaacmdSrvName2  
  aaacmdSrvName3  
  aaacmdSrvName4
```

---

## avlan default-traffic

Configures whether or not users are able to traffic in the default VLAN before they are actually authenticated.

**avlan default-traffic {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the switch to allow users authenticating through the switch to traffic in the default VLAN prior to authentication.
<b>disable</b>	Disables the switch so that users authenticating through the switch cannot traffic in the default VLAN prior to authentication.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- When this command is enabled, users are members of the default VLAN before authentication. After authenticating, users are no longer authorized for the default VLAN.
- When this command is disabled after being enabled, existing users in the default VLAN are not flushed.
- The default VLAN is configurable per port through the [vlan port default](#) command.
- The **avlan default-traffic** command allows Telnet and HTTP clients to obtain an IP address from a DHCP server in the default VLAN.

### Examples

```
-> avlan default-traffic enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[vlan port default](#)

Configures a new default VLAN for a single port or an aggregate of ports.

[show aaa avlan config](#)

Displays the current global configuration parameters for Authenticated VLANs.

## MIB Objects

aaaAvlanConfigTable

aaaAvlanDefaultTraffic

---

## avlan port-bound

Configures whether or not port mobility rules apply to authenticated ports.

```
avlan port-bound {enable | disable}
```

---

### Syntax Definitions

**enable** Enables authenticated ports to use port mobility rules.

**disable** Disables authenticated ports from using port mobility rules.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

When this command is enabled, a limited number of port mobility binding rule types may be applied to authenticated ports. The types are as follows:

- port-MAC-IP address binding rule
- port-MAC binding rule

For more information about commands for configuring port binding rules, see [Chapter 37, “Port Mobility Commands.”](#)

### Examples

```
-> avlan port-bound enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### **vlan binding mac-ip-port**

Defines a binding MAC-IP-port rule for an existing VLAN. Device frames received on the specified mobile port must also contain a source MAC address and source IP address that matches the MAC and IP address specified in the rule.

### **vlan binding mac-port**

Defines a binding MAC-port rule for an existing VLAN. Device frames received on the specified mobile port must contain a source MAC address that matches the MAC address specified in the rule.

### **show aaa avlan config**

Displays the current global configuration parameters for Authenticated VLANs.

## MIB Objects

aaaAvlanConfigTable

aaaAvlanPortBound

---

## avlan auth-ip

Configures an IP address to be used for VLAN authentication.

```
avlan vlan_id auth-ip ip_address
```

---

### Syntax Definitions

<i>vlan_id</i>	The ID of the Authenticated VLAN.
<i>ip_address</i>	The IP address to be used for authentication on this VLAN. The IP address must have the same mask as the router port address for the Authenticated VLAN.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- If an IP address is not configured for an Authenticated VLAN, the switch automatically configures the address with an authentication address based on the router port address (*x.x.x.253*).
- The IP address of the Authenticated VLAN must have the same mask as the router port address. For example, if the router port address of the Authenticated VLAN is 10.10.2.4, then the IP address must be 10.10.2.*x*.
- When modifying the authentication address for a specific VLAN, make sure that the new address does not match an IP router interface address for the same VLAN. IP address resolution problems can occur if these two addresses are not unique.
- VLANs are set up for authentication through the [vlan authentication](#) command.

### Examples

```
-> avlan 3 auth-ip 10.10.2.4
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[vlan authentication](#)

Enables or disables authentication for a VLAN.

[show aaa avlan auth-ip](#)

Displays the IP addresses for Authenticated VLANs.

## MIB Objects

aaaAvlanConfigTable

aaaAvlanAddress

---

---

## aaa avlan http language

Configures the switch to display username and password prompts based on the contents of a translation file (labels.txt).

**aaa avlan http language**

---

### Syntax Definitions

N/A

### Defaults

By default, the switch displays the HTTP client login page username and password prompts in English.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- When this command is entered, the next WebView session on the switch will use the username and password strings contained in the **label.txt** file.
- The label.txt file is available on the switch in the /flash/switch directory when the **Fsecu.img**, **Esecu.img**, **Hsecu.img**, or **Jsecu.img** file is installed. The label.txt file may be modified with any text editor and may contain strings for the username and password prompts in the format:

```
Username="username_string"  
Password="password_string"
```

- If the **aaa avlan http language** command is specified, but the label.txt file does not exist on the switch or the file is empty (the default), the switch will use the English-language text defaults for the HTTP client login page.

### Examples

```
-> aaa avlan http language
```

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

### MIB Objects

```
aaaAvlanConfigTable  
aaaAvlanLanguage
```

---



## user

Configures or modifies user entries in the local user database. Use the **no** form of the command to remove the user from the local database.

```
user username [password password] [expiration {day | date}] [read-only | read-write [families... / domains...] all | none] [no snmp | no auth | sha | md5 | sha+des | md5+des] [end-user profile name] [console-only {enable | disable}]
```

```
no user username
```

---

### Syntax Definitions

<i>username</i>	The name of the user (maximum is 31 alphanumeric characters). Used for logging into the switch. Required to create a new user entry or for modifying a user.
<i>password</i>	The user's password in clear text or hexadecimal (corresponding to encrypted form). Required to create a new user entry. The default minimum length is 8 alphanumeric characters. The maximum is 47 characters.
<i>day</i>	The number of days before this user's current password expires. The range is 1 to 150 days.
<i>date</i>	The date (in the format <i>mm/dd/yyyy hh:mm</i> ) that the user's current password will expire.
<b>read-only</b>	Specifies that the user will have read-only access to the switch.
<b>read-write</b>	Specifies that the user will have read-write access to the switch.
<i>families</i>	Determines the command families available to the user on the switch. Each command family should be separated by a space. Command families are subsets of domains. See Usage Guidelines for more details.
<i>domains</i>	Determines the command domains available to the user on the switch. Each domain should be separated by a space. See the Usage Guidelines for more details.
<b>all</b>	Specifies that all command families and domains are available to the user.
<b>none</b>	Specifies that no command families or domains are available to the user.
<b>no snmp</b>	Denies the specified user SNMP access to the switch.
<b>no auth</b>	Specifies that the user has SNMP access without any required SNMP authentication and encryption protocol.
<b>sha</b>	Specifies that the SHA authentication algorithm should be used for authenticating SNMP PDU for the user.
<b>md5</b>	Specifies that the MD5 authentication algorithm should be used for authenticating SNMP PDU for the user.

<b>sha+des</b>	Specifies that the SHA authentication algorithm and DES encryption standard should be used for authenticating and encrypting SNMP PDU for the user.
<b>md5+des</b>	Specifies that the MD5 authentication algorithm and the DES encryption standard should be used for authenticating and encrypting SNMP PDU for the user.
<i>name</i>	The name of an end-user profile associated with this user. Configured through the <b>end-user profile</b> command. Cannot be associated with the user if command families/domains are associated with the user.
<b>console-only enable</b>	Enables console only access for the user <i>admin</i> .
<b>console-only disable</b>	Disables console only access for the user <i>admin</i> .

## Defaults

By default, if a user is created without indicating the read and write privileges and SNMP access, the user will be given privileges based on the *default user account*. The default user account may be modified, but by default it has the following privileges:

parameter	default
<b>read-only   read-write</b>	<b>read-only</b>
<b>no snmp   no auth   sha   md5   sha+des   md5+des</b>	<b>no snmp</b>
<b>console-only</b>	<b>disable</b>

For more information about the default user account, see the *OmniSwitch AOS Release 6 Switch Management Guide*.

## Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

## Usage Guidelines

- In addition to the syntax listed for the command, the syntax **authkey** *key* will display in an ASCII text file produced via the **snapshot** command if the user is allowed SNMPv3 access to the switch. The authentication key is in hexadecimal form, and is deducted from the user's password with SHA or MD5 hash and encrypted with DES encryption. The key parameter only appears in configuration files that are resulting from a snapshot. The key is computed by the switch based on the user's SNMP access and will only appear in the ASCII text file; it is not displayed through the CLI. (*This key is used for both Auth Password and Priv Password in the OmniVista NMS application.*)
- At least one user with SHA/MD5 authentication and/or DES encryption must be configured on the switch for SNMPv3 communication with OmniVista.
- Use **user** *username* and **password** *password* to reset a user's password configured through the **password** command.
- Typically the password should be a string of non-repeating characters. The CLI uses the first occurrence of the character series to uniquely identify the password. For example, the password *tpubtpub* is the same as *tpub*. A better password might be *tpub345*.

- Note that the exclamation point (!) is not a valid password character. In addition, specifying an asterisk (\*) as one or more characters in a password is allowed as long as every character is not an asterisk. For example, **password \*\*123456\*\*** is allowed; **password \*\*\*\*\*** is not allowed.
- The password expiration date will display in an ASCII text file produced via the **snapshot** command.
- A password expiration for the user's current password may be configured with the **expiration** option. However, if the password is changed, or the global password expiration setting is configured with the **user password-expiration** command, the user's password expiration will be configured with the global expiration setting.
- When modifying a user's SNMP access, the user password must be re-entered (or a new one configured). This is required because the hash algorithm used to save the password in the switch depends on the SNMP authentication level.
- At initial startup, the default user on the switch is **admin** with a password of **switch**. The switch will not recreate this user at any successive startup as long as there exists at least one user defined with write access to all commands. (Note that if password expiration is configured for the **admin** user, or configured globally through the **user password-expiration** command, when the **admin** user's password expires, the **admin** user will have access only through the console port.)
- Either privileges or an end-user profile may be associated with a user; both cannot be configured for the same user.
- New users or updated user settings are saved *automatically*; that is, these settings do not require the **write memory** or **configuration snapshot** command to save user settings over a reboot.

Possible values for domains and families are listed in the table here:

Domain	Corresponding Families
domain-admin	file telnet dshell debug
domain-system	system aip snmp rmon webmgt config
domain-physical	chassis module interface pmm health
domain-network	ip rip ospf bgp vrrp ip-routing ipmr ipms
domain-layer2	vlan bridge stp 802.1q linkagg ip-helper
domain-service	dns
domain-policy	qos policy slb
domain-security	session avlan aaa

## Examples

```
-> user techpubs password writer read-only config
-> no user techpubs
```

## Release History

Release 6.1; command was introduced.

Release 6.4.3; **Console-only** parameter was added.

## Related Commands

[password](#)

Configures the current user's password.

[show user](#)

Displays information about users configured in the local database on the switch.

## MIB Objects

aaaUserTable

    aaauPassword

    aaauReadRight

    aaauWriteRight

    aaauSnmpLevel

    aaauSnmpAuthKey

    aaauPasswordExpirationDate

aaaAsaConfig

    aaaAsaAccessPolicyAdminConsoleOnly

---

## password

Configures the current user's password.

**password**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- If the **snapshot** command is used to capture the switch configuration, the text of the password is not displayed in the file. Instead an authentication key is included in the file.
- The **password** command does not require a password in-line; instead, after the command is entered, the system displays a prompt for the password. Enter any alphanumeric string. (The string displays on the screen as asterisks.) The system displays a prompt to verify the new password.
- A new password cannot be identical to the current password; it cannot be identical to any of the three passwords that preceded the current password.
- The password may be up to 47 characters. The default minimum password length is 8 characters.
- Note that the exclamation point (!) is not a valid password character. In addition, specifying an asterisk (\*) as one or more characters in a password is allowed as long as every character is not an asterisk. For example, **password \*\*123456\*\*** is allowed; **password \*\*\*\*\*** is not allowed.
- Password settings are saved *automatically*; that is, the **write memory** or **configuration snapshot** command is not required to save password settings over a reboot.

### Examples

```
-> password
enter old password: *****
enter new password: *****
reenter new password: *****
->
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### **user**

Configures entries in the local user database. May be used by a system administrator to change any user's password in addition to configuring user privileges or profile.

## MIB Objects

```
aaaUserTable  
  aaauPassword  
  aaauOldPassword
```

---

## user password-size min

Configures the minimum number of characters required when configuring a user password.

**user password-size min** *size*

---

### Syntax Definitions

*size* The number of characters required when configuring a user password through the **password** command or when setting up a user password through the **user** command. The range is 1 to 14 characters.

### Defaults

parameter	default
<i>size</i>	8

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

N/A.

### Examples

```
-> user password-size min 9
```

### Release History

Release 6.1; command was introduced.

Release 6.3.1; minimum password size range changed to 1–14 characters.

### Related Commands

- user** Configures entries in the local user database. May be used by a system administrator to change any user's password in addition to configuring user privileges or profile.
- show user password-size** Displays the minimum number of characters that are required for a user password.
- show user password-policy** Displays the global password policy configuration for the switch.

### MIB Objects

aaaAsaConfig  
aaaAsaPasswordSizeMin

---

## user password-expiration

Configures an expiration date for all user passwords stored locally on the switch or disables password expiration.

**user password-expiration** {*day* / **disable**}

---

### Syntax Definitions

<i>day</i>	The number of days before locally configured user passwords will expire. The range is 1 to 150 days.
<b>disable</b>	Disables password expiration for users configured locally on the switch.

### Defaults

parameter	default
<i>day</i> / <b>disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **user password-expiration** command sets a default password expiration for users configured locally on the switch.
- Password expiration may be configured on a per-user basis through the **user** command; the user setting overrides the **user password-expiration** setting until the user password is changed or the **user password-expiration** command is entered again.

### Examples

```
-> user password-expiration 2
-> user password-expiration disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>user</b>	Configures entries in the local user database. May be used by a system administrator to change any user's password in addition to configuring user privileges or profile.
<b>show user password-expiration</b>	Displays the expiration date for passwords configured for user accounts stored on the switch.
<b>show user password-policy</b>	Displays the global password policy configuration for the switch.



## **MIB Objects**

aaaAsaConfig

aaaAsaDefaultPasswordExpirationInDays

---

## user password-policy cannot-contain-username

Specifies whether or not a user can configure a password that contains the username for the account.

**user password-policy cannot-contain-username {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Does not allow the password to contain the username.
<b>disable</b>	Allows the password to contain the username.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- The status of this function is specified as part of a global password policy that is applied to all passwords when they are created or modified.
- When this function is enabled, a check is done at the time the password is created or modified to ensure that the username is not specified as part of the password text.

### Examples

```
-> user password-policy cannot-contain-username enable
-> user password-policy cannot-contain-username disable
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**show user password-policy** Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
  aaaAsaPasswordContainUserName
```

---





## user password-policy min-digit

Configures the minimum number of base-10 digits required for a valid password.

**user password-policy min-digit** *number*

---

### Syntax Definitions

*number* The minimum number of digits. The range is 0 to 7.

### Defaults

parameter	default
<i>number</i>	0

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Specify **0** with this command to disable the minimum number of digits requirement.
- The minimum number of digits requirement is specified as part of a global password policy that is applied to all passwords when they are created or modified.

### Examples

```
-> user password-policy min-digit 2
-> user password-policy min-digit 0
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**show user password-policy** Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
aaaAsaPasswordMinDigit
```

---

---

## user password-policy min-nonalpha

Configures the minimum number of non-alphanumeric characters (symbols) required for a valid password.

**user password-policy min-nonalpha** *number*

---

### Syntax Definitions

*number*                                      The minimum number of non-alphanumeric characters.  
The range is 0 to 7.

### Defaults

---

parameter	default
<i>number</i>	0

---

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Specify **0** with this command to disable the minimum non-alphanumeric character requirement.
- The minimum number of non-alphanumeric characters is specified as part of a global password policy that is applied to all passwords when they are created or modified.

### Examples

```
-> user password-policy min-nonalpha 2
-> user password-policy min-nonalpha 0
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show user password-policy](#)      Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
aaaAsaPasswordMinNonAlpha
```

---

## user password-history

Configures the maximum number of old passwords to retain in the password history.

**user password-history** *number*

---

### Syntax Definitions

*number*                      The maximum number of old passwords to retain.  
The range is 0 to 24.

### Defaults

---

parameter	default
<i>number</i>	4

---

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Specify **0** with this command to disable the password history function.
- The user is prevented from specifying any passwords that are recorded in the password history and fall within the range configured through this command.
- The password history value is specified as part of a global password policy that is applied to all passwords when they are created or modified.

### Examples

```
-> user password-history 2  
-> user password-history 0
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show user password-policy](#)      Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig  
    aaaAsaPasswordHistory
```

---

## user password-min-age

Configures the minimum number of days during which a user is prevented from changing a password.

**user password-min-age** *days*

---

### Syntax Definitions

*days* The number of days to use as the minimum age of the password. The range is 0 to 150.

### Defaults

parameter	default
<i>days</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specify **0** with this command to disable the minimum number of days requirement.
- Configure the minimum age of a password with a value that is less than the value configured for the password expiration.
- The password minimum age value is specified as part of a global password policy that is applied to all passwords when they are created or modified.

### Examples

```
-> user password-min-age 7
-> user password-min-age 0
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show user password-policy](#) Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
  aaaAsaPasswordMinAge
```

---



## user lockout-window

Configures a moving period of time (observation window) during which failed login attempts are counted to determine if the number of failed attempts has exceeded the number of allowed attempts. The number of failed login attempts is decremented by the number of failed attempts that age beyond the observation window time period.

**user lockout-window** *minutes*

---

### Syntax Definitions

*minutes* The number of minutes the observation window remains active. The range is 0 to 99999.

### Defaults

parameter	default
<i>minutes</i>	0

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command is only available to the **admin** user because the **admin** user account is the only account protected from any type of lockout attempt.
- Specify **0** with this command to disable the observation window function. This means that failed login attempts will never age out; the number of failed attempts is never decremented.
- Do not configure an observation window time period that is greater than the lockout duration time period.
- If the number of failed login attempts exceeds the number of failed attempts allowed before the observation window time expires, then the user account is locked out of the switch.
- The observation window time period is a global lockout setting that is applied to all passwords configured on the switch.
- Lockout settings are saved *automatically*; that is, these settings do not require the **write memory** or **configuration snapshot** command to save user settings over a reboot.

### Examples

```
-> user lockout-window 500
-> user lockout-window 0
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">user lockout-duration</a>	Configures the amount of time a user account remains locked out of the switch.
<a href="#">user lockout-threshold</a>	Configures the number of failed password attempts allowed before the user account is locked out of the switch.
<a href="#">user lockout unlock</a>	Manually locks or unlocks a user account on the switch.
<a href="#">show user lockout-setting</a>	Displays the global user lockout settings for the switch.

## MIB Objects

```
aaaAsaConfig  
  aaaAsaLockoutWindow
```

---



## Related Commands

<a href="#">user lockout-window</a>	Configures a window of time during which failed login attempts are counted to determine if the number of failed attempts has exceeded the number of allowed attempts.
<a href="#">user lockout-duration</a>	Configures the length of time a user account remains locked out of the switch.
<a href="#">user lockout unlock</a>	Manually locks or unlocks a user account on the switch.
<a href="#">show user lockout-setting</a>	Displays the global user lockout settings for the switch.

## MIB Objects

```
aaaAsaConfig  
  aaaAsaLockoutThreshold
```

---

## user lockout-duration

Configures the length of time a user account remains locked out of the switch. At the end of this time period, the user account is automatically unlocked.

**user lockout-duration** *minutes*

---

### Syntax Definitions

*minutes* The number of minutes the user account remains locked out. The range is 0 to 99999.

### Defaults

parameter	default
<i>minutes</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is only available to the **admin** user because the **admin** user account is the only account protected from any type of lockout attempt.
- Note that if the lockout duration time period is set to zero (the default), then locked user accounts are never automatically unlocked.
- Only the **admin** user or a user with read/write AAA privileges can unlock a locked user account when the lockout duration time is set to zero. An account is unlocked by changing the user password or with the **user lockout unlock** command.
- Do not configure a lockout duration time period that is less than the amount of time configured for the observation window.
- The lockout duration time period is a global lockout setting that is applied to all passwords configured on the switch.
- Lockout settings are saved *automatically*; that is, these settings do not require the **write memory** or **configuration snapshot** command to save user settings over a reboot.

### Examples

```
-> user lockout-duration 60
-> user lockout-duration 0
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">user lockout-window</a>	Configures a window of time during which failed login attempts are counted to determine if the number of failed attempts has exceeded the number of allowed attempts,
<a href="#">user lockout-threshold</a>	Configures the number of failed password attempts allowed before the user account is locked out of the switch.
<a href="#">user lockout unlock</a>	Manually locks or unlocks a user account on the switch.
<a href="#">show user lockout-setting</a>	Displays the global user lockout settings for the switch.

## MIB Objects

```
aaaAsaConfig  
  aaaAsaLockoutDuration
```

---

## user lockout unlock

Manually locks or unlocks a user account on the switch.

```
user {lockout | unlock}
```

---

### Syntax Definitions

<i>username</i>	The username of the account to lock or unlock.
<b>lockout</b>	Locks the user account out of the switch.
<b>unlock</b>	Unlocks a locked user account.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command is only available to the **admin** user or a user with read/write AAA privileges.
- The **admin** user account is protected from any type of lockout attempt.
- User lockouts and unlocks are saved *automatically*; that is, these settings do not require the **write memory** or **configuration snapshot** command to save user settings over a reboot.

### Examples

```
-> user j_smith lockout
-> user j_smith unlock
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<b>show user</b>	Displays information about all users or a particular user configured in the local user database on the switch.
<b>show user lockout-setting</b>	Displays the global user lockout settings for the switch.

### MIB Objects

```
aaaUserTable
  aaauPasswordLockoutEnable
```

---

## aaa admin-logout

Administratively logs a user out of the network. This command requires administrative privileges.

```
aaa admin-logout {mac-address mac_address | port slot/port | user user_name | user-network-profile  
name profile_name}
```

---

### Syntax Definitions

<i>mac_address</i>	The source MAC address of a user device.
<i>slot/port</i>	The slot and port number designation for a specific switch port. All users learned on this port are logged out.
<i>user_name</i>	The username of the account to log out.
<i>profile_name</i>	The name of an existing User Network Profile (UNP). All users classified with this profile are logged out of the switch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command is only available to the **admin** user.
- The **admin** user account is protected from any attempt to log out the admin user.

### Examples

```
-> aaa admin-logout mac-address 00:2a:95:00:3a:10  
-> aaa admin-logout port 1/9  
-> aaa admin-logout user j_smith  
-> aaa admin-logout user-network-profile name marketing
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[show aaa-device all-users](#) Displays the global user lockout settings for the switch.

### MIB Objects

```
alaDot1xAdminLogoutParams  
  alaDot1xAdminLogoutType  
  alaDot1xAdminLogoutMacAddress  
  alaDot1xAdminLogoutUserName
```



```
alaDot1xAdminLogoutNetworkProfileName  
alaDot1xAdminLogoutInterfaceId
```

---

## end-user profile

Configures or modifies an end user profile, which specifies access to command areas. The profile may be attached to a customer login user account.

**end-user profile** *name* [**read-only** [*area* | **all**]] [**read-write** [*area* | **all**]] [**disable** [*area* | **all**]]

**no end-user profile** *name*

---

### Syntax Definitions

<i>name</i>	The name of the end-user profile, up to 32 alphanumeric characters.
<i>area</i>	Command areas on the switch to which the user is allowed or denied access. Areas include <b>physical</b> , <b>vlan-table</b> , <b>basic-ip-routing</b> , <b>ip-routes-table</b> , <b>mac-filtering-table</b> , <b>spantree</b> .

### Defaults

Areas are disabled for end-user profiles by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of the command to delete an end-user profile.
- An end-user profile may not be attached to a user that is already configured with functional privileges.
- If a profile is deleted, but the profile name is still associated with a user, the user will not be able to log into the switch.
- Use the **end-user profile port-list** and **end-user profile vlan-range** commands to configure ports and VLANs to which this profile will have access. By default, new profiles do not allow access to any ports or VLANs.

### Examples

```
-> end-user profile bsmith read-only basic-ip-routing ip-routes-table
-> no end-user profile bsmith
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">end-user profile port-list</a>	Configures a range of ports associated with an end-user profile.
<a href="#">end-user profile vlan-range</a>	Configures a range of VLANs associated with an end-user profile.
<a href="#">user</a>	Configures or modifies user entries in the local user database.
<a href="#">show end-user profile</a>	Displays information about end-user profiles.

## MIB Objects

```
endUserProfileTable
    endUserProfileName
    endUserProfileAreaPhysical
    endUserProfileAreaVlanTable
    endUserProfileAreaBasicIPRouting
    endUserProfileAreaIpRoutesTable
    endUserProfileAreaMacFilteringTable
    endUserProfileAreaSpantree
endUserProfileSlotPortTable
    endUserProfileSlotNumber
    endUserProfilePortList
endUserProfileVlanIdTable
    endUserProfileVlanIdStart
    endUserProfileVlanIdEnd
```

---

## end-user profile port-list

Configures a range of ports associated with an end-user profile.

**end-user profile** *name* **port-list** *slot1*[*port\_range1*] [*slot2*[*port\_range2*] ...]

**end-user profile** *name* **no port-list** *slot1* [*slot2*...]

---

### Syntax Definitions

<i>name</i>	The name of an existing or a new end-user profile.
<i>slot1</i>	The slot number associated with the profile.
<i>port_range1</i>	The port or port range associated with slot1. Ports are separated by a hyphen, for example <b>2-4</b> .
<i>slot2</i>	Additional slots may be associated with the profile.
<i>port_range2</i>	Additional ports may be associated with additional slot numbers associated with the profile.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a port list or lists from an end-user profile. Note that the **no** form removes all the ports on a given slot or slots.

### Examples

```
-> end user profile Prof1 port-list 2/1-3 3 4/1-5
-> end user profile Prof1 no port-list 4
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">end-user profile</a>	Configures or modifies an end user profile, which specifies access to command areas.
<a href="#">end-user profile vlan-range</a>	Configures a range of VLANs associated with an end-user profile.
<a href="#">show end-user profile</a>	Displays information about end-user profiles.

## MIB Objects

```
endUserProfileTable
  endUserProfileName
endUserProfileSlotPortTable
  endUserProfileSlotNumber
  endUserProfilePortList
```

---

## end-user profile vlan-range

Configures a range of VLANs associated with an end-user profile.

**end-user profile** *name* **vlan-range** *vlan\_range* [*vlan\_range2...*]

**end-user profile** *name* **no vlan-range** *vlan1* [*vlan2..*]

---

### Syntax Definitions

<i>name</i>	The name of an existing or a new end-user profile.
<i>vlan_range</i>	The VLAN range associated with the end-user profile; values are separated by a hyphen. For example: <b>3-6</b> indicates VLAN 3, VLAN 4, VLAN 5, and VLAN 6.
<i>vlan_range2...</i>	Optional additional VLAN ranges associated with the end-user profile. Up to 16 ranges total may be configured.
<i>vlan1</i>	The VLAN range to be deleted from the profile. Only the start of the range may be entered.
<i>vlan2...</i>	Additional VLAN ranges to be deleted. Only the start of the range may be entered.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of the command to remove a VLAN range or ranges from an end-user profile. Note that only the start of the VLAN range must be entered to remove the range.

### Examples

```
-> end-user profile Prof1 vlan-range 2-4 7-8
-> end-user profile Prof1 no vlan-range 7
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">end-user profile</a>	Configures or modifies an end user profile, which specifies access to command areas.
<a href="#">end-user profile port-list</a>	Configures a range of ports associated with an end-user profile.
<a href="#">show end-user profile</a>	Displays information about end-user profiles.

## MIB Objects

```
endUserProfileTable
  endUserProfileName
endUserProfileVlanIdTable
  endUserProfileVlanIdStart
  endUserProfileVlanIdEnd
```

---

## aaa user-network-profile

Configures a User Network Profile (UNP) that is used to provide role-based access to the switch. The UNP determines the VLAN ID a device can join, whether or not a Host Integrity Check (HIC) is applied to the device, and if any QoS policy rules are used to control access to network resources.

**aaa user-network-profile name** *profile\_name* **vlan** *vlan-id* [**hic** [**enable** | **disable**]] [**policy-list-name** *list\_name*]

**no aaa user-network-profile name** *profile\_name*

---

### Syntax Definitions

<i>profile_name</i>	The name of an existing or a new user profile. The name specified here must match with the Filter-ID attribute returned by the RADIUS server. The user profile name can range from 1 to 32 characters in length.
<i>vlan-id</i>	The VLAN identification number for an existing VLAN that will be assigned to a user. The valid range is 1-4094.
<b>enable</b>	Enables Host Integrity Check for the profile.
<b>disable</b>	Disables Host Integrity Check for the profile.
<i>list_name</i>	The name of an existing QoS policy list to apply to devices classified by the User Network Profile. It is possible to assign up to 13 policy lists to each user profile.

### Defaults

parameter	default
<b>hic enable</b>   <b>disable</b>	disabled
<i>list_name</i>	none

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

OmniSwitch 9000E; **hic enable**, **hic disable**, **policy-list-name** parameters not supported.

### Usage Guidelines

- Use the **no** form of this command to remove a UNP from the switch configuration.
- This command is used with RADIUS as the authentication server
- Enabling the **hic** parameter triggers the HIC verification process for any devices to which this profile is applied. The switch interacts with the InfoExpress CyberGatekeeper HIC server to determine host compliance.

### Examples

```
-> aaa user-network-profile name engineering vlan 10
-> aaa user-network-profile name marketing vlan 30 hic enable
```



```
-> aaa user-network-profile name guest_user vlan 500 hic enable policy-list name
temp_rules
```

## Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **hic enable**, **hic disable**, **policy-list name** parameters added.

## Related Commands

<b>show aaa user-network-profile</b>	Displays the UNP configuration for the switch.
<b>aaa hic</b>	Globally enables or disables the HIC feature for the switch.
<b>aaa classification-rule mac-address</b>	Defines a MAC address UNP mobile rule.
<b>aaa classification-rule mac-address-range</b>	Defines a MAC address UNP mobile rule for a range of MAC addresses.
<b>aaa classification-rule ip-address</b>	Defines an IP network address UNP mobile rule.

## MIB Objects

```
aaaUserNetProfileTable
  aaaUserNetProfileName
  aaaUserNetProfileVlanID
  aaaUserNetProfileHICflag
  aaaUserNetProfileQosPolicyListName
```

---

---

## aaa classification-rule mac-address

Defines a User Network Profile (UNP) MAC address mobile rule. If the source MAC address of a device matches the MAC address defined for the rule, the specified UNP is applied to the device. UNP mobile rules are applied using an Access Guardian Group Mobility device classification policy.

**aaa classification-rule mac-address** *mac\_address* **user-network-profile name** *profile\_name*

**aaa classification-rule no mac-address** *mac\_address*

---

### Syntax Definitions

<i>mac_address</i>	MAC address (e.g., 00:00:39:59:f1:0c).
<i>profile_name</i>	The name of an existing user network profile.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the UNP mobile rule from the switch configuration.
- To change the UNP associated with a mobile rule, enter the MAC address of an existing rule but specify a different UNP name.
- When Group Mobility is configured as an Access Guardian device classification policy for an 802.1x port, both UNP mobile rules and VLAN mobile rules are applied to device traffic on that port.
- Note that UNP mobile rules take precedence over VLAN mobile rules.

### Examples

```
-> aaa classification-rule mac-address 00:00:2a:33:44:01 user-network-profile name
accounting
-> aaa classification-rule no mac-address 00:00:2a:33:44:01
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>aaa classification-rule mac-address-range</b>	Configures a UNP mobile rule for a range of MAC addresses.
<b>aaa classification-rule ip-address</b>	Configures an IP address UNP mobile rule.
<b>show aaa classification-rule</b>	Displays the UNP configuration.
<b>show aaa user-network-profile</b>	Displays the UNP configuration.

## MIB Objects

```
aaaUNPMacRuleTable  
  aaaUNPMacRuleAddr  
  aaaUNPMacRuleProfileName
```

---

## aaa classification-rule mac-address-range

Defines a User Network Profile (UNP) mobile rule for a range of MAC addresses. If the source MAC address of a device matches any address within the range of MAC addresses, the specified UNP is applied to the device. UNP mobile rules are applied using an Access Guardian Group Mobility device classification policy.

```
aaa classification-rule mac-address-range low_mac_address high_mac_address user-network-profile  
name profile_name
```

```
aaa classification-rule no mac-address-range low_mac_address
```

---

### Syntax Definitions

<i>low_mac_address</i>	MAC address that defines the low end of the range (e.g., 00:00:39:59:f1:00).
<i>high_mac_address</i>	MAC address that defines the high end of the range (e.g., 00:00:39:59:f1:90).
<i>profile_name</i>	The name of an existing user network profile.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the UNP mobile rule from the switch configuration.
- To change the UNP associated with a mobile rule, enter the MAC address range of an existing rule but specify a different user network profile name.
- When Group Mobility is configured as an Access Guardian device classification policy for an 802.1x port, both UNP mobile rules and VLAN mobile rules are applied to device traffic on that port.
- Note that UNP mobile rules take precedence over VLAN mobile rules.

### Examples

```
-> aaa classification-rule mac-address-range 00:00:2a:33:44:01 00:00:2a:33:44:10  
user-network-profile name accounting  
-> aaa classification-rule no mac-address-range 00:00:2a:33:44:01
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

- aaa classification-rule mac-address** Configures a MAC address UNP mobile rule.
- aaa classification-rule ip-address** Configures an IP address UNP mobile rule.
- show aaa classification-rule** Displays the UNP mobile rule configuration.
- show aaa user-network-profile** Displays the UNP configuration.

## MIB Objects

aaaUNPMacRangeRuleTable  
aaaUNPMacRangeRuleLoAddr  
aaaUNPMacRangeRuleHiAddr  
aaaUNPMacRangeRuleProfileName

---

## aaa classification-rule ip-address

Defines a User Network Profile (UNP) IP address mobile rule. If the source IP address of a device matches the IP address defined for the rule, the specified UNP is applied to the device. UNP mobile rules are applied using an Access Guardian Group Mobility device classification policy

```
aaa classification-rule ip-address ip_address [subnet_mask] user-network-profile name profile_name
```

```
aaa classification-rule no ip-address ip_address [subnet_mask]
```

---

### Syntax Definitions

<i>ip_address</i>	IP network address (e.g., 10.0.0.0, 171.15.0.0, 196.190.254.0)
<i>subnet_mask</i>	Class A, B, or C subnet mask (e.g., 255.0.0.0, 255.255.0.0, or 255.255.255.0).
<i>profile_name</i>	The name of an existing user network profile.

### Defaults

By default, the subnet mask is set to the default subnet mask value for the IP address class.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the UNP mobile rule from the switch configuration.
- To change the UNP associated with a mobile rule, enter the IP address of an existing rule but specify a different UNP name.
- When Group Mobility is configured as an Access Guardian device classification policy for an 802.1x port, both UNP mobile rules and VLAN mobile rules are applied to device traffic on that port.
- Note that UNP mobile rules take precedence over VLAN mobile rules.

### Examples

```
-> aaa classification-rule ip-address 10.1.1.1 user-network-profile name accounting
-> aaa classification-rule ip-address 198.4.21.1 255.255.0.0 user-network-profile
name marketing
-> aaa classification-rule no ip-address 10.1.1.1
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

- |                                                  |                                                            |
|--------------------------------------------------|------------------------------------------------------------|
| <b>aaa classification-rule mac-address</b>       | Configures a MAC address UNP mobile rule.                  |
| <b>aaa classification-rule mac-address-range</b> | Configures a UNP mobile rule for a range of MAC addresses. |
| <b>show aaa classification-rule</b>              | Displays the UNP mobile rule configuration.                |
| <b>show aaa user-network-profile</b>             | Displays the UNP configuration.                            |

## MIB Objects

```
aaaUNPIpNetRuleTable  
  aaaUNPIpNetRuleAddr  
  aaaUNPIpNetRuleMask  
  aaaUNPIpNetRuleProfileName
```

---

## aaa hic server-name

Configures the identity of the Host Integrity Check (HIC) InfoExpress CyberGatekeeper server. HIC is a User Network Profile (UNP) option that when enabled, verifies the integrity of a device connected to the switch. Both HIC and UNP are components of the Access Guardian security framework.

```
aaa hic server-name server ip-address ip_address secret secret [role {primary | backup}] [udp-port udp_port]
```

```
aaa hic no server-name server
```

---

### Syntax Definitions

<i>server</i>	The name of the HIC server.
<i>ip_address</i>	The IP address of the HIC server.
<i>secret</i>	The shared secret known to the switch and the server, but which is not sent over the network. Can be any text or hexadecimal string but <b>MUST</b> match the secret configured on the server. The secret is case-sensitive.
<b>primary   backup</b>	Configures this server as either the Primary or Backup HIC server.
<i>udp_port</i>	The UDP destination port number (1025–65536) for HIC requests.

### Defaults

parameter	default
<i>udp_port</i>	11707

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Configuring the HIC server identity and related parameters is required before globally enabling the HIC feature for the switch.
- The primary server is initially configured as the active server and the backup server as inactive.
- A keepalive message will be sent to the active server if the switch does not receive any HIC-UPDATES from the server for 16 seconds. The switch will remain the active server upon receiving the keepalive acknowledgement.
- The switch will send a total of four keepalive messages to the active server in 6 second intervals. If no response is received, the inactive server becomes the active server provided the server status is UP.
- If both servers are unavailable the switch operates in either Hold or Pass-through mode based on the HIC Server failure mode that has been configured.
- Background polling (Keepalive) packets are sent to the primary server every 16 seconds.



- If the server's role is not specified the first configured server will be the primary and the next configured server will be backup.

## Examples

```
-> aaa hic server-name hic-srv1 ip-address 2.2.2.2 secret wwwtoe mode primary
-> aaa hic server-name hic-srv1 ip-address 2.2.2.2 udp-port 12049
-> aaa hic no server-name hic-srv1
```

## Release History

Release 6.3.4; command was introduced.

Release 6.4.4; **role** parameter was introduced.

## Related Commands

<a href="#">show aaa hic server</a>	Displays the HIC server configuration for the switch.
<a href="#">aaa hic server-failure mode</a>	Configures the failure mode to be applied when both servers are unavailable.
<a href="#">show aaa server</a>	Displays information about AAA servers.
<a href="#">aaa hic redundancy background-poll-interval</a>	Configures a download server as an exception to the HIC process.
<a href="#">aaa hic</a>	Globally enables and disables the HIC feature for the switch.

## MIB Objects

```
aaaHicSvrTable
  aaaHicSvrName
  aaaHicSvrIpAddr
  aaaHicSvrRole
  aaaHicSvrConnection
  aaaHicSvrPort
  aaaHicSvrKey
  aaaHicSvrStatus
```

---

## aaa hic redundancy background-poll-interval

Configures the background polling interval that determines when the primary server is considered active after being inactive.

**aaa hic redundancy background-poll-interval** *value*

---

### Syntax Definitions

*value* The background polling interval in seconds. The valid range is from 16 to 256 in multiples of 16.

### Defaults

parameter	default
<i>value</i>	16

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- If the primary server is unavailable and placed in the inactive mode the switch begins to poll the primary server in the background.
- In order to avoid overwhelming a primary server that becomes active again the switch will generate a random reconnect value. When the switch receives continuous keepalive responses equal to the random reconnect value it assumes the primary server is ready to takeover the active role.
- When the backup server is inactive this interval determines the frequency at which the poll packets should be sent to backup server.
- Once the primary server becomes active, the backup server becomes inactive.

### Examples

```
-> aaa hic redundancy background-poll-interval 32
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

[show aaa hic](#)

Displays the global Host Integrity Check (HIC) configuration for the switch.

## MIB Objects

```
aaaHicConfigInfo  
aaaHicBgPollInterval
```

---

---

## aaa hic server-failure mode

Configures the failure mode to be applied when both servers are unavailable.

**aaa hic server-failure mode {hold | pass-through}**

---

### Syntax Definitions

<b>hold</b>	Places all new users in hold mode if the HIC servers are unavailable.
<b>pass-through</b>	Places all new users in pass-through mode if the HIC servers are unavailable.

### Defaults

parameter	default
hold   pass-through	hold

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- The server failure mode has no affect on users that have already passed HIC successfully.
- In **hold** mode new users will stay in the HIC IN PROGRESS state while the servers are unavailable.
- In **pass-through** mode new users will be moved to HIC PASSTHROUGH mode and treated same as HIC SUCCESS.

### Examples

```
-> aaa hic server-failure mode pass-through
```

### Release History

Release 6.4.4; command was introduced.

### Related Commands

[show aaa hic server](#) Displays the HIC server configuration for the switch.

### MIB Objects

aaaHicConfigInfoTable  
aaaHicSrvFailMode

---

## aaa hic server-failure policy user-network-profile change

Configures which network profiles users will be moved to when both HIC servers are unavailable.

**aaa hic server-failure policy user-network-profile change *unp1* to *unp2***

**aaa hic server-failure policy user-network-profile no change**

---

### Syntax Definitions

*unp1* Name of the original UNP from which the user will be moved if the servers are not reachable and the failure mode is set to Hold.

*unp2* Name of the UNP that the HIC host will be moved to while the HIC servers are down.

### Defaults

parameter	default
change   no change	no change

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- If the HIC failure mode is set to Hold and the HIC servers are not available this command allows users in the HIC-in-progress state to be moved from *unp1* to *unp2*. Once the HIC servers come back up, the user shall be moved back to the original *unp1* and the HIC-check will be restarted.
- A maximum of 8 server-failure policies can be configured.
- Use the **no** parameter to prevent users from moving out of their current UNP.

### Examples

```
-> aaa hic server-failure policy user-network-profile change unp_orig to unp_temp  
-> aaa hic server-failure policy user-network-profile no change
```

### Release History

Release 6.4.4; command was introduced.

## Related Commands

**show aaa hic server**                      Displays the HIC server configuration for the switch.

## MIB Objects

```
aaaHicSvrDownUnpMapTable
  aaaHicSvrDownUnpMapEntry
  aaaHicSvrDownUnpName
  aaaHicSvrDownMappedUnpName
  aaaHicSvrDownUnpRowStatus
```

---

## aaa hic allowed-name

Configures a list of servers that are excluded from the Host Integrity Check (HIC) process. This list identifies servers that a host can communicate with during the verification process, when the host has limited access to the network.

**aaa hic allowed-name** *server* **ip-address** *ip\_address* [**ip-mask** *subnet\_mask*]

**aaa hic no allowed-name** *server*

---

### Syntax Definitions

<i>server</i>	The name of the server.
<i>ip_address</i>	The IP address of the primary HIC server.
<i>subnet_mask</i>	A valid IP address mask (e.g., 255.0.0.0, 255.255.0.0) to identify the IP subnet for the download server.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>subnet_mask</i>	255.255.255.255

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Use the **no** form of the command to remove a server from the HIC exception list.
- Up to four server exception entries are allowed.
- If a host device requires access to the HIC server via a Web-based agent, make sure the Web agent download server is added to this list.
- Add any additional servers required for remediation to this list..

### Examples

```
-> aaa hic allowed-name rem-srv1 ip-address 10.1.1.1
-> aaa hic allowed-name patch-srv1 ip-address 11.1.1.1
-> aaa hic allowed-name web-agent-srv1 ip-address 12.1.1.1
-> aaa hic no allowed-name rem-srv1
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<code>show aaa server</code>	Displays information about AAA servers.
<code>aaa hic server-name</code>	Configures a HIC server for use with the switch.
<code>aaa hic</code>	Globally enables and disables the HIC feature for the switch.

## MIB Objects

```
aaaHicAllowedTable  
  aaaHicAllowedName  
  aaaHicAllowedIpAddr  
  aaaHicAllowedIpMask  
  aaaHicAllowedRowStatus
```

---



## aaa hic

Globally enables or disables the Host Integrity Check (HIC) feature for the switch.

**aaa hic {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the HIC feature for the switch.
<b>disable</b>	Disables the HIC feature for the switch.

### Defaults

HIC is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

- This command requires the configuration of the HIC server information before HIC is enabled on the switch.
- When HIC is enabled for the switch, configuring HIC server parameters is not allowed.
- Note that the VLAN Stacking feature is not available when HIC is configured for the switch. These two features are mutually exclusive in that only one of them can run on the switch at any given time.

### Examples

```
-> aaa hic enable  
-> aaa hic disable
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">show aaa server</a>	Displays information about AAA servers.
<a href="#">aaa hic server-name</a>	Configures a HIC server for use with the switch.
<a href="#">aaa hic redundancy background-poll-interval</a>	Configures a remediation, patch, or web agent download server as an exception to the Host Integrity Check (HIC) process.
<a href="#">aaa user-network-profile</a>	Configures a User Network Profile (UNP) that is used to provide role-based access to the switch.

## MIB Objects

aaaHicConfigInfo  
aaaHicStatus

---



---

## aaa hic custom-proxy-port

Specifies the HTTP proxy port number used in the Web browser configuration of a host device. The HIC process uses this information when interacting with hosts using the InfoExpress Web-based compliance agent.

**aaa hic custom-proxy-port** *proxy\_port*

---

### Syntax Definitions

*proxy\_port* An HTTP proxy port number (1025–65535).

### Defaults

The HTTP proxy port is set to 8080.

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

This command overwrites the existing proxy port number.

### Examples

```
-> aaa hic custom-proxy-port 8878
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">show aaa server</a>	Displays information about AAA servers.
<a href="#">aaa hic</a>	Globally enables the HIC feature for the switch.

### MIB Objects

aaaHicConfigInfo  
aaaHicCustomHttpProxyPort

---

## show aaa server

Displays information about a particular AAA server or AAA servers.

**show aaa server** [*server\_name*]

---

### Syntax Definitions

*server\_name*                      The server name, which is defined through the **aaa radius-server** or **aaa ldap-server** commands or automatically set as **ace** for ACE servers.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E  
OmniSwitch 9000E, 6855-U24X; VRF supported.

### Usage Guidelines

- If you do not include a server name in the syntax, information for all servers displays.
- To display information about an ACE server, use **ace** as the *server\_name*. Information for ACE is only available if ACE is specified for Authenticated Switch Access through the **aaa authentication** command.

### Examples

```
-> show aaa server ldap2
Server name = ldap2
  Server type= LDAP,
  Host name 1= ors40535,
  Retry number= 3,
  Timeout (in sec)= 2,
  Port= 389,
  Domain name= manager,
  Search base= c=us,

-> show aaa server rad1
Server name = rad1
  Server type           = RADIUS,
  IP Address 1         = 10.111.0.1,
  Retry number        = 3,
  Time out (sec)      = 2,
  Authentication port  = 1812,
  Accounting port     = 1813,
  VRF                  = "Management-vrf"
```

```

-> show aaa server TPub1
Server name = TPub1
  Server type           = TACACS+,
  IP Address 1         = 10.10.5.1,
  Port                 = 3,
  Timeout (in sec)     = 2,
  Encryption enabled   = no

-> show aaa server ldap2
Server name = ldap2
  Server type           = LDAP,
  Host name 1          = ors40535,
  Retry number         = 3,
  Timeout (in sec)     = 2,
  Port                 = 389,
  Domain name          = manager,
  Search base          = c=us,

```

RADIUS, TACACS+, and LDAP parameters are configured through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands. Parameters for the ACE server are automatically set by the switch.

#### *output definitions*

<b>Server name</b>	The name of the server. The switch automatically assigns “ace” to an ACE server. A RADIUS, TACACS+ or LDAP server name is defined through the <a href="#">aaa radius-server</a> , <a href="#">aaa tacacs+-server</a> , and <a href="#">aaa ldap-server</a> commands respectively.
<b>Server type</b>	The type of server (ACE, LDAP, TACACS+, or RADIUS).
<b>Host name</b>	The name of the primary LDAP, TACACS+, or RADIUS host.
<b>IP address</b>	The IP address(es) of the server.
<b>Retry number</b>	The number of retries the switch makes to authenticate a user before trying the backup server.
<b>Timeout</b>	The timeout for server replies to authentication requests.
<b>Port</b>	The port number for the primary LDAP or TACACS+ server.
<b>Encryption enabled</b>	The status of the encryption.
<b>Domain name</b>	The super-user or administrative distinguished name in the format recognized by the LDAP-enabled directory servers.
<b>Search base</b>	The search base recognized by the LDAP-enabled directory servers.
<b>Authentication port</b>	The UDP destination port for authentication requests.
<b>Accounting port</b>	The UDP destination port for accounting requests.
<b>VRF</b>	The VRF name assigned to the server.

#### **Release History**

Release 6.1; command was introduced.  
 Release 6.1.3; **Encryption enabled** field was added.  
 Release 6.4.2; added **VRF** output field.

## Related Commands

<a href="#">aaa radius-server</a>	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">aaa ldap-server</a>	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
<a href="#">aaa tacacs+-server</a>	Configures or modifies an TACACS+ server for Authenticated VLANs or Authenticated Switch Access.

## MIB Objects

```
aaaServerTable
  aaasName
  aaasHostName
  aaasIpAddress
  aaasHostName2
  aaasIpAddress2
  aaasRadKey
  aaasRetries
  aaasTimeout
  aaasRadAuthPort
  aaasRadAcctPort
  aaasProtocol
  aaasTacacsKey
  aaasTacacsPort
  aaasLdapPort
  aaasLdapDn
  aaasLdapPasswd
  aaasLdapSearchBase
  aaasLdapServType
  aaasLdapEnableSsl
  aaasVrfName
```

---

## show aaa authentication vlan

Displays information about Authenticated VLANs and the authentication server configuration.

**show aaa authentication vlan**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **show aaa authentication vlan** command to display information about authentication servers configured in single mode or for authentication servers configured for each VLAN for authentication in multiple mode.

### Examples

```
-> show aaa authentication vlan
Authenticated vlan = 23,
  1rst authentication server = radius1,
  2nd authentication server = ldap3
Authenticated vlan = 24,
  1rst authentication server = radius1,
  2nd authentication server = ldap3.
Authenticated vlan = 25,
  1rst authentication server = radius1,
  2nd authentication server = ldap3
Authenticated vlan = 26,
  1rst authentication server = radius1,
  2nd authentication server = ldap3
Authenticated vlan = 33,
  1rst authentication server = radius1
  2nd authentication server = ldap3
```

#### *output definitions*

---

<b>Authenticated vlan</b>	The VLAN number.
<b>1st authentication server</b>	The first server to be polled for authentication information.
<b>2nd authentication server</b>	The next server to be polled for authentication information.

---

### Release History

Release 6.1; command was introduced.



## Related Commands

- aaa authentication vlan single-mode** Specifies the AAA servers to be used in single-authority mode for Layer 2 Authentication.
- aaa authentication vlan multiple-mode** Specifies the AAA servers to be used in multiple-authority mode for Authenticated VLANs.

## MIB Objects

aaaAuthVlanTable  
    aaatvName1  
    aaatvName2  
    aaatvName3  
    aaatvName4

---

---

## show aaa authentication

Displays information about the current authenticated switch session.

**show aaa authentication**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **show aaa authentication** command to display authentication information about switch management services (Telnet, FTP, console port, Secure Shell, etc.).

### Examples

```
-> show aaa authentication
Service type = Default
  1rst authentication server = RadiusServer
  2nd authentication server = local
Service type = Console
  1rst authentication server = local
Service type = Telnet
  Authentication = Use Default,
  1rst authentication server = RadiusServer
  2nd authentication server = local
Service type = FTP
  Authentication = Use Default,
  1rst authentication server = RadiusServer
  2nd authentication server = local
Service type = Http
  Authentication = Use Default,
  1rst authentication server = RadiusServer
  2nd authentication server = local
Service type = Snmp
  Authentication = Use Default,
  1rst authentication server = RadiusServer
  2nd authentication server = local
Service type = Ssh
  Authentication = Use Default,
  1rst authentication server = TacacsServer
  2nd authentication server = local
```

*output definitions*

---

<b>Authentication</b>	Displays <b>denied</b> if the management interface is disabled. Displays <b>Use Default</b> if the management interface is configured to use the default configuration.
<b>1st authentication server</b>	The first server to be polled for authentication information.
<b>2nd authentication server</b>	The next server to be polled for authentication information.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[aaa authentication](#) Configures the interface for Authenticated Switch Access and specifies the server(s) to be used.

**MIB Objects**

```
aaaAuthSatable
  aaatsName1
  aaatsName2
  aaatsName3
  aaatsName4
  aaatsRowStatus
```

---

---

## show aaa authentication 802.1x

Displays information about the global 802.1X configuration on the switch.

**show aaa authentication 802.1x**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

This command displays information about 802.1X settings configured through the [aaa authentication 802.1x](#) command.

### Examples

```
-> show aaa authentication 802.1x
1rst authentication server = nms-avlan-30,
port usage                 = unique
```

### *output definitions*

---

<b>1st authentication server</b>	The first server to be polled for authentication information. Any backup servers are also displayed on subsequent lines.
<b>port usage</b>	Whether 802.1X ports on the switch will only accept frames from the supplicant's MAC address after successful authentication ( <b>unique</b> ); or the switch will accept any frames on 802.1X ports after successful authentication ( <b>global</b> )

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[aaa authentication 802.1x](#) Enables/disables the switch for 802.1X authentication.

## **MIB Objects**

AaaAuth8021XTable

aaatxName1

aaatxName2

aaatxName3

aaatxName4

aaatxOpen

---

---

## show aaa authentication mac

Displays a list of RADIUS servers configured for MAC based authentication.

**show aaa authentication mac**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

This command displays MAC authentication servers configured through the [aaa authentication mac](#) command.

### Examples

```
-> show aaa authentication mac
1rst authentication server = rad1,
```

#### *output definitions*

---

<b>1st authentication server</b>	The first server to be polled for authentication information. Any backup servers are also displayed on subsequent lines.
----------------------------------	--------------------------------------------------------------------------------------------------------------------------

---

### Release History

Release 6.1.2; command was introduced.

### Related Commands

[aaa authentication mac](#) Enables/disables the switch for MAC based authentication.

### MIB Objects

AaaAuthMACTable  
aaaMacSrvrName1  
aaaMacSrvrName2  
aaaMacSrvrName3  
aaaMacSrvrName4

---

## show aaa accounting 802.1x

Displays information about accounting servers for 802.1X sessions.

**show aaa authentication 802.1x**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Accounting servers are configured through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

### Examples

```
-> show aaa accounting 802.1x
1st authentication server = onyx,
2nd accounting server    = odyssey
3rd accounting server    = local
```

### *output definitions*

---

<b>1st authentication server</b>	The first server to be polled for accounting of 802.1X sessions. Any backup servers are also displayed on subsequent lines.
----------------------------------	-----------------------------------------------------------------------------------------------------------------------------

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[aaa accounting 802.1x](#) Enables/disables accounting for 802.1X authentication sessions.

### MIB Objects

AaaAcct8021XTable  
aaacxName1  
aaacxName2  
aaacxName3  
aaacxName4

---

---

## show aaa accounting mac

Displays information about accounting servers for 802.1X non-supPLICANT sessions.

**show aaa authentication mac [statistics]**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Accounting servers are configured through the [aaa radius-server](#), [aaa tacacs+-server](#), and [aaa ldap-server](#) commands.

### Examples

```
-> show aaa accounting mac
1rst authentication server = onyx,
2nd accounting server= odyssey
3rd accounting server= local

-> show aaa accounting mac statistics
NSA-users Logged in      = 1,
NSA-users Logged out    = 1,
NSA-users Failed info    = 0,
NSA-users IntermUpdate  = 0
```

### *output definitions*

---

<b>1st authentication server</b>	The first server to be polled for accounting of 802.1X sessions. Any backup servers are also displayed on subsequent lines.
----------------------------------	-----------------------------------------------------------------------------------------------------------------------------

---

### Release History

Release 6.4.4; command was introduced.



## Related Commands

### [aaa accounting mac](#)

Enables/disables accounting for 802.1X non-supPLICANT authentication sessions.

## MIB Objects

---

## show aaa accounting vlan

Displays information about accounting servers configured for Authenticated VLANs. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**show aaa accounting vlan**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **show aaa accounting vlan** command to display accounting information for all servers configured for Authenticated VLANs.

### Examples

```
-> show aaa accounting vlan
Authenticated vlan = 23,
  1rst accounting server      = RadiusServer
  2nd accounting server      = local
Authenticated vlan = 24,
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
Authenticated vlan = 25,
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
Session (telnet, ftp,...),
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
```

### *output definitions*

---

<b>Authenticated vlan</b>	Indicates servers for Authenticated VLANs.
<b>Session</b>	Indicates servers for Authenticated Switch Access session.
<b>1st authentication server</b>	The first server to be polled for authentication information.
<b>2nd authentication server</b>	The next server to be polled for authentication information.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### **aaa accounting mac**

Specifies an accounting server or servers to be used for Authenticated VLANs.

## MIB Objects

aaaAcctVlanTable

aaacvName1

aaacvName2

aaacvName3

aaacvName4

---

## show aaa accounting

Displays information about accounting servers configured for Authenticated VLANs, Authenticated Switch Access, and 802.1X port-based network access control. Accounting servers keep track of network resources (time, packets, bytes, etc.) and user activity.

**show aaa accounting**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use the **show aaa accounting** command to display accounting servers configured for management session types (Telnet, FTP, console port, HTTP, or SNMP) and 802.1X port-based network access control.

### Examples

```
-> show aaa accounting
Authenticated vlan = 23,
  1rst accounting server      = RadiusServer
  2nd accounting server      = local
Authenticated vlan = 24,
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
Authenticated vlan = 25,
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
Session (telnet, ftp,...),
  1rst accounting server      = RadiusServer,
  2nd accounting server      = local
```

#### *output definitions*

---

<b>Authenticated vlan</b>	Indicates servers for Authenticated VLANs.
<b>Session</b>	Indicates servers for Authenticated Switch Access session.
<b>1st authentication server</b>	The first server to be polled for authentication information.
<b>2nd authentication server</b>	The next server to be polled for authentication information.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [aaa accounting session](#)

Configures accounting servers for Authenticated Switch Access sessions.

### [aaa accounting 802.1x](#)

Enables/disables accounting for 802.1X authentication sessions.

## MIB Objects

aaaAcctSatable

aaacsName1

aaacsName2

aaacsName3

aaacsName4

---



```

Snmp authentication      = SHA,
Snmp encryption         = DES
Console-Only            = Disabled
User name = public,
Password expiration     = 10/27/2007 11:01 (30 days from now),
Password allow to be modified date = 9/30/2007 10:59 (3 days from now),
Account lockout         = None,
Password bad attempts   = 0,
Read Only for domains   = None,
Read/Write for domains  = All ,
Snmp allowed            = NO,
Console-Only            = Disabled
User name = default (*),
Password expiration     = 10/27/2007 11:01 (30 days from now),
Password allow to be modified date = 9/30/2007 10:59 (3 days from now),
Account lockout         = None,
Password bad attempts   = 0,
Read Only for domains   = None,
Read/Write for domains  = System Physical Layer2 Services policy Security ,
Read/Write for families = file telnet dshell debug ip rip ospf bgp vrrp ip-rout-
ing ipx ipmr ipms ,
Snmp allowed            = NO,
Console-Only            = Disabled
(*)Note:
The default user is not an active user account.
It contains the default user account settings,
for new user accounts.

```

```

-> show user j_smith
User name = j_smith,
Password expiration     = 10/27/2007 11:01 (30 days from now),
Password allow to be modified date = 9/30/2007 10:59 (3 days from now),
Account lockout         = Yes (Automatically unlocked after 19 minute(s)from now),
Password bad attempts   = 3,
END user profile        = u_profile1,
Snmp allowed            = YES,
Snmp authentication     = SHA,
Snmp encryption         = DES
Console-Only            = Disabled

```

### *output definitions*

---

<b>User name</b>	The user name for this account.
<b>Password expiration</b>	The date and time on which the password will expire. This field only displays if the password expiration is configured specifically for a user, or a default password expiration is configured globally on the switch through the <b>user password-expiration</b> command. (Note that the date/time are based on the switch's default system date/time or the system date/time configured through the <b>system date</b> and <b>system time</b> commands.)
<b>Password allow to be modified date</b>	The earliest date and time on which the user may change the password. Configured through the <b>user password-min-age</b> command.

*output definitions (continued)*

<b>Account lockout</b>	Indicates if the user account is locked out ( <b>Yes</b> or <b>No</b> ) and how many minutes remain until the user account is automatically unlocked. If no remaining time is displayed, the <b>admin</b> user or a user with admin privileges must manually unlock the account. Configured through the <b>user lockout-duration</b> and <b>user lockout unlock</b> commands.
<b>Password bad attempts</b>	The number of failed password login attempts for this user account.
<b>Read Only for domains</b>	The command domains available with the user's read-only access. See the table on the next page for a listing of valid domains. This field does not display if an end-user profile is associated with the user account.
<b>Read/Write for domains</b>	The command domains available with the user's read-write access. See the table on the next page for a listing of valid domains. This field does not display if an end-user profile is associated with the user account.
<b>Read Only for families</b>	The command families available with the user's read-only access. See the table on the next page for a listing of valid families. This field does not display if an end-user profile is associated with the user account.
<b>Read/Write for families</b>	The command families available with the user's read-write access. See the table on the next page for a listing of valid families. This field does not display if an end-user profile is associated with the user account.
<b>END user profile</b>	The name of an end-user profile associated with the user account. Configured through the <b>end-user profile</b> command. This field only displays if an end-user profile is associated with the user account.
<b>Snmp allowed</b>	Indicates whether or not the user is authorized to use SNMP ( <b>YES</b> or <b>NO</b> ). SNMP is allowed for the user account when SNMP authentication is specified for the account.
<b>Snmp authentication</b>	The level of SNMP authentication, if any, configured for the user. This field only displays if the user is authorized to use SNMP.
<b>Snmp encryption</b>	The level of SNMP encryption, if any, configured for the user. This field only displays if the user is authorized to use SNMP.
<b>Console-Only</b>	Displays whether the ability for the admin user to access the switch using only the console connection is enabled or disabled.

Possible values for command domains and families are listed here:

<b>Domain</b>	<b>Corresponding Families</b>
domain-admin	file telnet dshell debug
domain-system	system aip snmp rmon webmgt config
domain-physical	chassis module interface pmm health
domain-network	ip rip ospf bgp vrrp ip-routing ipx ipmr ipms
domain-layer2	vlan bridge stp 802.1q linkagg ip-helper
domain-service	dns
domain-policy	qos policy slb
domain-security	session avlan aaa



## Release History

Release 6.1; command was introduced.

Release 6.3.1; fields added for password policy and lockout status.

Release 6.4.3; Console-only parameter added.

## Related Commands

<a href="#">user</a>	Configures user entries in the local user database.
<a href="#">show user password-policy</a>	Displays the global password policy configuration for the switch.
<a href="#">show user lockout-setting</a>	Displays the global user lockout settings for the switch.

## MIB Objects

```
aaaUserTable
  aaauUserName
  aaauPasswordExpirationDate
  aaauPasswordExpirationInMinute
  aaauPasswordAllowModifyDate
  aaauPasswordLockoutEnable
  aaauBadAttempts
  aaauReadRight1
  aaauReadRight2
  aaauWriteRight1
  aaauWriteRight2
  aaauEndUserProfile
  aaauSnmpLevel
  aaauSnmpAuthkey
aaaAsaConfig
  aaaAsaAccessPolicyAdminConsoleOnly
```

---

---

## show user password-size

Displays the minimum number of characters that are required for a user password.

**show user password-size**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use this command to display the current minimum number of characters required when configuring user passwords.

### Examples

```
-> show user password-size
password, minimum size 9
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">user password-size min</a>	Configures the minimum number of characters required when configuring a user password.
<a href="#">user</a>	Configures or modifies user entries in the local user database.
<a href="#">password</a>	Configures the current user's password.
<a href="#">show user password-policy</a>	Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
  aaaAsaPasswordSizeMin
```

---

## show user password-expiration

Displays the expiration date for passwords configured for user accounts stored on the switch.

**show user password-expiration**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

This command displays the default password expiration, which is configured through the [user password-expiration](#) command.

### Examples

```
-> show user password-expiration
User password expiration is set to 3 days.
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">user password-expiration</a>	Configures an expiration date for user passwords stored locally on the switch or disables password expiration.
<a href="#">user</a>	Configures or modifies user entries in the local user database.
<a href="#">password</a>	Configures the current user's password.
<a href="#">show user password-policy</a>	Displays the global password policy configuration for the switch.

### MIB Objects

```
aaaAsaConfig
  aaaAsaDefaultPasswordExpirationInDays
```

---

## show user password-policy

Displays the global password settings configured for the switch.

**show user password-policy**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

The password policy contains parameter values that define configuration requirements for all passwords that are created on the switch. Use this command to display the current parameter values for the password policy.

### Examples

```
-> show user password-policy
Password Policy:
Contain username flag: Enable
Minimum number of English uppercase characters: 6
Minimum number of English lowercase characters: 4
Minimum number of base-10 digit: 2
Minimum number of non-alphanumeric: 3
Minimum size: 8
Password history: 4
Password minimum age: 20 (days)
Password expiration: 40 (days)
```

#### *output definitions*

<b>Contain username flag</b>	Indicates if the username is included with the password check ( <b>Enable</b> or <b>Disable</b> ). Configured through the <b>user password-policy cannot-contain-username</b> command.
<b>Minimum number of English uppercase characters</b>	The minimum number of uppercase characters required in a password. Configured through the <b>user password-policy min-uppercase</b> command.
<b>Minimum number of English lowercase characters</b>	The minimum number of lowercase characters required in a password. Configured through the <b>user password-policy min-lowercase</b> .
<b>Minimum number of base-10 digit</b>	The minimum number of digits required in a password. Configured through the <b>user password-policy min-digit</b> command.
<b>Minimum number of non-alphanumeric</b>	The minimum number of non-alphanumeric characters required in a password. Configured through the <b>user password-policy min-non-alpha</b> command.

*output definitions*

---

<b>Minimum size</b>	The minimum number of characters required for the password size. Configured through the <b>user password-size min</b> command.
<b>Password history</b>	The maximum number of old passwords retained in the password history. Configured through the <b>user password-history</b> command.
<b>Password minimum age</b>	The number of days a password is protected from any modification. Configured through the <b>user password-min-age</b> command.
<b>Password expiration</b>	The default expiration date applied to all passwords. Configured through the <b>user password-expiration</b> command.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

**show user password-size** Displays the minimum number of characters that are required for a user password.

**show user password-expiration** Displays the expiration date for passwords configured for user accounts stored on the switch.

**MIB Objects**

aaaAsaConfig

```
aaaAsaPasswordContainUserName  
aaaAsaPasswordMinUpperCase  
aaaAsaPasswordMinLowerCase  
aaaAsaPasswordMinDigit  
aaaAsaPasswordMinNonAlpha  
aaaAsaPasswordHistory  
aaaAsaPasswordMinAge  
aaaAsaPasswordSizeMin  
aaaAsaDefaultPasswordExpirationInDays
```

---

---

## show user lockout-setting

Displays the global user lockout settings for the switch.

**show user lockout-setting**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

The global lockout settings include parameter values that determine the length of a user observation window, the amount of time a locked user remains locked, and the number of failed password login attempts allowed.

### Examples

```
-> show user lockout-setting
Lockout Setting:
Observation window: 30 (minutes)
Duration: 200 (minutes)
Threshold: 20
```

#### *output definitions*

---

<b>Observation window</b>	The amount of time, in minutes, during which the number of failed password login attempts are counted. Configured through the <a href="#">user lockout-window</a> command.
<b>Duration</b>	The amount of time, in minutes, that a locked user account remains locked out of the switch. Configured through the <a href="#">user lockout-duration</a> command.
<b>Threshold</b>	The maximum number of failed password login attempts allowed before the user is locked out of the switch. Configured through the <a href="#">user lockout-threshold</a> command.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

[user lockout unlock](#)

Manually locks or unlocks a user account on the switch.

[show user](#)

Displays information about all users or a particular user configured in the local user database on the switch.

## MIB Objects

aaaAsaConfig

aaaAsaLockoutWindow

aaaAsaLockoutDuration

aaaAsaLockoutThreshold

---

## show avlan user

Displays MAC addresses for Authenticated VLAN users on the switch.

**show avlan user** [**vlan** *vlan\_id* | **slot** *slot*]

---

### Syntax Definitions

<i>vlan_id</i>	The VLAN number. Information displays about users in this VLAN.
<i>slot</i>	The slot number. Information displays about users with access on this slot.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Information may be displayed for all users or for users associated with a particular VLAN or slot.

### Examples

-> show avlan user

name	Mac Address	Slot	Port	Vlan
user0	27:bc:86:90:00:00	02	02	23
user1	27:bc:86:90:00:01	02	03	12
user2	27:bc:86:90:00:02	02	05	15
user3	27:bc:86:90:00:03	04	09	10
user4	27:bc:86:90:00:04	03	02	23

-> show avlan user 23

name	Mac Address	Slot	Port	Vlan
avlan_0	27:bc:86:90:00:00	02	02	23

### output definitions

---

<b>name</b>	The name of the authenticated user.
<b>Mac Address</b>	The MAC address of the user.
<b>Slot</b>	The slot associated with the user.
<b>Port</b>	The port associated with the user.
<b>Vlan</b>	The VLAN into which the user is authenticated.

---



## Release History

Release 6.1; command was introduced.

## Related Commands

**aaa vlan no** Deletes a particular Authenticated VLAN user from the configuration.

## MIB Objects

```
aaaAuthenticatedUserTable  
    aaaaMacAddress  
    aaaaSlot  
    aaaaPort  
    aaaaVlan
```

---

## show aaa avlan config

Displays the current global configuration parameters for Authenticated VLANs.

```
show aaa avlan config
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

Use this command to display DNS or DHCP information for Authenticated VLANs.

### Examples

```
-> show aaa avlan config
default DHCP relay address = 192.9.33.222
authentication DNS name   = authent.company.com
default traffic            = disabled
port bounding              = disabled
```

#### *output definitions*

<b>default DHCP relay address</b>	The gateway address of the DHCP server; configured through the <b>aaa avlan default dhcp</b> command.
<b>authentication DNS name</b>	The DNS host name, configured through the <b>aaa avlan dns</b> command.
<b>default traffic</b>	Whether or not the default VLAN is enabled for users to traffic in before authentication. Configured through the <b>aaa accounting command</b> command.
<b>port bounding</b>	Whether or not port mobility rules are allowed on Authenticated VLANs. Configured through the <b>avlan port-bound</b> command.

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">aaa avlan dns</a>	Configures a host name.
<a href="#">aaa avlan default dhcp</a>	Configures the gateway address for a DHCP server.
<a href="#">aaa accounting command</a>	Configures whether or not users are able to traffic in the default VLAN before they are actually authenticated.
<a href="#">avlan port-bound</a>	Configures whether or not authenticated ports may use port mobility rules.

## MIB Objects

```
aaaAvlanConfig  
  aaaAvlanDnsName  
  aaaAvlanDhcpDefGateway  
  aaaAvlanDefaultTraffic  
  aaaAvlanPortBound
```

---

## show aaa avlan auth-ip

Displays the IP addresses for Authenticated VLANs.

```
show aaa avlan auth-ip [vlan vlan_id]
```

---

### Syntax Definitions

*vlan\_id*                      The VLAN ID of the Authenticated VLAN for which you want to display the authentication IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- This command displays all Authenticated VLAN IP addresses unless a specific VLAN is requested with the **vlan** keyword and the relevant *vlan\_id*.
- The IP addresses for Authenticated VLANs is set automatically by the switch (based on the VLAN router port ID) or by the user through the **avlan auth-ip** command.

### Examples

```
-> show aaa avlan auth-ip
Vlan number      Authenticated Ip Address
-----+-----
 2                10.10.2.3
 4                12.13.14.253
```

```
-> show aaa avlan auth-ip vlan 2
Vlan number      Authenticated Ip Address
-----+-----
 2                10.10.2.3
```

### output definitions

---

<b>VLAN number</b>	The VLAN ID.
<b>Authenticated Ip Address</b>	The IP address associated with the Authenticated VLAN.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**avlan auth-ip**

Configures an IP address to be used for VLAN authentication.

## MIB Objects

aaaAvlanConfigTable

aaaAvlanAddress

---

## debug command-info

Enables or disables the command information mode in the CLI. When this mode is enabled, any command entered on the command line will display information about the command rather than executing the command.

**debug command-info** {enable | disable}

---

### Syntax Definitions

**enable** Enables the debugging command information mode.

**disable** Disables the debugging command information mode.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- When the mode is enabled, any command entered will result in output similar to the one shown in the Examples section below. Any commands entered when the mode is enabled are not executed. To return to normal operating mode, enter **debug command-info disable**.
- The command information mode is useful when setting privileges for users.

### Examples

```
-> debug command-info enable
CLI command info mode on
-> vlan 2
PM family:  VLAN
R/W mode:   WRITE
-> ls
PM family:  SYSTEM
R/W mode:   READ
```

#### *output definitions*

<b>PM family</b>	The partitioned management (PM) command family to which the command belongs.
<b>R/W mode</b>	Whether the current command is a read-only or a write command.

### Release History

Release 6.1; command was introduced.

## Related Commands

**user**

Configures or modifies user entries in the local user database.

---

## debug end-user profile

Use this command to display detailed information about profiles or a particular profile.

**debug end-user profile** *name*

---

### Syntax Definitions

*name* The name of the end-user profile, configured through the **end-user profile** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **show end-user profile** command to display basic information about end-user profiles.
- If a particular profile is specified, information will be displayed for the profile and for all indexes following that profile. (The index value is the way the switch internally tracks profiles and reflects the order in which profiles are created.)

### Examples

```
-> debug end-user profile
End user profile : jentest, length : 7 for index : 1
  End user profile @0x5e781e8
  Read area rights : 3f
  Read and Write area rights : 0
  Physical area rights : 2
  vlan table area rights : 2
  Basic Ip routing area rights : 2
  Ip routes table area rights : 2
  Mac filtering table area rights : 2
  Spantree area rights : 2
  Slot 1, ports : 0 0 0 0
  Slot 2, ports : 0 0 0 0
  Slot 3, ports : 0 0 0 0
  Slot 4, ports : 0 0 0 0
  Slot 5, ports : 0 0 0 0
  Slot 6, ports : 0 0 0 0
  Slot 7, ports : 0 0 0 0
  Slot 8, ports : 0 0 0 0
  Slot 9, ports : 0 0 0 0
  Slot 10, ports : 0 0 0 0
  Slot 11, ports : 0 0 0 0
  Slot 12, ports : 0 0 0 0
  Slot 13, ports : 0 0 0 0
  Slot 14, ports : 0 0 0 0
  Slot 15, ports : 0 0 0 0
```



```
Slot 16, ports : 0 0 0 0
Vlan Id range number : 1
Vlan range 1, start : 1, end : 3
End user profile not created for index : 2
End user profile not created for index : 3
End user profile not created for index : 4
End user profile not created for index : 5
End user profile not created for index : 6
End user profile not created for index : 7
End user profile not created for index : 8
End user profile not created for index : 9
End user profile not created for index : 10
.
.
.
.
```

## Release History

Release 6.1; command was introduced.

## Related Commands

### [end-user profile](#)

Configures or modifies an end user profile, which specifies access to command areas on particular ports and VLANs.

### [show end-user profile](#)

Displays information about end-user profiles or a particular end-user profile.



## Related Commands

<b>end-user profile</b>	Configures or modifies an end user profile, which specifies access to command areas on particular ports and VLANs.
<b>user</b>	Configures or modifies user entries in the local user database.

## MIB Objects

```
endUserProfileTable
  endUserProfileName
  endUserProfileAreaPhysical
  endUserProfileAreaVlanTable
  endUserProfileAreaBasicIPRouting
  endUserProfileAreaIpRoutesTable
  endUserProfileAreaMacFilteringTable
  endUserProfileAreaSpantree
endUserProfileSlotPortTable
  endUserProfileSlotNumber
  endUserProfilePortList
endUserProfileVlanIdTable
  endUserProfileVlanIdStart
  endUserProfileVlanIdEnd
```

---

## show aaa user-network-profile

Displays the User Network Profile (UNP) configuration for the switch.

**show aaa user-network-profile**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show aaa user-network-profile
```

```
Role Name                Vlan  HIC  Policy List Name
-----+-----+-----+-----
                engineering  10 No   list1
                accounting  20 Yes list1, list2
```

#### *output definitions*

---

<b>Role Name</b>	The user profile name.
<b>Vlan</b>	The VLAN ID number the profile assigns to the user device.
<b>HIC</b>	Whether or not Host Integrity Check is required for the device to which this profile is assigned.
<b>Policy List Name</b>	The name of one or more QoS policy lists that are applied to the device to which this profile is assigned.

---

### Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **HIC** and **Policy List Name** fields added.

## Related Commands

### **aaa user-network-profile**

Creates the user role in the user network profile table and maps the role to a VLAN ID.

## MIB Objects

```
aaaUserNetProfileTable  
  aaaUserNetProfileName  
  aaaUserNetProfileVlanID  
  aaaUserNetProfileHICflag  
  aaaUserNetProfileQosPolicyListName
```

---

## show aaa classification-rule

Displays the User Network Profile (UNP) mobile classification rule configuration for the switch.

**show aaa classification-rule {mac-rule | mac-range-rule | ip-net-rule}**

---

### Syntax Definitions

<b>mac-rule</b>	Displays MAC address rules.
<b>mac-range-rule</b>	Displays MAC address range rules.
<b>ip-net-rule</b>	Displays IP network address rules.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

- Specifying a rule type parameter (**mac-rule**, **mac-range-rule**, **ip-net-rule**) is required with this command.
- UNP mobile rules take precedence over VLAN mobile rules.

### Examples

```
-> show aaa classification-rule mac-rule
```

```
MAC Address          User Network Profile Name
-----+-----
00:1a:a0:b1:fa:e5   guest_user
00:b0:d0:2a:0e:2e   acct_user
00:b0:d0:2a:11:60   engr_user
```

#### *output definitions*

---

<b>MAC Address</b>	The source MAC address of the host device to which the UNP is applied.
<b>User Network Profile Name</b>	The name of the UNP applied to the host device.

---

```
-> show aaa classification-rule mac-range-rule
```

```
Low MAC Address      High MAC Address   User Network Profile Name
-----+-----+-----
00:1a:a0:b1:fa:10   00:1a:0a:b1:fa:20   guest_user
00:b0:d0:2a:0e:2e   00:b0:d0:2a:0e:3a   acct_user
00:b0:d0:2a:11:60   00:b0:d0:2a:11:70   engr_user
```

*output definitions*

---

<b>Low MAC Address</b>	The MAC address that identifies the low end of the range of addresses.
<b>High MAC Address</b>	The MAC address that identifies the high end of the range of addresses.
<b>User Network Profile Name</b>	The name of the UNP applied to the host device.

---

```
-> show aaa classification-rule ip-net-rule
```

IP Addr	IP Mask	User Network Profile Name
-----+-----+-----		
198.4.21.1	255.255.0.0	guest_user
10.1.1.1	255.0.0.0	acct_user
20.2.2.1	255.0.0.0	enr_user

*output definitions*

---

<b>IP Addr</b>	The source IP address of the host device to which the UNP is applied.
<b>IP Mask</b>	The subnet mask for the IP address.
<b>User Network Profile Name</b>	The name of the UNP applied to the host device.

---

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<a href="#">aaa classification-rule mac-address</a>	Defines a MAC address classification rule and associates that rule with a user network profile.
<a href="#">aaa classification-rule mac-address-range</a>	Defines a MAC address classification rule that specifies a range of MAC addresses for classification and associates the range of addresses with a user network profile.
<a href="#">aaa classification-rule ip-address</a>	Defines an IP network address classification rule and associates the rule with a user network profile.

## MIB Objects

```
aaaUNPMacRuleTable
  aaaUNPMacRuleAddr
  aaaUNPMacRule
  aaaUNPMacRuleProfileName
aaaUNPMacRangeRuleTable
  aaaUNPMacRangeRuleLoAddr
  aaaUNPMacRangeRuleHiAddr
  aaaUNPMacRangeRuleProfileName
aaaUNPIpNetRuleTable
  aaaUNPIpNetRuleAddr
  aaaUNPIpNetRuleMask
  aaaUNPIpNetRuleProfileName
```

---

## show aaa hic

Displays the global Host Integrity Check (HIC) configuration for the switch.

```
show aaa hic
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

N/A

### Examples

```
-> show aaa hic
HIC Global Status: Enabled
HIC Web Agent Download URL: http://100.100.100.100:8080/CGAgentLauncher.htm
HIC Host Custom HTTP Proxy Port: 8383
HIC Background Poll interval: 32
HIC Server-fail-mode: Hold
```

### *output definitions*

---

<b>HIC Status</b>	The HIC status for the switch ( <b>Enabled</b> or <b>Disabled</b> ). Configured through the <b>aaa hic</b> command.
<b>HIC Web Agent Download URL</b>	The URL for the web agent download server. Configured through the <b>aaa hic web-agent-url</b> command.
<b>HIC Host Custom HTTP Proxy Port</b>	The proxy port number used when the web-based host is redirected to the HIC server. Configured through the <b>aaa hic custom-proxy-port</b> command.
<b>HIC Background Poll Interval</b>	The URL for the web agent download server. Configured through the <b>aaa hic redundancy background-poll-interval</b> command.
<b>HIC Server-fail-mode</b>	The server background poll interval. Configured through the <b>aaa hic server-failure mode</b> command.

---

### Release History

Release 6.3.4; command was introduced.

Release 6.4.4; **Background Poll interval** and **Server-fail-mode** added.



## Related Commands

<b>show aaa hic host</b>	Displays a list of the learned host MAC addresses and the HIC status for each host.
<b>show aaa hic server</b>	Displays the HIC server configuration for the switch.
<b>show aaa hic server-failure policy</b>	Displays the list of servers allowed access to the switch and host device as part of the HIC process.

## MIB Objects

```
aaaHicConfigInfo
  aaaHicStatus
  aaaHicWebAgentDownloadUrl
  aaaHicCustomHttpProxyPort
  aaaHicBgPollInterval
  aaaHicSrvFailMode
```

---

---

## show aaa hic host

Displays a list of the learned host MAC addresses and the HIC status for each host.

**show aaa hic host**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

N/A

### Examples

```
-> show aaa hic host
  HIC Host MAC           Status
-----+-----
00:1a:a0:b1:fa:e5       Successful
00:b0:d0:2a:0e:2e       Failed
00:b0:d0:2a:11:60       Successful
```

#### *output definitions*

---

<b>HIC Host MAC</b>	The MAC address for each learned host device.
<b>Status</b>	The HIC status for the host device ( <b>In-Progress</b> , <b>Successful</b> , <b>Failed</b> , or <b>Timeout</b> ).

---

### Release History

Release 6.3.4; command was introduced.

## Related Commands

[show aaa hic](#)

Displays the global HIC configuration for the switch.

[show aaa hic server](#)

Displays the HIC server configuration for the switch.

[show aaa hic server-failure policy](#)

Displays the list of servers allowed access to the switch and host device as part of the HIC process.

## MIB Objects

aaaHicHostTable

aaaHicHostMac

aaaHicHostStatus

---

## show aaa hic server

Displays the HIC server configuration for the switch.

```
show aaa hic server
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

A Primary and Backup HIC server can be configured per switch.

### Examples

```
-> show aaa hic server
```

```
-> show aaa hic server
```

Server Name	IP Address	UDP Port	Server Role	Server Connection	Server Status
hic1	172.18.16.200	11707	Primary	Active	Down
hic2	172.18.16.232	11707	Backup	Inactive	Down

#### *output definitions*

---

<b>HIC Server Name</b>	The name of the HIC server. Note that only one server is supported per switch. Configured through the <a href="#">aaa hic server-name</a> command.
<b>HIC Server IP Address</b>	The IP address of the HIC server. Configured through the <a href="#">aaa hic server-name</a> command.
<b>HIC server UDP Port</b>	The UDP port number. Configured through the <a href="#">aaa hic server-name</a> command.
<b>HIC Server Role</b>	The role of this server; primary or backup. Configured through the <a href="#">aaa hic server-name</a> command.
<b>HIC Server Connection</b>	The server connection status; active or inactive.
<b>HIC Server Status:</b>	The server status; up or down.

---

## Release History

Release 6.3.4; command was introduced.

Release 6.4.4; **Role**, **Status**, and **Connection** parameters added.

## Related Commands

[show aaa hic](#)

Displays the global HIC configuration for the switch.

[show aaa hic host](#)

Displays a list of the learned host MAC addresses and the HIC status for each host.

[show aaa hic server-failure policy](#)

Displays the list of servers allowed access to the switch and host device as part of the HIC process.

## MIB Objects

aaaHicSvrTable

aaaHicSvrName

aaaHicSvrIpAddr

aaaHicSvrRole

aaaHicSvrConnection

aaaHicSvrPort

---

## show aaa hic server-failure policy

Displays the HIC server failure mode and UNP mapping.

```
show aaa hic server-failure policy
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

N/A

### Examples

```
-> show aaa hic server-failure policy
```

```
Mode: Hold
```

```
UNP Source
```

```
UNP Destination
```

```
-----+-----
```

```
unp1
```

```
unp2
```

### *output definitions*

---

<b>Mode</b>	The HIC Server Failure Mode; Hold or Pass-Through.
<b>UNP Source</b>	The current UNP of the users.
<b>UNP Destination</b>	The UNP that the users will be moved to if both HIC servers are unavailable.

---

### Release History

Release 6.4.4; command was introduced.

## Related Commands

**aaa hic server-name**                      Configures the HIC server.

## MIB Objects

```
aaaHicSvrDownUnpMapTable
  aaaHicSvrDownUnpMapEntry
  aaaHicSvrDownUnpName
  aaaHicSvrDownMappedUnpName
  aaaHicSvrDownUnpRowStatus
aaaHicConfigInfoTable
  aaaHicSrvFailMode
```

---

## show aaa hic allowed

Displays the Host Integrity Check (HIC) server exception list. The servers included in this list are exempt from the HIC process. This allows a host device to access these servers for compliance and remediation purposes.

list of servers allowed access to the switch and host device as part of the HIC process.

**show aaa hic allowed**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6855

### Usage Guidelines

The HIC server exception list may contain up to four servers per switch.

### Examples

```
-> show aaa hic allowed
      Allowed Name          IP Address          IP Mask
-----+-----+-----
rem1_srv                   3.3.3.3             255.0.0.0
```

### *output definitions*

---

<b>Allowed Name</b>	The name of the server that is allowed access to the switch and host as part of the HIC process. Configured through the <a href="#">aaa hic redundancy background-poll-interval</a> command.
<b>IP Address</b>	The IP address of the allowed server. Configured through the <a href="#">aaa hic redundancy background-poll-interval</a> command.
<b>IP Mask</b>	The IP subnet mask for the allowed server. Configured through the <a href="#">aaa hic redundancy background-poll-interval</a> command.

---

### Release History

Release 6.3.4; command was introduced.



## Related Commands

- |                                  |                                                                                     |
|----------------------------------|-------------------------------------------------------------------------------------|
| <code>show aaa hic</code>        | Displays the global HIC configuration for the switch.                               |
| <code>show aaa hic host</code>   | Displays a list of the learned host MAC addresses and the HIC status for each host. |
| <code>show aaa hic server</code> | Displays the HIC server configuration for the switch.                               |

## MIB Objects

```
aaaHicAllowedTable  
  aaaHicAllowedName  
  aaaHicAllowedIpAddr  
  aaaHicAllowedIpMask
```

---

## show aaa priv hexa

Displays hexadecimal values for command domains/families. Useful for determining how to express command families in hexadecimal; hexadecimal values are used in configuring user privileges in attributes on an external LDAP or RADIUS authentication server.

**show aaa priv hexa** [*domain or family*]

---

### Syntax Definitions

*domain or family*

The CLI command domain or particular command family for which you want to display hexadecimal values. See table in Usage Guidelines.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Valid values for the family parameter are listed in the Corresponding Families column of the following table:

Domain	Corresponding Families
<b>domain-admin</b>	<b>file telnet dshell debug</b>
<b>domain-system</b>	<b>system aip snmp rmon webmgt config</b>
<b>domain-physical</b>	<b>chassis module interface pmm health</b>
<b>domain-network</b>	<b>ip rip ospf bgp vrrp ip-routing ipx ipmr ipms</b>
<b>domain-layer2</b>	<b>vlan bridge stp 802.1q linkagg ip-helper</b>
<b>domain-service</b>	<b>dns</b>
<b>domain-policy</b>	<b>qos policy slb</b>
<b>domain-security</b>	<b>session avlan aaa</b>

- Note that some command families may not be supported depending on the hardware platform you are running.
- If you do not specify a command family, hexadecimal values for all commands sets will display.

## Examples

```
-> show aaa priv hexa
file           = 0x00000001 0x00000000,
telnet        = 0x00000008 0x00000000,
dshell        = 0x00000020 0x00000000,
debug         = 0x00000040 0x00000000,
domain-admin  = 0x00000069 0x00000000,

system        = 0x00000080 0x00000000,
aip           = 0x00000100 0x00000000,
snmp          = 0x00000200 0x00000000,
rmon          = 0x00000400 0x00000000,
webmgt        = 0x00000800 0x00000000,
config        = 0x00001000 0x00000000,
domain-system = 0x00001F80 0x00000000,

chassis       = 0x00002000 0x00000000,
module        = 0x00004000 0x00000000,
interface     = 0x00008000 0x00000000,
pmm           = 0x00010000 0x00000000,
health        = 0x00040000 0x00000000,
domain-physical = 0x0005E000 0x00000000,

ip            = 0x00080000 0x00000000,
rip           = 0x00100000 0x00000000,
ospf          = 0x00200000 0x00000000,
bgp           = 0x00400000 0x00000000,
vrrp          = 0x00800000 0x00000000,
ip-routing    = 0x01000000 0x00000000,
ipx           = 0x02000000 0x00000000,
ipmr          = 0x04000000 0x00000000,
ipms          = 0x08000000 0x00000000,
domain-network = 0x0FF80000 0x00000000,

vlan          = 0x10000000 0x00000000,
bridge        = 0x20000000 0x00000000,
stp           = 0x40000000 0x00000000,
802.1q        = 0x80000000 0x00000000,
linkagg       = 0x00000000 0x00000001,
ip-helper     = 0x00000000 0x00000002,
domain-layer2 = 0xF0000000 0x00000003,

dns           = 0x00000000 0x00000010,
domain-service = 0x00000000 0x00000010,

qos           = 0x00000000 0x00000020,
policy        = 0x00000000 0x00000040,
slb           = 0x00000000 0x00000080,
domain-policy = 0x00000000 0x000000E0,

session       = 0x00000000 0x00000100,
avlan         = 0x00000000 0x00000400,
aaa           = 0x00000000 0x00000800,
domain-security = 0x00000000 0x00000D00

-> show aaa priv hexa rip
0x00100000 0x00000000
```

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[user](#)

Configures or modifies user entries in the local user database.

---

## show aaa-device all-users

Displays the Access Guardian status of all users learned on 802.1x ports.

**show aaa-device all-users** [**unp** *profile\_name* | **policy** *device\_policy* | **authentication-status** [**success** | **fail**]] [**port** *slot/port*]

---

### Syntax Definitions

<i>profile_name</i>	The name of a user network profile.
<i>device_policy</i>	The type of Access Guardian device classification policy.
<b>success</b>	Display all users that have successfully authenticated.
<b>fail</b>	Display all users that have failed authentication.
<i>slot/port</i>	The slot and port number designation for a specific switch port.

### Defaults

If none of the optional parameters are specified with this command, all users learned on all 802.1x ports are displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **unp** *profile\_name* parameter to display only those users associated with a specific user network profile.
- Use the **policy** *device\_policy* parameter to display only those users authenticated with one of the device classification policy types. To specify which policy to use with this command, enter one of the following types for the *device\_policy* parameter value:

---

#### policy type

---

**vlan**  
**user-network-profile**  
**group mobility**  
**default-vlan**  
**captive-portal**  
**authentication**

---

- Use the **authentication success** or **authentication fail** parameters to display only those users that have either passed or failed authentication.
- Use the **port** *slot/port* parameter to display only those users learned on a specific port. Note that it is also possible to combine this parameter with any of the other **show aaa-device all-users** command parameters.

## Examples

-> show aaa-device all-users

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/1	00:11:50:a6:12:00	User101	100	Brdg	10.133.0.100	1X	Pass	Marketing	
1/1	00:11:50:a6:12:01	User101	100	Brdg	10.133.0.101	1X	Pass	Marketing	
1/1	00:11:50:a6:12:02	User101	100	Brdg	10.133.0.102	1X	Pass	Marketing	
1/1	00:11:50:a6:12:03	User101	100	Brdg	10.133.0.103	1X	Pass	Marketing	
1/1	00:1a:50:a6:12:50	--	100	Blk	10.133.2.128	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:51	--	100	Blk	10.133.2.129	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:52	--	100	Blk	10.133.2.130	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:53	--	100	Blk	10.133.2.131	None	N/A	engr_no_internet	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing	
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr	
5/9	00:00:39:93:46:0c	--	1	Blk	-	MAC	Fail	-	

-> show aaa-device all-users unp Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/1	00:11:50:a6:12:00	User101	100	Brdg	10.133.0.100	1X	Pass	Marketing	
1/1	00:11:50:a6:12:01	User101	100	Brdg	10.133.0.101	1X	Pass	Marketing	
1/1	00:11:50:a6:12:02	User101	100	Brdg	10.133.0.102	1X	Pass	Marketing	
1/1	00:11:50:a6:12:03	User101	100	Brdg	10.133.0.103	1X	Pass	Marketing	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing	
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing	

-> show aaa-device all-users unp Marketing port 1/2

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing	
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing	

-> show aaa-device all-users port 5/9

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr	
5/9	00:00:39:93:46:0c	--	1	Blk	-	MAC	Fail	-	

*output definitions*

---

<b>Slot/Port</b>	The slot and port number to which the user device is connected.
<b>MAC Address</b>	The MAC address of the user device.
<b>User Name</b>	The user login name used to access the switch.
<b>VLAN</b>	The VLAN ID the user device is authorized to access.
<b>Addr Mode</b>	The status of the MAC address for the user device.
<b>Ip Address</b>	The IP address of the user device.
<b>Authentication Type</b>	The type of authentication used to grant the device access to the switch ( <b>1X</b> , <b>MAC</b> , or <b>none</b> ).
<b>Authentication Result</b>	The result of the authentication process ( <b>Pass</b> , <b>Fail</b> , or <b>N/A</b> ).
<b>User Network Profile Name</b>	The name of the user network profile used to classify the user device. If <b>N/A</b> appears in this field, there is no user network profile associated with this device.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<a href="#">show aaa-device supplicant-users</a>	Displays a list of all supplicant (802.1x) users learned on the switch.
<a href="#">show aaa-device non-supplicant-users</a>	Displays a list of all non-supplicant (non-802.1X) users learned on the switch.
<a href="#">show aaa-device captive-portal-users</a>	Displays a list of users that were classified using Captive Portal browser-based authentication.

**MIB Objects**

```
alaDot1xDeviceStatusTable
  alaDot1xDeviceStatusMacQueryType
  alaDot1xDeviceStatusSlotNumber
  alaDot1xDeviceStatusPortNumber
  alaDot1xDeviceStatusMacAddress
  alaDot1xDeviceStatusDeviceType
  alaDot1xDeviceStatusVlan
  alaDot1xDeviceStatusIpAddress
  alaDot1xDeviceStatusUserName
  alaDot1xDeviceStatusProfileUsed
  alaDot1xDeviceStatusAuthType
  alaDot1xDeviceStatusPolicyUsed
  alaDot1xDeviceStatusAuthResult
  alaDot1xDeviceStatusMacLearntState
  alaDot1xDeviceStatusTimeLearned
  alaDot1xDeviceStatusCaptivePortalUsed
```

---

## show aaa-device supplicant-users

Displays the Access Guardian status of all supplicant (802.1x) users learned on the switch.

**show aaa-device supplicant-users** [**unp** *profile\_name* | **policy** *device\_policy* | **authentication-status** [**success** | **fail**]] [**port** *slot/port*]

---

### Syntax Definitions

<i>profile_name</i>	The name of a user network profile.
<i>device_policy</i>	The type of Access Guardian device classification policy.
<b>success</b>	Display all supplicant users that have successfully authenticated.
<b>fail</b>	Display all supplicant users that have failed authentication.
<i>slot/port</i>	The slot and port number designation for a specific switch port.

### Defaults

If none of the optional parameters are specified with this command, all supplicant users are displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **unp** *profile\_name* parameter to display only those users associated with a specific user network profile.
- Use the **policy** *device\_policy* parameter to display only those users authenticated with one of the device classification policy types. To specify which policy to use with this command, enter one of the following types for the *device\_policy* parameter value:

---

#### policy type

---

**vlan**  
**user-network-profile**  
**group mobility**  
**default-vlan**  
**captive-portal**  
**authentication**

---

- Use the **authentication success** or **authentication fail** parameters to display only those users that have either passed or failed authentication.
- Use the **port** *slot/port* parameter to display only those users learned on a specific port. Note that it is also possible to combine this parameter with any of the other **show aaa-device supplicant-users** command parameters.



## Examples

```
-> show aaa-device supplicant-users
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile Name
1/1	00:11:50:a6:12:00	User101	100	Brdg	10.133.0.100	1X	Pass	Marketing
1/1	00:11:50:a6:12:01	User101	100	Brdg	10.133.0.101	1X	Pass	Marketing
1/1	00:11:50:a6:12:02	User101	100	Brdg	10.133.0.102	1X	Pass	Marketing
1/1	00:11:50:a6:12:03	User101	100	Brdg	10.133.0.103	1X	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile Name
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile Name
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr
5/9	00:00:39:93:46:10	--	1	Blk	-	1X	Fail	-

```
-> show aaa-device supplicant-users port 5/9
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile Name
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr
5/9	00:00:39:93:46:10	--	1	Blk	-	1X	Fail	-

```
-> show aaa-device supplicant-users authentication-status fail
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile Name
5/9	00:00:39:93:46:10	--	1	Blk	-	1X	Fail	-

### output definitions

<b>Slot/Port</b>	The slot and port number to which the user device is connected.
<b>MAC Address</b>	The MAC address of the user device.
<b>User Name</b>	The user login name used to access the switch.
<b>VLAN</b>	The VLAN ID the user device is authorized to access.
<b>Addr Mode</b>	The status of the MAC address for the user device.
<b>Ip Address</b>	The IP address of the user device.
<b>Authentication Type</b>	The type of authentication used to grant the device access to the switch ( <b>1X</b> , <b>MAC</b> , or <b>none</b> ).
<b>Authentication Result</b>	The result of the authentication process ( <b>Pass</b> , <b>Fail</b> , or <b>N/A</b> ).
<b>User Network Profile Name</b>	The name of the user network profile used to classify the user device. If <b>N/A</b> appears in this field, there is no user network profile associated with this device.

## Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>show aaa-device all-users</b>	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
<b>show aaa-device non-supplicant-users</b>	Displays a list of all non-supplicant (non-802.1X) users learned on the switch.
<b>show aaa-device captive-portal-users</b>	Displays a list of users that were classified using Captive Portal browser-based authentication.

## MIB Objects

```
alaDot1xDeviceStatusTable  
  alaDot1xDeviceStatusMacQueryType  
  alaDot1xDeviceStatusSlotNumber  
  alaDot1xDeviceStatusPortNumber  
  alaDot1xDeviceStatusMacAddress  
  alaDot1xDeviceStatusDeviceType  
  alaDot1xDeviceStatusVlan  
  alaDot1xDeviceStatusIpAddress  
  alaDot1xDeviceStatusUserName  
  alaDot1xDeviceStatusProfileUsed  
  alaDot1xDeviceStatusAuthType  
  alaDot1xDeviceStatusPolicyUsed  
  alaDot1xDeviceStatusAuthResult  
  alaDot1xDeviceStatusMacLearntState  
  alaDot1xDeviceStatusTimeLearned  
  alaDot1xDeviceStatusCaptivePortalUsed
```

---

## show aaa-device non-suppliant-users

Displays the Access Guardian status of all non-suppliant (non-802.1x) users learned on the switch.

**show aaa-device non-suppliant-users** [**unp** *profile\_name* | **policy** *device\_policy* | **authentication-status** [**success** | **fail**]] [**port** *slot/port*]

---

### Syntax Definitions

<i>profile_name</i>	The name of a user network profile.
<i>device_policy</i>	The type of Access Guardian device classification policy.
<b>authentication success</b>	Display all non-suppliant users that have successfully authenticated.
<b>authentication fail</b>	Display all non-suppliant users that have failed authentication.
<i>slot/port</i>	The slot and port number designation for a specific switch port.

### Defaults

If none of the optional parameters are specified with this command, all non-suppliant users are displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **unp** *profile\_name* parameter to display only those users associated with a specific user network profile.
- Use the **policy** *device\_policy* parameter to display only those users authenticated with one of the device classification policy types. To specify which policy to use with this command, enter one of the following types for the *device\_policy* parameter value:

---

#### policy type

---

**vlan**  
**user-network-profile**  
**group mobility**  
**default-vlan**  
**captive-portal**  
**authentication**

---

- Use the **authentication success** or **authentication fail** parameters to display only those users that have either passed or failed authentication.
- Use the **port** *slot/port* parameter to display only those users learned on a specific port. Note that it is also possible to combine this parameter with any of the other **show aaa-device non-suppliant-users** command parameters.

## Examples

```
-> show aaa-device non-supPLICANT-users
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/1	00:1a:50:a6:12:50	--	100	Blk	10.133.2.128	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:51	--	100	Blk	10.133.2.129	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:52	--	100	Blk	10.133.2.130	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:53	--	100	Blk	10.133.2.131	None	N/A	engr_no_internet	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
5/9	00:90:27:17:91:20	pc2006	1000	Brdg	-	MAC	Pass	engr	
5/9	00:00:39:93:46:0c	--	1	Blk	-	MAC	Fail	-	

```
-> show aaa-device non-supPLICANT-users unP engr_no_internet
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/1	00:1a:50:a6:12:50	--	100	Blk	10.133.2.128	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:51	--	100	Blk	10.133.2.129	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:52	--	100	Blk	10.133.2.130	None	N/A	engr_no_internet	
1/1	00:1a:50:a6:12:53	--	100	Blk	10.133.2.131	None	N/A	engr_no_internet	

```
-> show aaa-device non-supPLICANT-users authentication-status success
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing	

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	Result	User Profile	Network Name
5/9	00:90:27:17:91:20	pc2006	1000	Brdg	-	MAC	Pass	engr	

### output definitions

<b>Slot/Port</b>	The slot and port number to which the user device is connected.
<b>MAC Address</b>	The MAC address of the user device.
<b>User Name</b>	The user login name used to access the switch.
<b>VLAN</b>	The VLAN ID the user device is authorized to access.
<b>Addr Mode</b>	The status of the MAC address for the user device.
<b>Ip Address</b>	The IP address of the user device.
<b>Authentication Type</b>	The type of authentication used to grant the device access to the switch ( <b>IX</b> , <b>MAC</b> , or <b>none</b> ).

*output definitions*

---

<b>Authentication Result</b>	The result of the authentication process ( <b>Pass</b> , <b>Fail</b> , or <b>N/A</b> ).
<b>User Network Profile Name</b>	The name of the user network profile used to classify the user device. If <b>N/A</b> appears in this field, there is no user network profile associated with this device.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<b>show aaa-device all-users</b>	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
<b>show aaa-device supplicant-users</b>	Displays a list of all supplicant (802.1X) users learned on the switch.
<b>show aaa-device captive-portal-users</b>	Displays a list of users that were classified using Captive Portal browser-based authentication.

**MIB Objects**

```
alaDot1xDeviceStatusTable
  alaDot1xDeviceStatusMacQueryType
  alaDot1xDeviceStatusSlotNumber
  alaDot1xDeviceStatusPortNumber
  alaDot1xDeviceStatusMacAddress
  alaDot1xDeviceStatusDeviceType
  alaDot1xDeviceStatusVlan
  alaDot1xDeviceStatusIpAddress
  alaDot1xDeviceStatusUserName
  alaDot1xDeviceStatusProfileUsed
  alaDot1xDeviceStatusAuthType
  alaDot1xDeviceStatusPolicyUsed
  alaDot1xDeviceStatusAuthResult
  alaDot1xDeviceStatusMacLearntState
  alaDot1xDeviceStatusTimeLearned
  alaDot1xDeviceStatusCaptivePortalUsed
```

---

## show aaa-device captive-portal-users

Displays the Access Guardian status of all users that attempted network access through the switch using Captive Portal web-based authentication.

**show aaa-device captive-portal-users** [**unp** *profile\_name* | **policy** *device\_policy* | **authentication-status** [**success** | **fail**]] [**port** *slot/port*]

---

### Syntax Definitions

<i>profile_name</i>	The name of a user network profile.
<i>device_policy</i>	The type of Access Guardian device classification policy.
<b>authentication success</b>	Display all non-supplicant users that have successfully authenticated.
<b>authentication fail</b>	Display all non-supplicant users that have failed authentication.
<i>slot/port</i>	The slot and port number designation for a specific switch port.

### Defaults

If none of the optional parameters are specified with this command, all Captive Portal users are displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850,6850E, 6855, 9000E

### Usage Guidelines

- Use the **unp** *profile\_name* parameter to display only those users associated with a specific user network profile.
- Use the **policy** *device\_policy* parameter to display only those users authenticated with one of the device classification policy types. To specify which policy to use with this command, enter one of the following types for the *device\_policy* parameter value:

---

#### policy type

---

**vlan**  
**user-network-profile**  
**group mobility**  
**default-vlan**  
**captive-portal**  
**authentication**

---

- Use the **authentication success** or **authentication fail** parameters to display only those users that have either passed or failed authentication.
- Use the **port** *slot/port* parameter to display only those users learned on a specific port. Note that it is also possible to combine this parameter with any of the other **show aaa-device captive-portal-users** command parameters.

## Examples

```
-> show aaa-device captive-portal-users
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
1/1	00:11:50:a6:12:00	User101	100	Brdg	10.133.0.100	1X	Pass	Marketing
1/1	00:11:50:a6:12:01	User101	100	Brdg	10.133.0.101	1X	Pass	Marketing
1/1	00:11:50:a6:12:02	User101	100	Brdg	10.133.0.102	1X	Pass	Marketing
1/1	00:11:50:a6:12:03	User101	100	Brdg	10.133.0.103	1X	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr
5/9	00:00:39:93:46:0c	--	1	Blk	-	MAC	Fail	-

```
-> show aaa-device captive-portal-users unprof Marketing
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
1/1	00:11:50:a6:12:00	User101	100	Brdg	10.133.0.100	1X	Pass	Marketing
1/1	00:11:50:a6:12:01	User101	100	Brdg	10.133.0.101	1X	Pass	Marketing
1/1	00:11:50:a6:12:02	User101	100	Brdg	10.133.0.102	1X	Pass	Marketing
1/1	00:11:50:a6:12:03	User101	100	Brdg	10.133.0.103	1X	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing

```
-> show aaa-device captive-portal-users policy vlan
```

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
1/2	00:00:39:47:4f:0c	pc2006	1000	Brdg	-	1X	Pass	Marketing
1/2	00:b0:d0:77:fa:72	--	1000	Brdg	-	MAC	Pass	Marketing

Slot Port	MAC Address	User Name	VLAN	Addr Mode	IP Address	Authentication Type	User Result	Network Profile
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr
5/9	00:00:39:93:46:0c	--	1	Blk	-	MAC	Fail	-

### output definitions

<b>Slot/Port</b>	The slot and port number to which the user device is connected.
<b>MAC Address</b>	The MAC address of the user device.

*output definitions*


---

<b>User Name</b>	The user login name used to access the switch.
<b>VLAN</b>	The VLAN ID the user device is authorized to access.
<b>Addr Mode</b>	The status of the MAC address for the user device.
<b>Ip Address</b>	The IP address of the user device.
<b>Authentication Type</b>	The type of authentication used to grant the device access to the switch ( <b>1X</b> , <b>MAC</b> , or <b>none</b> ).
<b>Authentication Result</b>	The result of the authentication process ( <b>Pass</b> , <b>Fail</b> , or <b>N/A</b> ).
<b>User Network Profile Name</b>	The name of the user network profile used to classify the user device. If <b>N/A</b> appears in this field, there is no user network profile associated with this device.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

<b>show aaa-device all-users</b>	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
<b>show aaa-device supplicant-users</b>	Displays a list of all supplicant (802.1X) users learned on the switch.
<b>show aaa-device non-supplicant-users</b>	Displays a list of all non-supplicant (non-802.1X) users learned on the switch.

**MIB Objects**

```

alaDot1xDeviceStatusTable
  alaDot1xDeviceStatusMacQueryType
  alaDot1xDeviceStatusSlotNumber
  alaDot1xDeviceStatusPortNumber
  alaDot1xDeviceStatusMacAddress
  alaDot1xDeviceStatusDeviceType
  alaDot1xDeviceStatusVlan
  alaDot1xDeviceStatusIpAddress
  alaDot1xDeviceStatusUserName
  alaDot1xDeviceStatusProfileUsed
  alaDot1xDeviceStatusAuthType
  alaDot1xDeviceStatusPolicyUsed
  alaDot1xDeviceStatusAuthResult
  alaDot1xDeviceStatusMacLearntState
  alaDot1xDeviceStatusTimeLearned
  alaDot1xDeviceStatusCaptivePortalUsed

```

---



# 37 Port Mobility Commands

Port mobility allows dynamic VLAN port assignment based on VLAN rules that are applied to port traffic. By default, all switch ports are non-mobile ports that are manually assigned to a specific VLAN and can only belong to one VLAN at a time. When a port is defined as a mobile port, switch software compares traffic coming in on the port with configured VLAN rules. If any of the mobile port traffic matches any of the VLAN rules, the port and the matching traffic become a member of that VLAN. It is also possible for mobile ports to belong to more than one VLAN, when the port carries multiple traffic types that match different rules on different VLANs.

VLANs do not have a mobile or non-mobile distinction and there is no overall switch setting to invoke the mobile port feature. Instead, mobility is enabled on individual switch ports and rules are defined for individual VLANs to capture mobile port traffic. This chapter includes descriptions of Command Line Interface (CLI) commands used to define VLAN rules, enable or disable mobile port properties, and display mobile port configuration information.

MIB information for port mobility commands is as follows:

*Filename:* AlcatelIND1GroupMobility.MIB  
*Module:* ALCATEL-IND1-GROUP-MOBILITY-MIB

A summary of the available commands is listed here:

---

- [vlan dhcp mac](#)
- [vlan dhcp mac range](#)
- [vlan dhcp port](#)
- [vlan dhcp generic](#)
- [vlan binding mac-ip-port](#)
- [vlan binding mac-port](#)
- [vlan binding port-protocol](#)
- [vlan mac](#)
- [vlan mac range](#)
- [vlan ip](#)
- [vlan ipx](#)
- [vlan protocol](#)
- [vlan port](#)
- [vlan port mobile](#)
- [vlan port default vlan restore](#)
- [vlan port default vlan](#)
- [vlan port authenticate](#)
- [vlan port 802.1x](#)
- [show vlan rules](#)
- [show vlan port mobile](#)

---

## vlan dhcp mac

Defines a DHCP MAC address rule for an existing VLAN. If a DHCP frame received on any mobile port contains a source MAC address that matches the MAC address specified in the rule, the frame's mobile port is temporarily assigned to the rule's VLAN.

**vlan vid dhcp mac mac\_address**

**vlan vid no dhcp mac mac\_address**

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>mac_address</i>	Source MAC address (e.g., 00:00:39:59:f1:0C).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a DHCP MAC address rule from the specified VLAN.
- Port mobility software checks for and processes DHCP traffic first on an active mobile port. When a mobile port receives a DHCP frame that matches a DHCP rule, the port is temporarily assigned to the VLAN long enough to forward the DHCP requests within the VLAN broadcast domain. The source MAC address of the DHCP frame, however, is not learned for that VLAN port association.
- Once a DHCP device has obtained an IP address, its non-DHCP traffic must match other VLAN rules within the same VLAN for the device to remain a member of that VLAN. If this match occurs, then the frame source is learned in the matching rule VLAN.
- DHCP rules are most often used in combination with IP network address rules. A DHCP client has an IP address of all zeros (0.0.0.0) until it receives an IP address from a DHCP server, so it would not match any IP network address rules.
- Binding rules, MAC address rules, and protocol rules also capture DHCP client traffic. The exception to this is binding rules that specify an IP address as part of the rule, similar to IP network address rule definitions.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 dhcp mac 00:00:39:59:0a:0c
-> vlan 20 dhcp mac 00:00:39:4f:f1:22
-> vlan 10 no dhcp mac 00:00:39:59:0a:0c
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">vlan dhcp mac range</a>	Defines a DHCP MAC address range rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that falls within the range specified by this rule are temporarily assigned to the VLAN.
<a href="#">vlan dhcp port</a>	Defines a DHCP port rule for an existing VLAN. The mobile port specified by this rule is temporarily assigned to the VLAN when it receives DHCP frames.
<a href="#">vlan dhcp generic</a>	Defines a generic DHCP rule for an existing VLAN. Mobile ports that receive DHCP frames that do not match other DHCP rules are temporarily assigned to the VLAN.
<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vDhcpMacRuleTable
  vDhcpMacRuleAddr
  vDhcpMacRuleVlanId
  vDhcpMacRuleStatus
```

---

## vlan dhcp mac range

Defines a DHCP MAC range rule for an existing VLAN. If a DHCP frame contains a source MAC address that matches the low or high end MAC or falls within the range defined by the low and high end MAC, the frame's mobile port is temporarily assigned to the rule's VLAN.

**vlan vid dhcp mac range** *low\_mac\_address high\_mac\_address*

**vlan vid no dhcp mac range** *low\_mac\_address*

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>low_mac_address</i>	MAC address that defines the low end of the range (e.g., 00:00:39:59:f1:00).
<i>high_mac_address</i>	MAC address that defines the high end of the range (e.g., 00:00:39:59:f1:90).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a DHCP MAC range rule from the specified VLAN. It is only necessary to specify the low end MAC to identify which rule to delete; the high end MAC is not required.
- Only valid source MAC addresses are allowed for the low and high end boundary MACs. For example, multicast addresses (e.g., 01:00:00:c5:09:1a) are ignored even if they fall within a specified MAC range. To allow the use of a multicast address as either the low or high end boundary MAC would cause misleading DHCP MAC range rule results.
- Port mobility software checks for and processes DHCP traffic first on an active mobile port. When a mobile port receives a DHCP frame that matches a DHCP rule, the port is temporarily assigned to the VLAN long enough to forward the DHCP requests within the VLAN broadcast domain. The source MAC address of the DHCP frame, however, is not learned for that VLAN port association.
- Once a DHCP device has obtained an IP address, its non-DHCP traffic must match other VLAN rules within the same VLAN for the device to remain a member of that VLAN. If this match occurs, then the frame source is learned in the matching rule VLAN.
- DHCP rules are most often used in combination with IP network address rules. A DHCP client has an IP address of all zeros (0.0.0.0) until it receives an IP address from a DHCP server, so it would not match any IP network address rules.

- Binding rules, MAC address rules, and protocol rules also capture DHCP client traffic. The exception to this is binding rules that specify an IP address as part of the rule, similar to IP network address rule definitions.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 dhcp mac range 00:00:39:59:0a:0c 00:00:39:59:0a:0f
-> vlan 10 no dhcp mac range 00:00:39:59:0a:0c
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>vlan dhcp mac</b>	Defines a DHCP MAC address rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that matches the address specified by this rule are temporarily assigned to the VLAN.
<b>vlan dhcp port</b>	Defines a DHCP port rule for an existing VLAN. The mobile port specified by this rule is temporarily assigned to the VLAN when it receives DHCP frames.
<b>vlan dhcp generic</b>	Defines a generic DHCP rule for an existing VLAN. Mobile ports that receive DHCP frames that do not match other DHCP rules are temporarily assigned to the VLAN.
<b>show vlan</b>	Displays existing VLANs.
<b>show vlan rules</b>	Displays rules defined for VLANs.

---

## vlan dhcp port

Defines a DHCP port rule for an existing VLAN. If a DHCP frame is received on a mobile port that matches the port specified in the rule, the mobile port is temporarily assigned to the rule's VLAN.

**vlan vid dhcp port slot/port**

**vlan vid no dhcp port slot/port**

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a DHCP port rule from the specified VLAN.
- Port mobility software checks for and processes DHCP traffic first on an active mobile port. When a mobile port receives a DHCP frame that matches a DHCP rule, the port is temporarily assigned to the VLAN long enough to forward the DHCP requests within the VLAN broadcast domain. The source MAC address of the DHCP frame, however, is not learned for that VLAN port association.
- Once a DHCP device has obtained an IP address, its non-DHCP traffic must match other VLAN rules within the same VLAN for the device to remain a member of that VLAN. If this match occurs, then the frame source is learned in the matching rule VLAN.
- DHCP rules are most often used in combination with IP network address rules. A DHCP client has an IP address of all zeros (0.0.0.0) until it receives an IP address from a DHCP server, so it would not match any IP network address rules.
- Binding rules, MAC address rules, and protocol rules also capture DHCP client traffic. The exception to this is binding rules that specify an IP address as part of the rule, similar to IP network address rule definitions.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 dhcp port 3/1
-> van 20 dhcp port 4/1-16
-> vlan 30 dhcp port 5/1-32 6/5-10 8/7-22
-> vlan 10 no dhcp port 3/1
-> vlan 20 no dhcp port 4/1-16
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">vlan dhcp mac</a>	Defines a DHCP MAC address rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that matches the address specified by this rule are temporarily assigned to the VLAN.
<a href="#">vlan dhcp mac range</a>	Defines a DHCP MAC address range rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that falls within the range specified by this rule are temporarily assigned to the VLAN.
<a href="#">vlan dhcp generic</a>	Defines a generic DHCP rule for an existing VLAN. Mobile ports that receive DHCP frames that do not match other DHCP rules are temporarily assigned to the VLAN.
<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vDhcpPortRuleTable
  vDhcpPortRuleIfIndex
  vDhcpPortRuleVlanId
  vDhcpPortRuleStatus
```

---

## vlan dhcp generic

Defines a DHCP rule for an existing VLAN. If a DHCP frame does not match any other DHCP rule criteria, the frame's mobile port is temporarily assigned to the DHCP generic rule VLAN.

**vlan vid dhcp generic**

**vlan vid no dhcp generic**

---

### Syntax Definitions

*vid* VLAN ID number (1–4094).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Defaults

N/A

### Usage Guidelines

- Use the **no** form of this command to delete a DHCP generic rule from the specified VLAN.
- Only one DHCP generic rule per switch is allowed.
- Port mobility software checks for and processes DHCP traffic first on an active mobile port. When a mobile port receives a DHCP frame that matches a DHCP rule, the port is temporarily assigned to the VLAN long enough to forward the DHCP requests within the VLAN broadcast domain. The source MAC address of the DHCP frame, however, is not learned for that VLAN port association.
- Once a DHCP device has obtained an IP address, its non-DHCP traffic must match other VLAN rules within the same VLAN for the device to remain a member of that VLAN. If this match occurs, then the frame source is learned in the matching rule VLAN.
- DHCP rules are most often used in combination with IP network address rules. A DHCP client has an IP address of all zeros (0.0.0.0) until it receives an IP address from a DHCP server, so it would not match any IP network address rules.
- Binding rules, MAC address rules, and protocol rules also capture DHCP client traffic. The exception to this is binding rules that specify an IP address as part of the rule, similar to IP network address rule definitions.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 dhcp generic
-> vlan 10 no dhcp generic
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>vlan dhcp port</b>	Defines a DHCP port rule for an existing VLAN. The mobile port specified by this rule is temporarily assigned to the VLAN when it receives DHCP frames.
<b>vlan dhcp mac</b>	Defines a DHCP MAC address rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that matches the address specified by this rule are temporarily assigned to the VLAN.
<b>vlan dhcp mac range</b>	Defines a DHCP MAC address range rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that falls within the range specified by this rule are temporarily assigned to the VLAN.
<b>show vlan</b>	Displays existing VLANs.
<b>show vlan rules</b>	Displays rules defined for VLANs.

## MIB Objects

```
vDhcpGenericRuleTable  
  vDhcpGenericRuleVlanId  
  vDhcpGenericRuleStatus
```

---

## vlan binding mac-ip-port

Defines a binding MAC-IP-port rule for an existing VLAN. This rule restricts VLAN membership to a device that matches all criteria of the rule. Device frames received on the specified mobile port must also contain a source MAC address and source IP address that matches the MAC and IP address specified in the rule.

**vlan vid binding mac-ip-port** *mac\_address ip\_address slot/port*

**vlan vid no binding mac-ip-port** *mac\_address*

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>mac_address</i>	Source MAC address (e.g., 00:00:39:59:f1:0c).
<i>ip_address</i>	IP address (e.g., 21.0.0.10, 176.23.100.2)
<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a binding MAC-IP-port rule from the specified VLAN. It is only necessary to specify a MAC address to identify which rule to delete; the IP address and slot/port are not required.
- If only the frame's source MAC address matches the MAC address specified in this rule, a binding rule violation occurs and the device frame is blocked and its port is *not* assigned to the VLAN. There is no further attempt to compare the frame to other VLAN rules.
- If only the frame's source IP address matches the MAC address specified in this rule, a binding rule violation occurs and the device frame is blocked and its port is *not* assigned to the VLAN. There is no further attempt to compare the frame to other VLAN rules.
- If only the frame's port matches the port specified in this rule, the frame is allowed but the port is still not assigned to the VLAN. The frame is then compared to other VLAN rules for possible matches.
- A binding rule applies to traffic from a specific device. Therefore, a separate binding rule is required for each device.
- Binding MAC-IP-port rules have the highest precedence of all the rules.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 binding mac-ip-port 00:00:39:59:0a:0c 21.0.0.10 5/1  
-> van 20 no binding mac-ip-port 00:00:39:4f:f1:22
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vMacPortIpBRuleTable  
  vMacPortIpBRuleMac  
  vMacPortIpBRuleIfIndex  
  vMacPortIpBruleIp  
  vMacPortIpBRuleVlanId  
  vMacPortIPBRuleStatus
```

---

## vlan binding mac-port

Defines a binding MAC-port rule for an existing VLAN. This rule restricts VLAN membership to a device that matches all criteria of the rule. Device frames received on the specified mobile port must contain a source MAC address that matches the MAC address specified in the rule.

**vlan vid binding mac-port mac\_address slot/port**

**vlan vid no binding mac-port mac\_address**

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>mac_address</i>	Source MAC address (e.g., 00:00:39:59:f1:0c).
<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a binding MAC-port rule from the specified VLAN. It is only necessary to enter a MAC address to identify which rule to delete; the slot/port is not required.
- If only the frame's source MAC address matches the MAC address specified in this rule, a binding rule violation occurs and the device frame is blocked and its port is not assigned to the VLAN. There is no further attempt to compare the frame to other VLAN rules.
- If only the frame's port matches the port specified in this rule, the frame is allowed but the port is still not assigned to the VLAN. The frame is then compared to other VLAN rules for possible matches.
- A binding rule applies to a specific device. Therefore, a separate binding rule is required for each device.
- Binding MAC-port rules take precedence over all other rules, except binding MAC-port-protocol and binding MAC-IP-port rules.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 binding mac-port 00:00:39:59:0a:0c 5/1
-> vlan 20 no binding mac-port 00:00:39:4f:f1:22
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show vlan](#)

Displays existing VLANs.

[show vlan rules](#)

Displays rules defined for VLANs.

## MIB Objects

vMacPortBRuleTable

    vMacPortBRuleMac

    vMacPortBRuleIfIndex

    vMacPortBRuleVlanId

    vMacPortBRuleStatus

---

## vlan binding port-protocol

Defines a binding port-protocol rule for an existing VLAN. This rule restricts VLAN membership to a device that matches all criteria of the rule. Device frames received on the specified mobile port must contain a protocol type that matches the protocol value specified in the rule.

**vlan** *vid* **binding port-protocol** *slot/port* {**ip-e2** | **ip-snap** | **ipv6** | **ipx-e2** | **ipx-novell** | **ipx-llc** | **ipx-snap** | **decnet** | **appletalk** | **ethertype** *type* | **dsapssap** *dsap/ssap* | **snap** *snatype*}

**vlan** *vid* **no binding port-protocol** *slot/port* {**ip-e2** | **ip-snap** | **ipx-e2** | **ipx-novell** | **ipx-llc** | **ipx-snap** | **decnet** | **appletalk** | **ethertype** *type* | **dsapssap** *dsap/ssap* | **snap** *snatype*}

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<b>ip-e2</b>	IP Ethernet-II protocol. Also captures Address Resolution Protocol (ARP).
<b>ip-snap</b>	IP SNAP protocol.
<b>ipv6</b>	IPv6 protocol.
<b>ipx-e2</b>	IPX Ethernet-II protocol.
<b>ipx-novell</b>	IPX Novell (802.3) protocol.
<b>ipx-llc</b>	IPX LLC (802.2) protocol.
<b>ipx-snap</b>	IPX SNAP protocol.
<b>decnet</b>	DECNET Phase IV (6003) protocol.
<b>appletalk</b>	AppleTalk protocol. Also captures Datagram Delivery Protocol (DDP) and AppleTalk ARP (AARP).
<i>type</i>	A two-byte hex value between 0x600 and 0xffff that defines an Ethernet type (e.g., 0600, 0806, 6002).
<i>dsap/ssap</i>	A one-byte hex value between 0x00 and 0xff that defines Destination Service Access Protocol (DSAP) and Source Service Access Protocol (SSAP) header values. Specify both a DSAP and an SSAP value for this parameter variable (e.g., F0/F0, 04/04, BC/BC).
<i>snatype</i>	A two-byte hex value between 0x600 and 0xffff that defines a Sub-network Access Protocol (SNAP) protocol.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete a binding port-protocol rule from the specified VLAN.
- If only the frame's port matches the port specified in this rule, a binding rule violation occurs and the device frame is blocked and its port is not assigned to the VLAN. There is no further attempt to compare the frame to other VLAN rules.
- If only the frame's protocol matches the protocol specified in this rule, the frame is allowed but the port is still not assigned to the VLAN. The frame is then compared to other VLAN rules for possible matches.
- Binding port-protocol rules take precedence behind all other binding rules.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 binding port-protocol 5/1 ipx-e2
-> vlan 20 binding port-protocol 7/2 dsapssap F0/F0
-> vlan 20 no binding port-protocol 7/2 dsapssap F0/F0
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vPortProtoBRuleTable
  vPortProtoBRuleIfIndex
  vPortProtoBRuleProtoClass
  vPortProtoBRuleEthertype
  vPortProtoBRuleDsapSsap
  vPortProtoBRuleVlanId
  vPortProtoBRuleStatus
```

---

## vlan mac

Defines a MAC address rule for an existing VLAN. If the source MAC address of a device matches a MAC address specified in this rule, the device and its mobile port will join the VLAN when the device starts to send traffic.

```
vlan vid mac mac_address
```

```
vlan vid no mac mac_address
```

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>mac_address</i>	MAC address (e.g., 00:00:39:59:f1:0c).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a MAC address rule from the specified VLAN.
- Once a device joins a MAC address rule VLAN, then it is not eligible to join multiple VLANs even if the device traffic matches other VLAN rules.
- Mac address rules take precedence behind DHCP and binding rules.
- MAC address rules also capture DHCP traffic, if no other DHCP rule exists that would classify the DHCP traffic into another VLAN. Therefore, it is not necessary to combine DHCP rules with MAC address rules for the same VLAN.
- If there are a large number of devices that must join a VLAN, try MAC range rules (see [vlan mac range command on page 37-18](#)).
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 mac 00:00:39:59:0a:0c
-> vlan 20 mac 00:00:39:4f:f1:22
-> vlan 10 no mac 00:00:39:59:0a:0c
```

### Release History

Release 6.1; command was introduced.



## Related Commands

[vlan mac range](#)

Defines a MAC range rule for an existing VLAN. Mobile ports that receive frames with a source MAC address that falls within the range specified by this rule are temporarily assigned to the VLAN.

[show vlan](#)

Displays existing VLANs.

[show vlan rules](#)

Displays rules defined for VLANs.

## MIB Objects

vMacRuleTable

  vMacRuleAddr

  vMacRuleVlanId

  vMacRuleStatus

---

## vlan mac range

Defines a MAC range rule for an existing VLAN. If the source MAC address of a device matches the low or high end MAC or falls within the range defined by the low and high end MAC, the device and its mobile port will join the VLAN when the device starts to send traffic.

**vlan vid mac range** *low\_mac\_address high\_mac\_address*

**vlan vid no mac range** *low\_mac\_address*

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>low_mac_address</i>	MAC address that defines the low end of the range (e.g., 00:00:39:59:f1:00).
<i>high_mac_address</i>	MAC address that defines the high end of the range (e.g., 00:00:39:59:f1:90).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a MAC range rule from the specified VLAN. It is only necessary to enter the low end MAC address to identify which rule to delete; the high end MAC is not required.
- Only valid source MAC addresses are allowed for the low and high end boundary MACs. For example, multicast addresses (e.g., 01:00:00:c5:09:1a) are ignored even if they fall within a specified MAC range. To allow the use of a multicast address as either the low or high end boundary MAC would cause misleading MAC range rule results.
- Once a device joins a MAC range rule VLAN, then it is not eligible to join multiple VLANs even if the device traffic matches other VLAN rules.
- MAC range rules follow the same precedence as MAC address rules.
- MAC range rules also capture DHCP traffic, if no other DHCP rule exists that would classify the DHCP traffic into another VLAN. Therefore, it is not necessary to combine DHCP rules with MAC range rules for the same VLAN.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 mac range 00:00:39:59:0a:0c 00:00:39:59:0a:0f
-> vlan 10 no mac range 00:00:39:59:0a:0c
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[vlan mac](#)

Defines a MAC address rule for an existing VLAN. Mobile ports that receive frames with a source MAC address that matches the address specified by this rule are temporarily assigned to the VLAN.

[show vlan](#)

Displays existing VLANs.

[show vlan rules](#)

Displays rules defined for VLANs.

## MIB Objects

vMacRangeRuleTable

vMacRangeRuleLoAddr

vMacRangeRuleHiAddr

vMacRangeRuleVlanId

vMacRangeRuleStatus

---

## vlan ip

Defines an IP network address rule for an existing VLAN. If a device sends traffic that matches the IP address specified in the rule, the device and its mobile port will join the rule's VLAN.

**vlan vid ip** *ip\_address* [*subnet\_mask*]

**vlan vid no ip** *ip\_address* [*subnet\_mask*]

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>ip_address</i>	IP network address (e.g., 10.0.0.0, 171.15.0.0, 196.190.254.0)
<i>subnet_mask</i>	Class A, B, or C subnet mask (e.g., 255.0.0.0, 255.255.0.0, or 255.255.255.0).

### Defaults

By default, the subnet mask is set to the default subnet mask value for the IP address class.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an IP network address rule from the specified VLAN.
- Network address rules take precedence behind DHCP, binding, and MAC address rules.
- Use DHCP rules in combination with IP network address rules to capture and forward DHCP traffic.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

### Examples

```
-> vlan 10 ip 51.0.0.0 255.0.0.0
-> vlan 20 ip 21.0.0.0
-> vlan 10 no ip 21.0.0.0 255.0.0.0
-> vlan 10 no ip 51.0.0.0
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>vlan dhcp mac</b>	Defines a DHCP MAC address rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that matches the address specified by this rule are temporarily assigned to the VLAN.
<b>vlan dhcp mac range</b>	Defines a DHCP MAC address range rule for an existing VLAN. Mobile ports that receive DHCP frames with a source MAC address that falls within the range specified by this rule are temporarily assigned to the VLAN.
<b>vlan dhcp port</b>	Defines a DHCP port rule for an existing VLAN. The mobile port specified by this rule is temporarily assigned to the VLAN when it receives DHCP frames.
<b>vlan dhcp generic</b>	Defines a generic DHCP rule for an existing VLAN. Mobile ports that receive DHCP frames that do not match other DHCP rules are temporarily assigned to the VLAN.
<b>show vlan</b>	Displays existing VLANs.
<b>show vlan rules</b>	Displays rules defined for VLANs.

## MIB Objects

```
vIpNetRuleTable  
  vIpNetRuleAddr  
  vIpNetRuleMask  
  vIpNetRuleVlanId  
  vIpNetRuleStatus
```

---

## vlan ipx

Defines an IPX network address rule for an existing VLAN. If a device sends traffic that matches the IPX network address and encapsulation specified in the rule, the device and its mobile port will join the rule's VLAN.

```
vlan vid ipx ipx_net [e2 | llc | snap | novell]
```

```
vlan vid no ipx ipx_net
```

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>ipx_net</i>	IPX network address consisting of up to eight hex characters (e.g., A010590C, B030210A). If less than eight hex digits are entered, the entry is prefixed with zeros to equal eight digits.
<b>e2</b>	Enter <b>e2</b> to specify Ethernet-II encapsulation.
<b>llc</b>	LLC (802.2) encapsulation.
<b>snap</b>	SNAP encapsulation.
<b>novell</b>	Novell Raw (802.3) encapsulation.

### Defaults

parameter	default
<b>e2   llc   snap   raw</b>	e2

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete an IPX network address rule from the specified VLAN. It is only necessary to enter the IPX network address to identify which rule to delete; the encapsulation is not required.
- Specify **e2**, **llc**, **snap**, or **novell-raw** to identify the IPX encapsulation the device is going to use. If there is a mismatch and IPX traffic is routed, connectivity with the IPX server may not occur.
- This rule only applies to those devices that already have an IPX network address configured with an encapsulation that matches the encapsulation specified for the rule.
- Network address rules take precedence behind DHCP, binding, and MAC address rules.
- To remove an IPX network address rule, it is not necessary to specify the IPX encapsulation value.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 ipx 250A llc  
-> vlan 10 no ipx 250A
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vIpxNetRuleTable  
  vIpxNetRuleAddr  
  vIpxNetRuleEncap  
  vIpxNetRuleVlanId  
  vIpxNetRuleStatus
```

---

## vlan protocol

Defines a protocol rule for an existing VLAN. If a device sends traffic that matches the protocol value specified in the rule, the device and its mobile port will join the rule's VLAN.

**vlan** *vid* **protocol** {**ip-e2** | **ip-snap** | **ipx-e2** | **ipx-novell** | **ipx-llc** | **ipx-snap** | **decnet** | **appletalk** | **ethertype** *type* | **dsapssap** *dsap/ssap* | **snap** *snatype*}

**vlan** *vid* **no protocol** {**ip-e2** | **ip-snap** | **ipx-e2** | **ipx-nov** | **ipx-llc** | **ipx-snap** | **decnet** | **appletalk** | **ethertype** *type* | **dsapssap** *dsap/ssap* | **snap** *snatype*}

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<b>ip-e2</b>	IP Ethernet-II protocol. Also captures Address Resolution Protocol (ARP).
<b>ip-snap</b>	IP Sub-network Access Protocol (SNAP) protocol.
<b>ipx-e2</b>	IPX Ethernet-II protocol.
<b>ipx-novell</b>	IPX Novell (802.3) protocol.
<b>ipx-llc</b>	IPX LLC (802.2) protocol.
<b>ipx-snap</b>	IPX SNAP protocol.
<b>decnet</b>	DECNET Phase IV (6003) protocol.
<b>appletalk</b>	AppleTalk protocol. Also captures Datagram Delivery Protocol (DDP) and AppleTalk ARP (AARP).
<i>type</i>	A two-byte hex value between 0x600 and 0xffff that defines an Ethernet type (e.g., 0600, 0806, 6002).
<i>dsap/ssap</i>	A one-byte hex value between 0x00 and 0xff that defines Destination Service Access Protocol (DSAP) and Source Service Access Protocol (SSAP) header values. Specify both a DSAP and an SSAP value for this parameter variable (e.g., F0/F0, 04/04, BC/BC).
<i>snatype</i>	A two-byte hex value between 0x600 and 0xffff that defines a SNAP protocol.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E



## Usage Guidelines

- Use the **no** form of this command to delete a protocol rule from the specified VLAN.
- Use the **ethertype**, **dsapssap**, or **snap** parameters if none of the generic protocol rule parameters (**ip-e2**, **ip-snap**, **ipx-e2**, **ipx-nov**, **ipx-llc**, **ipx-snap**, **decnet**, **appletalk**) provide the necessary rule definition for a specific traffic protocol.
- If an attempt is made to define an Ethertype rule with a protocol type value that is equal to the value already captured by one of the generic IP or IPX protocol rules, a message displays recommending the use of the IP or IPX generic rule.
- Protocol rules take precedence behind DHCP, binding, MAC address, and network address rules.
- IP protocol rules (ipE2 and ipSnap) also capture DHCP traffic, if no other DHCP rule exists that would classify the DHCP traffic into another VLAN. Therefore, it is not necessary to combine DHCP rules with protocol rules for the same VLAN.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 protocol ip-e2
-> vlan 20 protocol ipx-nov
-> vlan 30 protocol ethertype 0600
-> vlan 40 protocol dsapssap F0/F0
-> vlan 50 protocol snap 6004
-> vlan 10 no protocol ip-snap
-> vlan 20 no protocol ipx-e2
-> vlan 30 no protocol ethertype 0806
-> vlan 40 no protocol dsapssap 04/04
-> vlan 50 no protocol snap 80FE
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vProtocolRuleTable
  vProtoRuleProtoClass
  vProtoRuleEthertype
  vProtoRuleDsapSsap
  vProtoRuleVlanId
  vProtoRuleStatus
```

---

## vlan port

Defines a port rule for an existing VLAN. An active mobile port that is specified in a port rule, dynamically joins the VLAN even if traffic on that port does not get learned or matches any VLAN rules. The specified port becomes a VLAN member only for the purpose of forwarding broadcast traffic for a VLAN on that port. The advantage to this is that traffic from multiple VLANs can flood out on a single port.

**vlan vid port slot/port**

**vlan vid no port slot/port**

---

### Syntax Definitions

<i>vid</i>	VLAN ID number (1–4094).
<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a port rule from the specified VLAN.
- Port rules are for silent devices, such as printers, that require VLAN membership to receive traffic forwarded from the VLAN. These devices usually don't send traffic, so they do not trigger dynamic assignment of their mobile ports to a VLAN.
- Port rules do not classify incoming traffic on the specified mobile port. Incoming traffic is classified for VLAN assignment in the same manner as all other mobile port traffic.
- VLAN assignments that are defined using port rules are exempt from the port's default VLAN restore status.
- An alternative to port rules is to manually assign a port to a VLAN by using the [vlan port default](#) command. This applies to both mobile and non-mobile ports.
- Rules are only assigned to existing VLANs. Use the **vlan** command to create a new VLAN.

## Examples

```
-> vlan 10 port 3/10
-> vlan 20 port 6/1-32
-> vlan 500 port 2/1-12 4/10-16 8/4-17
-> vlan 30 no port 9/11
-> vlan 40 no port 4/1-16
-> vlan 600 no port 2/14-20 7/1-9
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">show vlan</a>	Displays existing VLANs.
<a href="#">show vlan rules</a>	Displays rules defined for VLANs.

## MIB Objects

```
vPortRuleTable
  vPortRuleIfIndes
  vPortRuleVlanId
  vPortRuleStatus
```

---

## vlan port mobile

Configures Ethernet ports as mobile ports and enables or disables BPDU ignore. Mobile ports are eligible for dynamic VLAN assignment, which occurs when mobile port traffic matches a VLAN rule on one or more VLANs. Typically, mobility is applied to ports that do not send or receive BPDUs. However, enabling BPDU ignore allows BPDU ports to also participate in dynamic VLAN assignment.

---

**Note.** Enabling BPDU ignore is not recommended. In specific cases where it is required, such as connecting legacy networks to port mobility networks, make sure that ignoring BPDUs on a mobile port will not cause network loops to go undetected. Connectivity problems could also result if a mobile BPDU port dynamically moves out of its configured default VLAN where it provides traffic flow to and from another switch.

---

**vlan port mobile** *slot/port* [**bpdu ignore** {**enable** | **disable**}]

**vlan no port mobile** *slot/port*

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).

**enable** Enables BPDU ignore on a mobile port.

**disable** Disables BPDU ignore on a mobile port.

### Defaults

By default, all ports are non-mobile (fixed) ports.

parameter	default
<b>enable</b>   <b>disable</b>	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable mobility on the specified port.
- Only 10/100 and gigabit Ethernet ports are eligible for mobile port status.
- Mobile ports can join more than one VLAN. For example, if a device connected to a mobile port sends both IP and IPX traffic and VLAN 10 has an IP protocol rule and VLAN 20 has an IPX protocol rule, the mobile port and its device dynamically join both VLANs. However, certain rules, such as MAC address rules, can limit port membership to one VLAN.

- When a VLAN is administratively disabled, manual port and dynamic mobile port assignments are retained but traffic on these ports is not forwarded. However, VLAN rules remain active and continue to classify mobile port traffic for VLAN membership.
- When a BPDU is received on a mobile port and BPDU ignore is disabled, the port is changed to a fixed (non-mobile) port that is associated only with its configured default VLAN. Also, the BPDU port participates in the Spanning Tree algorithm. When BPDU ignore is enabled, a mobile port that receives a BPDU remains mobile and is not included in Spanning Tree topology calculations.
- Enabling mobility on an active port that sends or receives BPDU (e.g. ports that connect two switches and Spanning Tree is enabled on both the ports and their assigned VLANs) is not allowed. If mobility is required on this type of port, enable mobility and the BPDU ignore flag when the port is not active.

## Examples

```
-> vlan port mobile 3/1
-> vlan port mobile 3/1-16
-> vlan port mobile 3/1-16 4/17-32 8/4-12
-> vlan port mobile 5/22 authenticate enable
-> vlan port mobile 6/12-16 authenticate disable
-> vlan no port mobile 2/1
-> vlan no port mobile 3/1-16
-> vlan no port mobile 4/17-32 8/4-12
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">vlan port default vlan restore</a>	Enables default VLAN restore on a mobile port.
<a href="#">vlan port default vlan</a>	Enables default VLAN membership for mobile port traffic that does not match any VLAN rules.
<a href="#">vlan port authenticate</a>	Enables or disables authentication on a mobile port.
<a href="#">show vlan port mobile</a>	Displays mobile port properties.

## MIB Objects

```
vMobilePortTable
  vMobilePortIIIfIndex
  vMobilePortMobility
  vMobilePortIgnoreBPDU
```

---

## vlan port default vlan restore

Enables or disables default VLAN restore for a mobile port. Use this command to specify if a mobile port should retain or drop its dynamic VLAN assignments after all MAC addresses learned on that port have aged out.

**vlan port** *slot/port* **default vlan restore** {enable | disable}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).
<b>enable</b>	Enable default VLAN restore for the specified mobile port. VLAN assignments are dropped when port traffic ages out.
<b>disable</b>	Disable default VLAN restore for the specified mobile port. VLAN assignments are retained when port traffic ages out.

### Defaults

By default, VLAN restore is enabled on mobile ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a hub is connected to a mobile port, enabling default VLAN restore on that port is recommended.
- If a VLAN port rule exists for a mobile port, it will remain a member of the port rule VLAN even if default VLAN restore is enabled for that port.
- When a mobile port link is disabled and then enabled, the port is always returned to its configured default VLAN. Switch ports are disabled when a device is disconnected from the port, a configuration change is made to disable the port, or switch power is turned off.

### Examples

```
-> vlan port 3/1 default vlan restore enable
-> vlan port 5/2 default vlan restore disable
-> vlan port 6/1-32 8/10-24 9/3-14 default vlan restore enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>vlan port mobile</b>	Configures Ethernet ports as mobile ports.
<b>vlan port default vlan</b>	Enables default VLAN membership for mobile port traffic that does not match any VLAN rules.
<b>vlan port authenticate</b>	Enables or disables authentication on a mobile port.
<b>show vlan port mobile</b>	Displays mobile port properties.

## MIB Objects

```
vMobilePortTable  
  vMobilePortIIIfIndex  
  vMobilePortDefVlanRestore
```

---

## vlan port default vlan

Enables or disables the forwarding of mobile port traffic on the configured default VLAN for the mobile port when the traffic does not match any VLAN rules.

**vlan port** *slot/port* **default vlan** {enable | disable}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).
<b>enable</b>	Enable the configured default VLAN for the specified mobile port.
<b>disable</b>	Disable the configured default VLAN for the specified mobile port.

### Defaults

Default VLAN is enabled on mobile ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- It is recommended that mobile ports with their default VLAN disabled should not share a VLAN with any other types of ports (e.g., mobile ports with default VLAN enabled or non-mobile, fixed ports).
- If the default VLAN is enabled for a mobile port, traffic that does not match any VLAN rules is forwarded on the default VLAN.
- If the default VLAN is disabled for the mobile port, traffic that does not match any VLAN rules is dropped.
- When a port (mobile or fixed) is manually assigned to a default VLAN or is still a member of default VLAN 1, then that association is referred to as the *configured* default VLAN for the port. If a mobile port is dynamically assigned to additional VLANs, these subsequent associations are referred to as secondary VLANs.

### Examples

```
-> vlan port 3/1 default vlan enable
-> vlan port 5/2 default vlan disable
-> vlan port 6/1-32 8/10-24 9/3-14 default vlan enable
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>vlan port mobile</b>	Configures Ethernet ports as mobile ports.
<b>vlan port default vlan restore</b>	Enables default VLAN restore on a mobile port.
<b>vlan port authenticate</b>	Enables or disables authentication on a mobile port.
<b>show vlan port mobile</b>	Displays mobile port properties.

## MIB Objects

```
vMobilePortTable  
  vMobilePortIIIfIndex  
  vMobilePortDefVlanEnable
```

---

## vlan port authenticate

Enables or disables authentication on a mobile port.

**vlan port** *slot/port* **authenticate** {enable | disable}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).
<b>enable</b>	Enable authentication on the specified mobile port.
<b>disable</b>	Disable authentication on the specified mobile port.

### Defaults

By default, authentication is disabled on mobile ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

At this time, authentication is only supported on mobile ports.

### Examples

```
-> vlan port 3/1 authenticate enable
-> vlan port 5/2 authenticate disable
-> vlan port 6/1-32 8/10-24 9/3-14 authenticate enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">vlan port mobile</a>	Configures Ethernet ports as mobile ports.
<a href="#">vlan port 802.1x</a>	Enables or disables 802.1X port-based access control on a mobile port.
<a href="#">show vlan port mobile</a>	Displays mobile port properties.

### MIB Objects

```
vMobilePortTable
  vMobilePortIIIfIndex
  vMobilePortAuthenticate
```

---

## vlan port 802.1x

Enables or disables 802.1X port-based access control on a mobile port.

**vlan port** *slot/port* **802.1x** {enable | disable}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical mobile port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).
<b>enable</b>	Enable 802.1x on the specified mobile port.
<b>disable</b>	Disable 802.1x on the specified mobile port.

### Defaults

By default, 802.1x is disabled on mobile ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- At this time, 802.1X is only supported on mobile ports.
- Authentication and 802.1X are mutually exclusive on a given mobile port.

### Examples

```
-> vlan port 3/1 802.1x enable
-> vlan port 5/2 802.1x disable
-> vlan port 6/1-32 8/10-24 9/3-14 802.1x enable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">vlan port mobile</a>	Configures Ethernet ports as mobile ports.
<a href="#">vlan port authenticate</a>	Enables or disables authentication on a mobile port.
<a href="#">show vlan port mobile</a>	Displays mobile port properties.

## **MIB Objects**

vMobilePortTable

    vMobilePortIIIfIndex

    vMobilePortAuthenticate

---

## show vlan rules

Displays VLAN rules for the specified VLAN.

**show vlan** [*vid*] rules

---

### Syntax Definitions

*vid* VLAN ID number (1–4094).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If a *vid* is not specified, rules defined for all VLANs are displayed.

### Examples

```
-> show vlan rules
Legend: * indicates a binding rule
```

type	vlan	rule
ip-net	7	143.113.0.0, 255.255.0.0
ipx-net	8	0x450c, llc
mac-addr	4000	00:00:00:00:10:10
mac-range	4001	00:00:00:10:00:00, 00:00:00:20:00:00
mac-port-proto*	4094	00:00:0e:00:12:34, 15/4, appletalk

```
-> show vlan 55 rules
Legend: * indicates a binding rule
```

type	vlan	rule
ip-net	55	143.113.0.0, 255.255.0.0
ipx-net	55	45, llc
mac-addr	55	00:00:00:00:10:10
mac-range	55	00:00:00:10:00:00, 00:00:00:20:00:00
mac-port-proto*	55	00:00:0e:00:12:34, 15/4, appletalk

### output definitions

---

<b>Type</b>	The type of rule defined. There are several types of VLAN rules: binding rules, MAC address rules, IP/IPX network address rules, protocol rules, port rules, custom rules, and DHCP rules.
*	Identifies a binding rule. The asterisk appears next to the rule type.

*output definitions (continued)*

---

<b>VLAN</b>	The VLAN ID number for the rule's VLAN.
<b>Rule</b>	The value for the type of rule defined. Switch software uses these rule values to determine mobile port VLAN assignment. If traffic coming in on a mobile port matches the value of a VLAN rule, then the mobile port is dynamically assigned to that VLAN.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show vlan</a>	Displays a list of existing VLANs.
<a href="#">show vlan port</a>	Displays VLAN port assignments for all VLANs, a specific VLAN, or for a specific port (mobile and fixed).

---

## show vlan port mobile

Displays current status of mobile properties for a switch port.

**show vlan port mobile** [*slot/port*]

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3). To enter multiple slots and ports in a single command, use a hyphen to specify a range of ports (e.g., 3/1-16) and a space to specify multiple slots (e.g., 3/1-16 5/10-20 8/2-9).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a slot/port is not specified, then mobile properties for all ports are displayed.
- Note that the **show vlan port mobile** command only displays ports that are mobile or are eligible to become mobile ports. For example, ports that are part of a link aggregate or are configured for 802.1Q VLAN tagging are not included in the output of this command.

### Examples

```
-> show vlan port mobile
```

```

           cfg                               ignore
port  mobile def  authent  enabled  restore  bpdu
-----+-----+-----+-----+-----+-----+
12/12  on    1    off     on     off     off
12/13  off
12/14  off
12/15  on    10   on-avlan  off    on     off
12/16  on    10   on-8021x  on     off    on

```

#### output definitions

---

<b>port</b>	The slot number for the module and the physical mobile port number on that module.
<b>mobile</b>	The mobile status for the port ( <b>on</b> or <b>off</b> ). If set to <b>on</b> , the port is mobile and eligible for dynamic VLAN assignment. If set to <b>off</b> , the port is non-mobile and remains only a member of its configured default VLAN. Use the <b>vlan port mobile</b> to enable or disable mobility on a port.
<b>cfg def</b>	The configured default VLAN for the port, which is assigned using the <b>vlan port default</b> command.

---

*output definitions (continued)*

---

<b>authent</b>	The authentication status for the port ( <b>on-avlan</b> , <b>on-8021x</b> , or <b>off</b> ). Use the <b>vlan port authenticate</b> and <b>vlan port 802.1x</b> commands to change this status.
<b>enabled</b>	The default VLAN status for the port: <b>on</b> enables the forwarding of traffic that doesn't match any rules on the port's configured default VLAN; <b>off</b> disables the forwarding of such traffic and packets are discarded. Use the <b>vlan port default vlan</b> to change this status.
<b>restore</b>	The default VLAN restore status for the port: <b>on</b> indicates that the mobile port will not retain its VLAN assignments when qualifying traffic ages out on that port; <b>off</b> indicates that the mobile port will retain its dynamic VLAN assignments after qualifying traffic has aged out. Use the <b>vlan port default vlan restore</b> command to change this status.
<b>ignore BPDU</b>	The ignore BPDU status for the port: <b>on</b> indicates that if the mobile port receives BPDUs, they're ignored and the port remains eligible for dynamic VLAN assignment; <b>off</b> indicates that if a BPDU is seen on the port, mobility is disabled and the port is not eligible for dynamic assignment. The status of ignore BPDU is set when the <b>vlan port mobile</b> command is used to enable or disable mobility on a port.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show vlan port** Displays VLAN port assignments for all VLANs, a specific VLAN, or for a specific port.

---



# 38 Network Security Commands

Network Security (also known as Alcatel-Lucent's Traffic Anomaly Detection feature) detects anomalies in network traffic through statistical analysis of a port's ingress and egress packets. Anomalies occur when traffic patterns of a port do not meet expectations. Network Security detects such anomalies in real time and upon detection can log and/or generate an SNMP trap and/or disable the anomalous port automatically.

Network Security provides the following capabilities:

- Real time network traffic monitoring.
- Dynamic anomaly detection.
- Dynamic anomalous port quarantining.

---

**Note.** The Network Security feature is supported only on the OmniSwitch 6850, 6855, and 9000E series.

---

MIB information for the Network Security commands is as follows:

*Filename:* AlcatelIND1Ns.mib  
*Module:* ALCATEL-IND1-NETSEC-MIB

A summary of available commands is listed here:

---

[netsec group port](#)  
[netsec group anomaly](#)  
[show netsec summary](#)  
[show netsec traffic](#)  
[show netsec statistics](#)  
[show netsec config](#)  
[show netsec operation](#)  
[show netsec group port](#)

---

Configuration procedures for Network Security are explained in the “Configuring Network Security” chapter of the *OmniSwitch AOS Release 6 Network Configuration Guide*.

## netsec group port

Creates a monitoring-group and configures port associations for that group.

**netsec group** *grp\_name* **port** *slot/port*[-*port2*]

**no netsec group** *grp\_name* **port** *slot/port*[-*port2*]

---

### Syntax Definitions

<i>grp_name</i>	The name of the monitoring-group (up to 32 characters).
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to associate on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a port or a range of ports from the monitoring-group.
- A port-range cannot be a subset of any other port-range which is already configured.
- The word 'all' cannot be used as a group name (*grp\_name*).

### Examples

```
-> netsec group ad-port port 1/1
-> netsec group ad-port port 1/3-10
-> no netsec group ad-port port 1/1
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">netsec group anomaly</a>	Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.
<a href="#">show netsec summary</a>	Displays the anomaly check summary.

## **MIB Objects**

```
alaNetSecPortRangeGroupTable  
  alaNetSecPortRangeGroupStartIfId  
  alaNetSecPortRangeGroupEndIfId  
  alaNetSecPortRangeGroupName  
  alaNetSecPortRangeGroupRowStatus
```

---

## netsec group anomaly

Configures various anomaly parameters of a monitoring-group and specifies the anomaly to monitor for the monitoring-group.

```
netsec group {grp_name | all} anomaly {anomaly_name | all} {{{state | log | trap | quarantine} {enable | disable}} | {period seconds} | {count num} | {sensitivity num}
```

```
no netsec group grp_name anomaly {anomaly_name | all} {state | log | trap | quarantine | period | count | sensitivity}
```

---

### Syntax Definitions

<i>grp_name</i>	The name of the monitoring-group (up to 32 characters).
<b>group all</b>	Specifies all the monitoring-groups.
<i>anomaly_name</i>	The type of the anomaly to be enabled or disabled. (Refer to the table in the “Usage Guidelines” section below for a list of supported anomalies).
<b>anomaly all</b>	Monitors all anomalies.
<b>state</b>	Specifies the status of anomaly detection.
<b>log</b>	Logs detected anomalies.
<b>trap</b>	Sends a trap when an anomaly is detected.
<b>quarantine</b>	Quarantines the port on which an anomaly is detected.
<b>period</b> <i>seconds</i>	The time duration to observe traffic pattern, in seconds. The valid range is 5-3600
<b>count</b> <i>num</i>	The number of packets that must be seen during the period to trigger anomaly detection. The valid range is 1-100000.
<b>sensitivity</b> <i>num</i>	Sensitivity of anomaly detection to deviation from the expected traffic pattern. The valid range is 1-100.
<b>enable</b>	Enables the status of the state, log, trap, and quarantine parameters for the anomaly.
<b>disable</b>	Disables the status of the state, log, trap, and quarantine parameters for the anomaly.

## Defaults

parameter	default
state enable   disable	disable
log enable   disable	disable
trap enable   disable	disable
quarantine enable   disable	disable
period <i>seconds</i>	30
sensitivity <i>num</i>	50

## Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to reset to default value.
- Use the parameter **period** to set the time to observe traffic on a port to detect anomalies. Accuracy and latency of algorithm is proportional to the time period.
- Use the parameter **count** to configure the minimum traffic required to activate anomaly detection. Accuracy of detection is proportional to count.
- Use the parameter **sensitivity** to check anomaly sensitivity of deviation from the expected traffic pattern. Accuracy of detection is proportional to sensitivity.
- The following table lists the **netsec anomaly** command options for specifying anomalies:

anomaly name	count defaults
arp-addr-scan	50
arp-flood	90
arp-failure	6
icmp-addr-scan	30
icmp-flood	90
icmp-unreachable	20
tcp-port-scan	20
tcp-addr-scan	30
syn-flood	90
syn-failure	10
syn-ack-scan	2
fin-scan	6
fin-ack-diff	5
rst-count	50

## Examples

```
-> netsec group ad anomaly tcp-port-scan period 30
-> netsec group add anomaly arp-poisoning count 40
-> netsec group al anomaly tcp-port-scan sensitivity 90
-> netsec group ala anomaly arp-addr-scan log enable
-> netsec group a anomaly tcp-port-scan trap disable
-> no netsec group ad anomaly tcp-port-scan period
-> no netsec group al anomaly tcp-port-scan sensitivity
-> no netsec group ala anomaly arp-addr-scan quarantine
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">netsec group port</a>	Associates or disassociates port-range with monitoring-group.
<a href="#">show netsec config</a>	Displays the current network security configurations.

## MIB Objects

```
alaNetSecMonitoringGroupTable
  alaNetSecMonitoringGroupName
  alaNetSecMonitoringGroupAnomaly
  alaNetSecMonitoringGroupAnomalyState
  alaNetSecMonitoringGroupAnomalyLog
  alaNetSecMonitoringGroupAnomalyTrap
  alaNetSecMonitoringGroupAnomalyQuarantine
  alaNetSecMonitoringGroupAnomalyCount
  alaNetSecMonitoringGroupAnomalySensitivity
  alaNetSecMonitoringGroupAnomalyPeriod
  alaNetSecMonitoringGroupRowStatus
```

---

## show netsec summary

Displays the anomaly check summary.

**show netsec** [**group** {*grp\_name* | **all**} | **port** *slot/port*[-*port2*]] [**anomaly** {*anomaly\_name* | **all**}] **summary**

---

### Syntax Definitions

<i>grp_name</i>	The name of the monitoring-group whose member-ports statistics are required.
<b>group all</b>	Specifies all the monitoring-groups.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to display on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<i>anomaly_name</i>	The type of the anomaly.
<b>anomaly all</b>	Monitors all anomalies.

### Defaults

By default, a list of all anomalies is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **anomaly** and **group** parameters to list the summary of a particular anomaly that belongs to the specified monitoring-group.
- The following table show the list of anomalies:

<b>anomaly name</b>
<b>arp-addr-scan</b>
<b>arp-flood</b>
<b>arp-failure</b>
<b>icmp-addr-scan</b>
<b>icmp-flood</b>
<b>icmp-unreachable</b>
<b>tcp-port-scan</b>
<b>tcp-addr-scan</b>
<b>syn-flood</b>
<b>syn-failure</b>

---

**anomaly name**

---

**syn-ack-scan**

---

**fin-scan**

---

**fin-ack-diff**

---

**rst-count**

---

## Examples

```
-> show netsec anomaly all summary
```

```
Slot
Port  Anomaly          Observed  Detected
-----+-----+-----+-----
2/5   arp-addr-scan     82        0
2/5   arp-flood         82        0
2/5   arp-failure       88        6
2/5   icmp-addr-scan   82        0
2/5   icmp-flood       82        0
2/5   icmp-unreachable 82        0
2/5   tcp-port-scan    82        0
2/5   tcp-addr-scan    82        0
2/5   syn-flood        82        0
2/5   syn-failure      82        0
2/5   syn-ack-scan     82        0
2/5   fin-scan         82        0
2/5   fin-ack-diff     82        0
2/5   rst-count        82        0
```

```
-> show netsec port 2/1 anomaly arp-addr-scan summary
```

```
Slot
Port  Anomaly          Observed  Detected
-----+-----+-----+-----
2/1   arp-addr-scan    7         1
```

### *output definitions*

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Anomaly</b>	The type of anomaly.
<b>Observed</b>	The number of times an anomaly was checked for this port since monitoring was enabled.
<b>Detected</b>	The number of times an anomaly was detected on this port since monitoring was enabled.

---

## Release History

Release 6.3.1; command was introduced.



## Related Commands

**netsec group port**

Associates or disassociates port-range with monitoring-group.

**netsec group anomaly**

Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.

## MIB Objects

```
alaNetSecPortAnomalySummaryTable  
  alaNetSecPortAnomalySummaryIfId  
  alaNetSecPortAnomalySummaryAnomaly  
  alaNetSecPortAnomalySummaryObserved  
  alaNetSecPortAnomalySummaryDetected
```

---

## show netsec traffic

Displays anomaly specific traffic statistics.

**show netsec** [**group** {*group-name* | **all**} | **port** *slot/port1*[-*port2*]] [**anomaly** {*anomaly\_name* | **all**}] **traffic**

---

### Syntax Definitions

<i>group-name</i>	The name of the monitoring-group.
<b>group all</b>	Specifies all the monitoring-groups.
<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>anomaly_name</i>	The type of the anomaly.
<b>anomaly all</b>	Monitors all anomalies.

### Defaults

By default, a list of all anomalies traffic is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

To display traffic for a particular monitoring-group, specify only the **group** parameter.

### Examples

```
-> show netsec anomaly all traffic
```

Slot	Port	Anomaly	Packet	Curr-in	Curr-out	Last-in	Last-out
2/5		arp-addr-scan	arp-rep	-	0	-	0
2/5		arp-addr-scan	arp-req	0	-	0	-
2/5		arp-flood	arp-rep	0	0	0	0
2/5		arp-flood	arp-req	0	-	0	-
2/5		arp-failure	arp-rep	-	0	-	0
2/5		arp-failure	arp-req	0	-	0	-
2/5		icmp-addr-scan	icmp-rep	-	0	-	0
2/5		icmp-addr-scan	icmp-req	0	-	0	-
2/5		icmp-flood	icmp-rep	-	0	-	0
2/5		icmp-flood	icmp-req	0	0	0	0
2/5		icmp-unreachable	icmp-dnr	0	0	0	0
2/5		tcp-port-scan	syn-only	0	0	0	0
2/5		tcp-port-scan	syn-ack	0	0	0	0
2/5		tcp-port-scan	rst	0	0	0	0
2/5		tcp-addr-scan	syn-only	0	-	0	-
2/5		tcp-addr-scan	syn-ack	-	0	-	0

2/5	tcp-addr-scan	rst	-	0	-	0
2/5	syn-flood	syn-only	0	0	0	0
2/5	syn-flood	syn-ack	0	0	0	0
2/5	syn-failure	syn-only	0	-	0	-
2/5	syn-failure	syn-ack	-	0	-	0
2/5	syn-ack-scan	syn-ack	0	0	0	0
2/5	syn-ack-scan	syn-nack	0	0	0	0
2/5	fin-scan	fin-nack	0	0	0	0
2/5	fin-ack-diff	fin-ack	0	0	0	0
2/5	rst-count	rst	0	0	0	0

```
-> show netsec group test1 anomaly arp-addr-scan traffic
```

```
Slot
```

Port	Anomaly	Packet	Curr-in	Curr-out	Last-in	Last-out
2/1	arp-addr-scan	arp-rep	-	0	-	0
2/1	arp-addr-scan	arp-req	1500	-	1746	-
2/2	arp-addr-scan	arp-rep	-	0	-	0
2/2	arp-addr-scan	arp-req	0	-	0	-

### *output definitions*

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Anomaly</b>	The type of anomaly.
<b>Packet</b>	The packet being monitored.
<b>Curr-in</b>	The number of incoming packets during the current monitoring period.
<b>Curr-out</b>	The number of outgoing packets during the current monitoring period.
<b>Last-in</b>	The number of incoming packets during the last monitoring period.
<b>Last-out</b>	The number of outgoing packets during the last monitoring period.

## Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">netsec group port</a>	Associates or disassociates port-range with monitoring-group.
<a href="#">netsec group anomaly</a>	Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.
<a href="#">show netsec statistics</a>	Displays the pattern counts on ports.

**MIB Objects**

```
alaNetSecPortAnomalyStatsTable  
  alaNetSecPortAnomalyStatsIfId  
  alaNetSecPortAnomalyStatsAnomaly  
  alaNetSecPortAnomalyStatsPacket  
  alaNetSecPortAnomalyStatsCurrentIngress  
  alaNetSecPortAnomalyStatsCurrentEgress  
  alaNetSecPortAnomalyStatsLastIngress  
  alaNetSecPortAnomalyStatsLastIngress
```

---

## show netsec statistics

Displays the pattern counts on ports.

**show netsec** [**group** {*grp\_name* | **all**} | **port** *slot/port*[-*port2*]] **statistics**

---

### Syntax Definitions

<i>grp_name</i>	The name of the port-group (up to 16 characters).
<b>group all</b>	Specifies all the monitoring-groups.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).

### Defaults

By default, a list of all pattern counts is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

To display statistics for a particular monitoring-group, specify only the **group** parameter.

### Examples

```
-> show netsec statistics
Slot
Port      Packet      Last-In      Last-Out      Total-In      Total-Out
-----+-----+-----+-----+-----+-----
2/5      arp-rep      0             0             0             0
2/5      arp-req      0             -             0             -
2/5      icmp-rep     0             0             0             0
2/5      icmp-req     0             0             0             0
2/5      icmp-dnr     0             0             0             0
2/5      syn-only     0             0             0             0
2/5      syn-ack      0             0             0             0
2/5      syn-nack     0             0             0             0
2/5      fin-ack      0             0             0             0
2/5      fin-nack     0             0             0             0
2/5      rst          0             0             0             0
2/7      arp-rep      0             0             0             0
2/7      arp-req      0             -             0             -
2/7      icmp-rep     0             0             0             0
2/7      icmp-req     0             0             0             0
2/7      icmp-dnr     0             0             0             0
2/7      syn-only     0             0             0             0
2/7      syn-ack      0             0             0             0
2/7      syn-nack     0             0             0             0
```

```

2/7      fin-ack      0          0          0          0
2/7      fin-nack     0          0          0          0
2/7      rst          0          0          0          0

```

```
-> show netsec group test1 statistics
```

```

Slot
Port  Packet          Last-In  Last-Out  Total-In  Total-Out
-----+-----+-----+-----+-----+-----
2/5   arp-rep         0        0         0         0
2/5   arp-req         0        -         0         -
2/5   icmp-rep        0        0         0         0
2/5   icmp-req        0        0         0         0
2/5   icmp-dnr        0        0         0         0
2/5   syn-only        0        0         0         0
2/5   syn-ack         0        0         0         0
2/5   syn-nack        0        0         0         0
2/5   fin-ack         0        0         0         0
2/5   fin-nack        0        0         0         0
2/5   rst             0        0         0         0

```

```
-> show netsec port 2/7 statistics
```

```

Slot
Port  Packet          Last-In  Last-Out  Total-In  Total-Out
-----+-----+-----+-----+-----+-----
2/7   arp-rep         0        0         0         0
2/7   arp-req         0        -         0         -
2/7   icmp-rep        0        0         0         0
2/7   icmp-req        0        0         0         0
2/7   icmp-dnr        0        0         0         0
2/7   syn-only        0        0         0         0
2/7   syn-ack         0        0         0         0
2/7   syn-nack        0        0         0         0
2/7   fin-ack         0        0         0         0
2/7   fin-nack        0        0         0         0
2/7   rst             0        0         0         0

```

### *output definitions*

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Packet</b>	The packet being monitored.
<b>Last-In</b>	The number of incoming packets observed during the last 5 seconds.
<b>Last-Out</b>	The number of outgoing packets observed during the last 5 seconds.
<b>Total-In</b>	The total number of incoming packets observed since monitoring was enabled.
<b>Total-Out</b>	The total number of outgoing packets observed since monitoring was enabled.

---

### **Release History**

Release 6.3.1; command was introduced.

## Related Commands

<b>netsec group port</b>	Associates or disassociates port-range with monitoring-group.
<b>netsec group anomaly</b>	Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.
<b>show netsec traffic</b>	Displays anomaly specific traffic statistics.

## MIB Objects

```
alaNetSecPortStats  
  alaNetSecPortStatsIfId  
  alaNetSecPortStatsPacket  
  alaNetSecPortStatsLastIngress  
  alaNetSecPortStatsLastEgress  
  alaNetSecPortStatsTotalIngress  
  alaNetSecPortStatsTotalEgress
```

---

## show netsec config

Displays the current network security configurations.

**show netsec** [**group** {*grp\_name* | **all**}] [**anomaly** {*anomaly\_name* | **all**}] **config**

---

### Syntax Definitions

<i>group-name</i>	The name of the monitoring-group whose member-ports statistics are required.
<b>group all</b>	Specifies all the monitoring-groups.
<i>anomaly_name</i>	The type of the anomaly.
<b>anomaly all</b>	Monitors all anomalies.

### Defaults

By default, a list of all anomalies configuration is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

To display the security configuration for a particular monitoring-group, specify only the **group** parameter.

### Examples

```
-> show netsec config
```

Group	Anomaly	S	L	T	Q	Per	Cnt	Sen
h	arp-addr-scan	E	E	-	-	-	-	-
h	arp-flood	E	E	-	-	-	-	-
h	arp-failure	E	E	-	-	-	-	-
h	icmp-addr-scan	E	E	-	-	-	-	-
h	icmp-flood	E	E	-	-	-	-	-
h	icmp-unreachable	E	E	-	-	-	-	-
h	tcp-port-scan	E	E	-	-	-	-	-
h	tcp-addr-scan	E	E	-	-	-	-	-
h	syn-flood	E	E	-	-	-	-	-
h	syn-failure	E	E	-	-	-	-	-
h	syn-ack-scan	E	E	-	-	-	-	-
h	fin-scan	E	E	-	-	-	-	-
h	fin-ack-diff	E	E	-	-	-	-	-
h	rst-count	E	E	-	-	-	-	-
test1	tcp-addr-scan	E	E	E	-	10	-	-



```
-> show netsec group test1 anomaly arp-addr-scan config
Group                Anomaly                S L T Q  Per   Cnt   Sen
-----+-----+-----+-----+-----+-----+-----+-----
test1                arp-addr-scan         E E E -   -    -    -
```

### output definitions

<b>Group</b>	The name of the monitoring-group.
<b>Anomaly</b>	The anomaly type of the monitoring group.
<b>S</b>	The current state (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>L</b>	Log (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>T</b>	Trap (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>Q</b>	Quarantine (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>Per</b>	Anomaly monitoring period (- indicates Not configured)
<b>Cnt</b>	Anomaly detection threshold (- indicates Not configured)
<b>Sen</b>	Anomaly sensitivity (- indicates Not configured)

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<a href="#">netsec group anomaly</a>	Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.
<a href="#">show netsec operation</a>	Displays the network security operational conditions at per port anomaly level.

### MIB Objects

```
alaNetSecMonitoringGroupConfig
  alaNetSecMonitoringGroupName
  alaNetSecMonitoringGroupAnomaly
  alaNetSecMonitoringGroupAnomalyState
  alaNetSecMonitoringGroupAnomalyLog
  alaNetSecMonitoringGroupAnomalyTrap
  alaNetSecMonitoringGroupAnomalyQuarantine
  alaNetSecMonitoringGroupAnomalyCount
  alaNetSecMonitoringGroupAnomalySensitivity
  alaNetSecMonitoringGroupAnomalyPeriod
```

## show netsec operation

Displays the network security operational conditions.

**show netsec** [**group** {*grp\_name* | **all**} | **port** *slot/port*[-*port2*]] [**anomaly** {*anomaly\_name* | **all**}] **operation**

---

### Syntax Definitions

<i>grp_name</i>	The name of the port-group (up to 16 characters).
<b>group all</b>	Specifies all the monitoring-groups.
<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<i>anomaly_name</i>	The type of the anomaly.
<b>anomaly all</b>	Monitors all anomalies.

### Defaults

By default, the network security operational condition of all the anomalies is displayed.

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

To display the network security operational condition for a particular monitoring-group, specify only the **group** parameter.

### Examples

```
-> show netsec operation
```

```
Port-Range
```

Group	Anomaly	S	L	T	Q	Per	Cnt	Sen
h	arp-addr-scan	E	E	D	D	30	30	50
h	arp-flood	E	E	D	D	30	90	50
h	arp-failure	E	E	D	D	30	6	50
h	icmp-addr-scan	E	E	D	D	30	30	50
h	icmp-flood	E	E	D	D	30	90	50
h	icmp-unreachable	E	E	D	D	30	20	50
h	tcp-port-scan	E	E	D	D	30	20	50
h	tcp-addr-scan	E	E	D	D	30	30	50
h	syn-flood	E	E	D	D	30	90	50
h	syn-failure	E	E	D	D	30	10	50
h	syn-ack-scan	E	E	D	D	30	2	50
h	fin-scan	E	E	D	D	30	6	50
h	fin-ack-diff	E	E	D	D	30	5	50
h	rst-count	E	E	D	D	30	50	50

test1	arp-addr-scan	D	D	D	D	30	30	50
test1	arp-flood	D	D	D	D	30	90	50
test1	arp-failure	D	D	D	D	30	6	50
test1	icmp-addr-scan	D	D	D	D	30	30	50
test1	icmp-flood	D	D	D	D	30	90	50
test1	icmp-unreachable	D	D	D	D	30	20	50
test1	tcp-port-scan	D	D	D	D	30	20	50
test1	tcp-addr-scan	E	E	E	D	10	30	50
test1	syn-flood	D	D	D	D	30	90	50
test1	syn-failure	D	D	D	D	30	10	50
test1	syn-ack-scan	D	D	D	D	30	2	50
test1	fin-scan	D	D	D	D	30	6	50
test1	fin-ack-diff	D	D	D	D	30	5	50
test1	rst-count	D	D	D	D	30	50	50
default	arp-addr-scan	E	E	D	D	30	30	50
default	arp-flood	E	E	D	D	30	90	50
default	arp-failure	E	E	D	D	30	6	50
default	icmp-addr-scan	E	E	D	D	30	30	50
default	icmp-flood	E	E	D	D	30	90	50
default	icmp-unreachable	E	E	D	D	30	20	50
default	tcp-port-scan	E	E	D	D	30	20	50
default	tcp-addr-scan	E	E	D	D	30	30	50
default	syn-flood	E	E	D	D	30	90	50
default	syn-failure	E	E	D	D	30	10	50
default	syn-ack-scan	E	E	D	D	30	2	50
default	fin-scan	E	E	D	D	30	6	50
default	fin-ack-diff	E	E	D	D	30	5	50
default	rst-count	E	E	D	D	30	50	50

-> show netsec group test1 operation

Port-Range

Group	Anomaly	S	L	T	Q	Per	Cnt	Sen
test1	arp-addr-scan	E	E	E	D	30	30	50
test1	arp-flood	D	D	D	D	30	90	50
test1	arp-poisoning	D	D	D	D	30	6	50
test1	arp-failure	D	D	D	D	30	6	50
test1	icmp-addr-scan	D	D	D	D	30	30	50
test1	icmp-flood	D	D	D	D	30	90	50
test1	icmp-unreachable	D	D	D	D	30	20	50
test1	tcp-port-scan	D	D	D	D	30	20	50
test1	tcp-addr-scan	D	D	D	D	30	30	50
test1	syn-flood	D	D	D	D	30	90	50
test1	syn-failure	D	D	D	D	30	10	50
test1	syn-ack-scan	D	D	D	D	30	2	50
test1	fin-scan	D	D	D	D	30	6	50
test1	fin-ack-diff	D	D	D	D	30	5	50
test1	rst-count	D	D	D	D	30	50	50

### output definitions

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Port-Range group</b>	Range of ports or name of the monitoring-group.
<b>Anomaly-Type</b>	The anomaly type of the monitoring group.
<b>S</b>	The current state (- indicates Not configured, E indicates enabled, and D indicates disabled).

*output definitions (continued)*


---

<b>L</b>	Log (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>T</b>	Trap (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>Q</b>	Quarantine (- indicates Not configured, E indicates enabled, and D indicates disabled).
<b>Per</b>	Anomaly monitoring period (- indicates Not configured)
<b>Cnt</b>	Anomaly detection threshold (- indicates Not configured)
<b>Sen</b>	Anomaly sensitivity (- indicates Not configured)

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands****netsec group anomaly**

Configures the monitoring period of an anomaly for a port-group, packet count configuration for triggering anomaly detection, anomaly detection algorithm's sensitivity to discrepancy in standard and observed traffic pattern.

**show netsec config**

Displays the current network security configurations.

**MIB Objects**

alaNetSecPortOp

```

alaNetSecPortOpIfId
alaNetSecPortOpAnomaly
alaNetSecPortOpState
alaNetSecPortOpLog
alaNetSecPortOpTrap
alaNetSecPortOpQuarantine
alaNetSecPortOpCount
alaNetSecPortOpSensitivity
alaNetSecPortOpPeriod

```

---

## show netsec group port

Displays the group membership of ports.

```
show netsec {group {grp_name | all} | port slot/port [-port2]}
```

---

### Syntax Definitions

<i>grp_name</i>	The name of the port-group (up to 16 characters).
<b>all</b>	Specifies all the monitoring-groups.
<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show netsec group all
Slot/Port Port-RangeGroup
-----+-----
2/5          a
2/7          b

-> show netsec group a
Slot/Port Port-RangeGroup
-----+-----
2/5          a

-> show netsec port 2/7
Slot/Port Port-RangeGroup
-----+-----
2/7          b

-> show netsec group a port 2/5
Slot/Port Port-RangeGroup
-----+-----
2/5          a
```

*output definitions*

---

<b>Slot/Port</b>	Slot number for the module and physical port number on that module.
<b>Group</b>	The name of the monitoring-group.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

[netsec group port](#) Associates or disassociates port-range with monitoring-group.

**MIB Objects**

```
alaNetSecPortRangeGroup
  alaNetSecPortRangeGroupStartfId
  alaNetSecPortRangeGroupEndfId
  alaNetSecPortRangeGroupName
```

---

# 39 Port Mapping Commands

Port Mapping is a security feature, which controls the peer users from communicating with each other. Each session comprises a session ID and a set of user ports and/or a set of network ports. The user ports within a session cannot communicate with each other and can only communicate via network ports. In a Port Mapping session with user port set A and network port set B, ports in set A can communicate with ports in set B only. If set B is empty, the ports in set A can communicate with the rest of the ports in the system.

A port mapping session can be configured in a unidirectional or bidirectional mode. In the unidirectional mode, the network ports can communicate with each other within the same session. In the bidirectional mode, the network ports cannot communicate with each other. Network ports of a unidirectional port mapping session can be shared with other unidirectional sessions, but cannot be shared with any session configured in bidirectional mode. Network ports of different sessions can communicate with each other.

MIB information for the Port Mapping commands is as follows:

*Filename:* AlcatelIND1PortMapping.mib  
*Module:* ALCATEL-IND1-PORT-MAPPING

A summary of the available commands is listed here:

---

**port mapping user-port network-port**  
**port mapping** (configures port mapping status)  
**port mapping** (configures port mapping direction)  
**port mapping unknown-unicast-flooding**  
**port mapping dynamic-proxy-arp**  
**show port mapping status**  
**show port mapping**

---

## port mapping user-port network-port

Creates a port mapping session either with or without the user ports, network ports, or both. Use the **no** form of the command to delete ports or an aggregate from a session.

**port mapping** *port\_mapping\_sessionid* [**no**] [**user-port** {*slot slot* | *slot/port[-port2]*} | **linkagg** *agg\_num*] [**network-port** {*slot slot* | *slot/port[-port2]*} | **linkagg** *agg\_num*]

---

### Syntax Definitions

<i>port_mapping_sessionid</i>	The port mapping session ID. Valid range is 1 to 8.
<b>user-port</b>	Specifies a user port of the mapping session.
<b>network-port</b>	Specifies a network port of the mapping session.
<b>slot</b>	Specifies a slot to be assigned to the mapping session.
<i>slot</i>	Slot number you want to configure.
<i>port</i>	Port number you want to configure.
<i>port2</i>	Last port number in a range of ports you want to configure.
<b>linkagg</b>	Specifies a link aggregation group to be assigned to the mapping session.
<i>agg_num</i>	Link aggregation number.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- User ports that are part of one session cannot communicate with each other and can communicate only via network ports of the session to the rest of the system.
- User ports can be part of one Port Mapping session only.
- An aggregable port of a link aggregation group cannot be a mapped port and a mapped port cannot be an aggregable port of a link aggregation group.
- A mirrored port cannot be a mapped port and a mapped port cannot be a mirrored port.
- A mobile port cannot be configured as a network port of a mapping session.



## Examples

```
-> port mapping 3 user-port 2/3 network-port 6/4
-> port mapping 4 user-port 2/5-8
-> port mapping 5 user-port 2/3 network-port slot 3
-> port mapping 5 no user-port 2/3
-> port mapping 6 no network-port linkagg 7
```

## Release History

Release 6.1.2; command was introduced.

## Related Commands

<a href="#">port mapping</a>	Enables, disables, or deletes a port mapping session.
<a href="#">port mapping</a>	Configures the direction of a port mapping session.
<a href="#">show port mapping</a>	Displays the configuration of one or more port mapping sessions.

## MIB Objects

```
PortMappingSessionTable
    pmapSessionNumber
portMappingTable
    pmapPortIfindex
    pmapPortType
```

---

## port mapping

Enables, disables, or deletes a port mapping session.

**port mapping** *port\_mapping\_sessionid* {**enable** | **disable**}

**no port mapping** *port\_mapping\_sessionid*

---

### Syntax Definitions

*port\_mapping\_sessionid*            The port mapping session ID. Valid range is 1 to 8.

**enable**                              Enables a port mapping session.

**disable**                             Disables a port mapping session.

### Defaults

parameter	default
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

To be enabled, a session should have a minimum of two ports.

### Examples

```
-> port mapping 3 enable
-> port mapping 4 disable
-> no port mapping 5
```

### Release History

Release 6.1.2; command was introduced.

## Related Commands

<b>port mapping user-port network-port</b>	Creates a port mapping session with or without the user ports, network ports, or both.
<b>port mapping</b>	Configures the direction of a port mapping session.
<b>port mapping dynamic-proxy-arp</b>	Displays the status of one or more port mapping sessions.
<b>show port mapping</b>	Displays the configuration of one or more port mapping sessions.

## MIB Objects

PortMappingSessionTable  
    pmapSessionNumber  
    pmapSessionStatus

---

## port mapping

Configures the direction of a port mapping session.

**port mapping** *port\_mapping\_sessionid* {**unidirectional** | **bidirectional**}

---

### Syntax Definitions

*port\_mapping\_sessionid*            The port mapping session ID. Valid range is 1 to 8.

**unidirectional**                    Specifies unidirectional port mapping.

**bidirectional**                    Specifies bidirectional port mapping.

### Defaults

parameter	default
<b>unidirectional</b>   <b>bidirectional</b>	<b>bidirectional</b>

### Platform Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- In the bidirectional mode, the network ports of a session cannot communicate with each other. Also, the network ports of that session cannot be a part of a network port set of another session.
- In the unidirectional mode, the network ports of a session can communicate with each other. Also, the network ports of that session can be part of a network port set of another session, which is also in the unidirectional mode.
- To change the direction of an active session with network ports, delete the network ports of the session, change the direction, and recreate the network ports.

### Examples

```
-> port mapping 5 unidirectional
-> port mapping 6 bidirectional
```

### Release History

Release 6.1.2; command was introduced.

## Related Commands

**port mapping user-port  
network-port**

Creates a port mapping session with or without the user ports, network ports or both.

**port mapping**

Enables, disables, or deletes a port mapping session.

**show port mapping**

Displays the configuration of one or more port mapping sessions.

## MIB Objects

PortMappingSessionTable

    PmapSessionNumber

    PmapSessionDirection

---

## port mapping unknown-unicast-flooding

Enables or disables flooding of unknown unicast traffic from all ports to user ports for a particular session.

**port mapping *session id* unknown-unicast-flooding {enable | disable}**

---

### Syntax Definitions

<i>session id</i>	The port mapping session for which the unknown unicast flooding status is to be configured.
<b>enable</b>	Enables the flooding of unknown unicast traffic from all ports to the user ports for a particular session.
<b>disable</b>	Disables the flooding of unknown unicast traffic from all ports to the user ports for a particular session.

### Defaults

parameter	default
enable   disable	enable

### Platform Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Flooding of unknown unicast traffic is enabled by default.
- Unknown unicast flooding for the user ports will be enabled if port mapping is disabled on a session.
- Configuring unknown unicast flooding will create a new port mapping session if there is no existing session.
- When a link aggregate is configured as a user port, the unknown unicast flooding configuration will be applied to all the member ports of the aggregate.
- Enabling this command affects unicast flooding to the user ports from all the switch ports, not just the network ports for the session.

### Examples

```
-> portmapping 1 unknown-unicast-flooding enable
-> portmapping 2 unknown-unicast-flooding disable
```

### Release History

Release 6.3.4; command was introduced.

## Related Commands

<b>port mapping user-port network-port</b>	Creates a port mapping session with or without the user ports, network ports or both.
<b>port mapping</b>	Enables, disables, or deletes a port mapping session.
<b>show port mapping</b>	Displays the configuration of one or more port mapping sessions.
<b>port mapping dynamic-proxy-arp</b>	Displays the status of one or more port mapping sessions.

## MIB Objects

portMappingSessionTable  
pmapSessionUnknownUnicastFloodStatus

---

## port mapping dynamic-proxy-arp

Enables or disables the dynamic proxy arp functionality for the port mapping session.

**port mapping *session id* dynamic-proxy-arp {enable | disable}**

---

### Syntax Definitions

<i>session id</i>	The port mapping session for which the dynamic proxy arp status is to be configured.
<b>enable</b>	Enables the dynamic proxy arp status.
<b>disable</b>	Disables the dynamic proxy arp status.

### Defaults

parameter	default
<b>enable   disable</b>	<b>disable</b>

### Platform Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Clients must be connected to the user-ports and the head end routers connected to the network-ports of the port mapping session for dynamic proxy arp to function properly.
- DHCP snooping must be enabled for dynamic proxy arp to function.
- Using dynamic-proxy-arp in conjunction with DHCP snooping allows for the configuration of the MAC Forced Forwarding feature.

### Examples

```
-> portmapping 1 dynamic-proxy-arp enable
-> portmapping 1 dynamic-proxy-arp disable
```

### Release History

Release 6.4.3; command was introduced.



## Related Commands

<b>port mapping user-port network-port</b>	Creates a port mapping session with or without the user ports, network ports or both.
<b>port mapping</b>	Enables, disables, or deletes a port mapping session.
<b>show port mapping</b>	Displays the configuration of one or more port mapping sessions.
<b>show port mapping status</b>	Displays the status of one or more port mapping sessions.

## MIB Objects

portMappingSessionTable  
pmapSessionDynProxyARP

---

## show port mapping status

Displays the status of one or more port mapping sessions.

**show port mapping** [*port\_mapping\_sessionid*] **status**

---

### Syntax definitions

*port\_mapping\_sessionid*            The port mapping session ID. Valid range is 1 to 8.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you do not specify the port mapping session ID, then the status of all the port mapping sessions will be displayed.

### Examples

```
-> show port mapping status
```

SessionID	Direction	Status	Unknown Unicast	DPA Status
1	uni	enable	flood	disable
2	uni	enable	drop	enable
3	bi	disable	drop	disable
4	bi	enable	flood	disable
7	bi	disable	flood	enable
8	bi	disable	flood	enable

### output definitions

---

<b>SessionID</b>	Displays the port mapping session ID.
<b>Direction</b>	Displays the direction of a port mapping session.
<b>Status</b>	Displays the status of a port mapping session.
<b>Unknown unicast</b>	Displays the status of unknown unicast flooding
<b>DPA Status</b>	Displays the status of Dynamic Proxy ARP.

---

### Release History

Release 6.1.2; command was introduced.  
 Release 6.3.4; **unknown unicast** field added.  
 Release 6.4.3; DPA Status field added

## Related Commands

**port mapping user-port  
network-port**

Creates a port mapping session with or without the user ports, network ports, or both.

**port mapping**

Enables, disables, or deletes a port mapping session.

**port mapping unknown-  
unicast-flooding**

Enables or disables flooding of unknown unicast traffic from all ports to user ports for a particular session.

## MIB Objects

portMappingSessionTable

    pmapSessionNumber

    pmapSessionDirection

    pmapSessionStatus

    pmapSessionUnknownUnicastFloodStatus

    pmapSessionDynProxyARP

---

## show port mapping

Displays the configuration of one or more port mapping sessions.

**show port mapping** [*port\_mapping\_sessionid*]

---

### Syntax Definitions

*port\_mapping\_sessionid*            The port mapping session ID. Valid range is 1 to 8.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you do not specify the port mapping session ID, then the configuration for all the port mapping sessions will be displayed.

### Examples

```
-> show port mapping 3
```

SessionID	USR-PORT	NETWORK-PORT
8	1/2	1/3
8	1/6	
8	1/7	

### *output definitions*

---

<b>SessionID</b>	Displays the port mapping session ID.
<b>USR-PORT</b>	Displays the set of user ports of a port mapping session.
<b>NETWORK-PORT</b>	Displays the set of network ports of a port mapping session.

---

### Release History

Release 6.1.2; command was introduced.

## Related Commands

**port mapping user-port  
network-port**

Creates a port mapping session with or without the user ports, network ports, or both.

**port mapping**

Enables, disables, or deletes a port mapping session.

## MIB Objects

PortMappingSessionTable

PmapSessionNumber

portMappingTable

pmapPortIfindex

pmapPortType

pmapSessionUnknownUnicastFloodStatus

---



# 40 Learned Port Security Commands

Learned Port Security (LPS) provides a mechanism for controlling network device communication on one or more switch ports. Configurable LPS parameters allow the user to restrict source learning on a port to:

- A maximum number of learned source MAC addresses.
- A specific amount of time in which source MAC addresses are learned.
- An individual learned source MAC address.
- A range of learned source MAC addresses.

This chapter includes descriptions of the CLI commands used to define LPS parameters and display information about the current LPS configuration.

MIB information for Learned Port Security commands is as follows:

*Filename:* AlcatelInd1LearnedPortSecurity.mib  
*Module:* ALCATEL-IND1-LPS-MIB

A summary of the available commands is listed here:

---

**port-security**  
**port-security shutdown**  
**port-security maximum**  
**port-security max-filtering**  
**port-security convert-to-static**  
**port-security mac**  
**port-security mac-range**  
**port-security violation**  
**port-security release**  
**port-security learn-trap-threshold**  
**show port-security**  
**show port-security shutdown**  
**show port-security brief**

---

## port-security

Enables or disables Learned Port Security (LPS) on the switch port(s). When LPS is enabled, only devices that have a source MAC address that complies with LPS restrictions are learned on the port(s).

**port-security** *slot/port[-port2]* [**admin-status** {**enable** | **disable** | **locked**}]

**port-security chassis** {**convert-to-static** | **disable**}

**no port security** *slot/port[-port2]*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<b>enable</b>	Enables LPS on the specified port(s).
<b>disable</b>	Disables LPS on the specified port(s).
<b>locked</b>	Disables source learning on the specified LPS port(s).
<b>chassis disable</b>	Disables all LPS-eligible ports on the chassis.
<b>chassis convert-to-static</b>	Converts the learned bridge MAC address on all LPS port(s) into static MAC address. This does not apply to filtering MAC addresses.

### Defaults

parameter	default
<b>enable</b>   <b>disable</b>   <b>locked</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove LPS and clear all entries from the table. This command enables the switch port to learn new MAC addresses.
- Use the **locked** parameter to disable the learning on the port. All MAC addresses are flushed and the packets are dropped.
- The **port-security chassis disable** command disables all the LPS-eligible ports on the chassis. Disabling port security restricts a port from learning new MAC addresses.
- Use the **port-security chassis convert-to-static** command to stop the aging-out of MAC address learned on the LPS ports.
- LPS is supported on 10/100 and Gigabit Ethernet fixed, mobile, authenticated, 802.1Q tagged ports, and 802.1x ports.



- LPS is not supported on 10 Gigabit Ethernet, link aggregate, or 802.1Q tagged link aggregate (trunked) ports.
- Note that when LPS is enabled on an active port, all MAC addresses learned on that port prior to the time LPS was enabled are cleared from the source learning MAC address table.
- Configurable MAC learning restrictions consist of setting a source learning time limit window, specifying a maximum number of MACs allowed on a specific port, configuring a list of MAC addresses (individual or range of addresses) allowed on the port, and determining how a port handles traffic that is unauthorized.

## Examples

```
-> port-security 4/8 admin-status enable
-> port-security 2/1-10 admin-status enable
-> port-security 2/11-15 admin-status disable
-> port-security 4/3 admin-status locked
-> no port-security 1/1-12
-> port-security chassis disable
-> port-security chassis convert-to-static
```

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **chassis** parameter was added.

Release 6.4.4; **admin-status**, **locked** and **convert-to-static** parameters added.

## Related Commands

<a href="#">port-security mac</a>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<a href="#">port-security mac-range</a>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<a href="#">port-security maximum</a>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
<a href="#">port-security shutdown</a>	Configures the amount of time in minutes to allow source learning on all LPS ports.
<a href="#">port-security violation</a>	Selects the method for handling traffic that does not comply with LPS restrictions for the specified port(s).

## MIB Objects

```
learnedPortSecurityTable
  lpsAdminStatus
```

---

## port-security shutdown

Configures the amount of time in minutes to allow source learning on all LPS ports. This LPS parameter applies to the entire switch, so when the time limit expires, source learning of *new* MAC addresses is stopped on all LPS ports. Only configured authorized MAC addresses are still allowed on LPS ports after this timer expires. This command also enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.

**port-security shutdown** *num* [**convert-to-static** {**enable** | **disable**}] [**no-aging** {**enable** | **disable**}] [**boot-up** {**enable** | **disable**}]

---

### Syntax Definitions

<i>num</i>	The number of minutes during which LPS allows source learning across all LPS ports. This amount of time defines the LPS learning window.
<b>convert-to-static enable</b>	Converts dynamically learned MAC addresses to static MAC addresses.
<b>convert-to-static disable</b>	Dynamically learned MAC addresses are not converted to static MAC addresses.
<b>no-aging enable</b>	Prevents dynamically learned MAC addresses from aging out or getting flushed during the LPS learning window time period.
<b>no-aging disable</b>	Allows dynamically learned MAC addresses to age out or get flushed during the LPS learning window time period.
<b>boot-up enable</b>	Enables the automatic start of the LPS learning window timer when the switch restarts.
<b>boot-up disable</b>	Disables the start of the LPS learning window timer when the switch restarts.

### Defaults

By default, the LPS source learning time limit is not set for the switch.

parameter	default
<b>convert-to-static</b>	<b>disable</b>
<b>no-aging</b>	<b>disable</b>
<b>boot-up</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The LPS source learning time window is started and/or reset each time the **port-security shutdown** command is issued or when the **port-security shutdown boot-up** option is enabled and the switch restarts.

- Note that even after the learning window time expires, MAC addresses are still learned as filtered addresses up to the configured maximum number of filtered MAC addresses allowed on the LPS port.
- For example, if the maximum number of MAC addresses allowed is set to 30 and the learning window expires when the port has only learned 15, the port still allows to learn 15 MAC addresses.
- If the **convert-to-static** parameter is enabled and the LPS source learning time window expires, then all dynamic MAC addresses are converted to static MAC addresses. This stops the MAC addresses from aging out.
- The conversion of dynamic MAC addresses to static ones does not apply to LPS mobile and authenticated ports.

## Examples

```
-> port-security shutdown 25
-> port-security shutdown 60 no-aging enable
-> port-security shutdown 2 convert-to-static enable no-aging enable
-> port-security shutdown 2 convert-to-static enable no-aging enable boot-up enable
```

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **convert-to-static** parameter added.

Release 6.4.4; **no-aging** and **boot-up** parameters added.

## Related Commands

<a href="#">port-security</a>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<a href="#">port-security mac</a>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<a href="#">port-security mac-range</a>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<a href="#">port-security maximum</a>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
<a href="#">port-security violation</a>	Selects the method for handling traffic that does not comply with LPS restrictions for the specified port.

## MIB Objects

```
learnedPortSecurityGlobalGroup
  lpsLearningWindowTime
  lpsLearningWindowTimeWithStaticConversion
  lpsLearningWindowNoAging
  lpsLearningWindowBootupStatus
```

---

## port-security maximum

Configures the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

**port-security** *slot/port[-port2] maximum num*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<b>maximum num</b>	The number of source MAC addresses (1–1000) that are allowed on this port.

### Defaults

By default, the number of MAC addresses allowed is set to 1.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the port attempts to learn a MAC address that will exceed the maximum number allowed, the port will block the unauthorized address or will shutdown. Use the **port-security violation** command to specify how the LPS port will handle violating traffic.
- If an LPS port is in a violation state and the maximum number of MAC addresses allowed is changed, the port transitions out of the violation state.
- Note that source learning of configured authorized MAC addresses is still allowed after the LPS time limit has expired; however, all learning is stopped if the number of MAC addresses learned meets or exceeds the maximum number of addresses allowed, even if the LPS time limit has not expired.

### Examples

```
-> port-security 2/14 maximum 25
-> port-security 4/10-15 maximum 100
-> port-security 1/2 maximum 5 learn-trap-threshold 4
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>port-security</b>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<b>port-security mac</b>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<b>port-security mac-range</b>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<b>port-security shutdown</b>	Configures the amount of time in minutes to allow source learning on all LPS ports. Also, enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.
<b>port-security violation</b>	Selects the method for handling traffic that does not comply with LPS restrictions for the specified port.

## MIB Objects

learnedPortSecurityTable  
lpsMaxMacNum

---

## port-security max-filtering

Configures the maximum number of MAC addresses that can be filtered on the LPS port(s).

**port-security** *slot/port[-port2]* **max-filtering** *num*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<b>max-filtering</b> <i>num</i>	The maximum number of filtered MAC addresses (1–100) that are allowed on this port.

### Defaults

By default, the maximum number of filtered MAC addresses that can be learned on an LPS port is set to 5.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When the LPS learning window time expires, MAC addresses are learned in a filtering state up to the maximum filtering value set with this command. For example, if the maximum filtering value is set to five, when the learning window time expires, the switch will learn up to five filtering MAC addresses.
- If an LPS port is in a violation state and the maximum number of filtering MAC addresses allowed is changed, the port transitions out of the violation state.
- The maximum filtering value is separate from the maximum bridged MAC address value.
- When the number of filtered MAC addresses learned on the port reaches the maximum, either the port is disabled (Shutdown Violation mode) or MAC address learning is disabled (Restrict Violation mode). By default, MAC address learning is disabled on a port.

### Examples

```
-> port-security 1/10 max-filtering 6
-> port-security 1/10-13 max-filtering 18
```

### Release History

Release 6.1.5; command was introduced.

## Related Commands

### **port-security maximum**

Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

### **port-security violation**

Selects the method for handling traffic that does not comply with LPS restrictions for the specified port.

## MIB Objects

learnedPortSecurityTable

lpsMaxFilteredMacNum

---

## port-security convert-to-static

Converts the dynamically learned MAC addresses on the LPS port(s) to static MAC addresses.

**port-security** {*slot/port*[-*port2*] / *chassis*} **convert-to-static**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<i>chassis</i>	Specifies all the LPS-eligible ports on the chassis.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You can stop the aging out of dynamic MAC addresses on the LPS port(s) by converting them to static MAC addresses.
- The conversion of dynamic MAC addresses to static ones does not apply to LPS mobile and authenticated ports.
- The number of converted static MAC addresses cannot exceed the maximum number of MAC addresses allowed on the port(s).

### Examples

```
-> port-security 4/8 convert-to-static
```

### Release History

Release 6.1.5; command was introduced.



## Related Commands

[port-security](#)

Enables or disables Learned Port Security (LPS) on the switch port(s).

[port-security maximum](#)

Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

## MIB Objects

learnedPortSecurityGlobalGroup

lpsConvertToStatic

---

## port-security mac

Configures a single authorized source MAC address for a port that belongs to a specified VLAN.

```
port-security slot/port mac mac_address [vlan vlan_id]
```

```
port-security slot/port no mac {all | mac_address} [vlan vlan_id]
```

---

### Syntax Definitions

<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>mac_address</i>	The source MAC address (e.g., 00:da:39:59:f1:0c) of the port.
<b>all</b>	Flushes all MAC addresses associated with the specified port.
<i>vlan_id</i>	The VLAN or the tagged VLAN to which the LPS port belongs. The range is 1–4094.

### Defaults

By default, the default VLAN ID of the port is used.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove statically configured or dynamically learned source MAC address entries from the LPS table. When a MAC address is removed from the LPS table, it is automatically cleared from the source learning table at the same time.
- LPS should be enabled on the port before configuring a MAC address. If an attempt is made to configure a MAC address on a non-LPS port, an error message is displayed.
- The additional source MAC addresses received on the LPS port which do not match the configured authorized addresses are allowed on the port based on the LPS time limit (if active) and maximum number of MAC addresses allowed..
- Each configured authorized MAC address counts towards the number of addresses allowed on the port even if the port has not learned the configured address. For example, if a port has 3 configured authorized MAC addresses and the maximum number of addresses allowed is set to 10, then only 7 additional MAC addresses are allowed on that port.

### Examples

```
-> port-security 4/20 mac 00:20:95:00:fa:5c vlan 2
-> port-security 2/11 no mac 00:20:95:00:fa:5c
-> port-security 1/2 no mac all
```

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **vlan** parameter was added.

## Related Commands

<b>port-security</b>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<b>port-security mac-range</b>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<b>port-security shutdown</b>	Configures the amount of time in minutes to allow source learning on all LPS ports. Also, enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.
<b>port-security maximum</b>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
<b>port-security violation</b>	Selects the method for handling traffic that does not comply with LPS restrictions for the specified port.

## MIB Objects

```
learnedPortSecurityL2MacAddressTable  
  lpsL2MacAddress  
  lpsL2VlanId  
  lpsL2MacAddressRowStatus
```

---

## port-security mac-range

Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port. This command also enables LPS on the specified port, if LPS is not already active on the port.

**port-security** *slot/port*[-*port2*] **mac-range** [**low** *mac\_address* / **high** *mac\_address*]

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<b>low</b> <i>mac_address</i>	MAC address that defines the low end of a range of MACs (e.g., 00:20:95:00:10:2A).
<b>high</b> <i>mac_address</i>	MAC address that defines the high end of a range of MACs (e.g., 00:20:95:00:10:2F).

### Defaults

parameter	default
<b>high</b> <i>mac_address</i>	ff:ff:ff:ff:ff:ff
<b>low</b> <i>mac_address</i>	00:00:00:00:00:00

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If **low** and **high** end MAC addresses are not specified with this command, then the range is set back to the default range value (00:00:00:00:00:00– ff:ff:ff:ff:ff:ff).
- Source MAC addresses received on an LPS port that fall within the authorized range are allowed on the port. An additional entry is made in the LPS table for each of these learned addresses.
- Any additional source MAC addresses received that do not match configured authorized addresses are allowed on the port based on the LPS time limit (if active) and the maximum number of MAC addresses allowed.
- Each configured authorized MAC address counts towards the number of addresses allowed on the port even if the port has not learned the configured address. For example, if a port has 3 configured authorized MAC addresses and the maximum number of addresses allowed is set to 10, then only 7 additional MAC addresses are allowed on that port.

## Examples

```
-> port-security 4/20 mac-range low 00:20:95:00:fa:5c
-> port-security 5/11-15 mac-range low 00:da:95:00:00:10 high 00:da:95:00:00:1f
-> port-security 5/16-20 mac-range high 00:da:95:00:00:1f
-> port-security 5/11-15 mac-range
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">port-security</a>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<a href="#">port-security mac</a>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<a href="#">port-security shutdown</a>	Configures the amount of time in minutes to allow source learning on all LPS ports. Also, enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.
<a href="#">port-security maximum</a>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
<a href="#">port-security violation</a>	Selects the method for handling traffic that does not comply with LPS restrictions for the specified port.

## MIB Objects

```
learnedPortSecurityTable
  lpsLoMacRange
  lpsHiMacRange
  lpsRowStatus
```

---

## port-security violation

Configures the violation mode in which the LPS port will operate when unauthorized traffic is received on that port. This mode determines if the port is completely shut down, remains up but discards traffic, or allows LPS compliant traffic while filtering unauthorized traffic.

**port-security *slot/port*[-*port2*] violation {shutdown | restrict | discard}**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g, 3/1-4 specifies ports 1-4 on slot 3).
<b>restrict</b>	Filters (blocks) unauthorized traffic but allows traffic that complies with LPS restrictions to forward on the port.
<b>discard</b>	Disables learning on the port but the port remains administratively enabled.
<b>shutdown</b>	Administratively disables the port; no traffic is allowed on the port.

### Defaults

By default, the security violation mode is set to **restrict** when LPS is enabled on the port.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When a traffic violation occurs on an LPS port, notice is sent to the Switch Logging task.
- If the violation mode is set to **restrict**, unauthorized source MAC addresses are not learned in the LPS table but are still recorded in the source learning MAC address table with a filtered operational status. This allows the user to view MAC addresses that were attempting unauthorized access to the LPS port.
- When a port is shutdown or goes into discard mode, disable and enable LPS on that port and then use the **port-security release** command to restore the port to normal operation.
- When a port goes into restrict mode, use the **port-security release** command to restore the port to normal operation.

### Examples

```
-> port-security 2/14 violation restrict
-> port-security 1/2-10 violation discard
-> port-security 4/10-15 violation shutdown
```

## Release History

Release 6.1; command was introduced.  
Release 6.4.4; **discard** parameter added.

## Related Commands

<a href="#">port-security</a>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<a href="#">port-security release</a>	Releases a port that was shut down due to an LPS violation
<a href="#">port-security maximum</a>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
<a href="#">port-security mac</a>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<a href="#">port-security mac-range</a>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<a href="#">port-security shutdown</a>	Configures the amount of time in minutes to allow source learning on all LPS ports. Also, enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.

## MIB Objects

learnedPortSecurityTable  
lpsViolationOption

---

## port-security release

Releases a port that was shut down due to a Learned Port Security (LPS) violation. The specified port resumes normal operation without having to manually reset the port or the entire module.

**port-security *slot/port*[-*port2*] release**

---

### Syntax Definitions

*slot/port*

The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3). Use a hyphen to specify a range of ports on the same module (e.g. 3/1-16).

*-port2*

The last port number in a range of ports you want to configure on the same slot (e.g. 3/1-4 specifies ports 1-4 on slot 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command restores the port to the same operational state it was in before the shutdown. This includes the activation of any existing LPS configuration for the port.
- Note that when this command is used, all MAC addresses known to the specified port are flushed from the switch MAC address table.

### Examples

```
-> port-security 2/14 release  
-> port-security 4/10-15 release
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>port-security</b>	Enables or disables Learned Port Security (LPS) on the switch port(s).
<b>port-security mac</b>	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
<b>port-security mac-range</b>	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
<b>port-security shutdown</b>	Configures the amount of time in minutes to allow source learning on all LPS ports. Also, enables or disables the conversion of dynamic MAC addresses to static MAC addresses on LPS ports.
<b>port-security maximum</b>	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

## MIB Objects

learnedPortSecurityTable  
lpsRelease

---

## port-security learn-trap-threshold

Configures the number of bridged MAC addresses to learn before sending a trap.

**port-security** *slot/port[-port2]* **learn-trap-threshold** *num*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<i>num</i>	The number of bridged MAC addresses (1–100) to learn before sending a trap.

### Defaults

By default, the number of bridged MAC addresses learned is set to 5.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When the number of bridged MAC addresses learned on the port matches the specified threshold amount, a trap is sent for every bridged MAC address learned thereafter.
- Sending a trap when this threshold is reached provides notification of newly learned bridged MAC addresses. Trap contents includes identifying information about the MAC, such as the address itself, the corresponding IP address, switch identification, and the slot and port number on which the MAC was learned.

### Examples

```
-> port-security 1/10 learn-trap-threshold 6
-> port-security 1/10-13 learn-trap-threshold 18
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show port-security](#) Displays Learned Port Security (LPS) configuration and table entries.

### MIB Objects

```
learnedPortSecurityTable
  lpsLearnTrapThreshold
```

## show port-security

Displays Learned Port Security (LPS) configuration and table entries.

**show port-security** [*slot/port1-port2* | *slot/port*]

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports you want to configure on the same slot (e.g., 3/1-4 specifies ports 1-4 on slot 3).
<i>slot</i>	Enter the slot number for a module to specify that the command should include all ports on that module (e.g., 6 specifies all ports on the module found in slot 6 of the switch chassis).

### Defaults

By default, all ports with an LPS configuration are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Displays ports that have an LPS configuration, even if LPS is disabled on the port.
- Use the *slot/port1-port2* parameter with this command to display the LPS configuration for a specific port or a range of ports.
- Use the *slot* parameter with this command to display the LPS configuration for all the ports on a specific slot.
- In addition, MAC addresses that were learned on the LPS port because they fell within the specified MAC address range, appear as a separate entry in the LPS table with a dynamic MAC type.
- Dynamic MAC addresses become configured MAC addresses in the LPS table when the switch configuration is saved and the switch is rebooted. If the configuration is not saved before the next reboot, all dynamic MAC addresses are cleared from the LPS table.
- The MAC Type field is blank if an authorized MAC address range is configured for the LPS port.

## Examples

```
-> show port-security
Legend: Mac Address: * = Duplicate Static
        Mac Address: # = Pseudo Static
```

```
Port: 7/10
Operation Mode : ENabled,
Max MAC bridged : 1,
Trap Threshold : Disabled,
Max MAC filtered : 5,
Low MAC Range : 00:00:00:00:00:00,
High MAC Range : ff:ff:ff:ff:ff:ff,
Violation : RESTRICT
Violating MAC : NULL
```

```
MAC Address      VLAN  TYPE
-----+-----+-----
00:20:95:00:fa:5c  1    STATIC
```

### output definitions

<b>Port</b>	The module slot number and the physical port number on that module.
<b>Operation Mode</b>	The Learned Port Security operation status for the port ( <b>enabled</b> or <b>disabled</b> ). Configured through the <b>port-security</b> command.
<b>Max MAC bridged</b>	The maximum number of bridged MAC addresses that are allowed on this port. Configured through the <b>port-security maximum</b> command.
<b>Trap Threshold</b>	The number of bridged MACs to learn before sending a trap. After this number is reached, a trap is sent out for every MAC learned thereafter. If <b>disabled</b> is displayed in this field, the trap threshold is not in force. Configured through the <b>port-security learn-trap-threshold</b> command.
<b>Max MAC filtered</b>	The maximum number of filtered MAC addresses that the LPS port can learn. Configured through the <b>port-security max-filtering</b> command.
<b>Low MAC Range</b>	MAC address that defines the lower end of a MAC address range. Configured through the <b>port-security mac-range</b> command.
<b>High MAC Range</b>	MAC address that defines the higher end of a MAC address range. Configured through the <b>port-security mac-range</b> command.
<b>Violation</b>	The security violation mode for the port ( <b>restrict</b> or <b>shutdown</b> ). Configured through the <b>port-security violation</b> command.
<b>Violating MAC</b>	The MAC Address which caused the violation on this Port.
<b>MAC Address</b>	An individual authorized MAC address. Configured through the <b>port-security mac</b> command.
<b>VLAN</b>	The VLAN to which the LPS port belongs.
<b>TYPE</b>	Indicates if the MAC address was dynamically learned or statically configured as an authorized MAC address for the port. Dynamic MAC addresses become configured MAC address entries after a configuration save and switch reboot.

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **config-mac-range** parameter was removed.

Release 6.1.5; **Mac Filtered MAC allowed** field was added.

Release 6.3.1; **Trap Threshold** field was added.

Release 6.4.4; **Legend** and **Violating MAC** field added.

## Related Commands

**show port-security shutdown** Displays the amount of time during which source learning can occur on all LPS ports.

## MIB Objects

```
learnedPortSecurityTable  
  lpsMaxMacNum  
  lpsMaxFilteredMacNum  
  lpsLoMacRange  
  lpsHiMacRange  
  lpsViolationOption  
  lpsOperStatus  
  lpsRelease
```

---

## show port-security shutdown

Displays the amount of time during which source learning can occur on all LPS ports.

**show port-security shutdown**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The source learning time limit is a switch-wide parameter that applies to all ports that have LPS enabled.
- If the shutdown time is set to 0, then a source learning time limit is not active on LPS ports.
- Note that source learning of configured authorized MAC addresses is still allowed after the LPS time limit has expired; however, all learning is stopped if the number of MAC addresses learned meets or exceeds the maximum number of addresses allowed, even if the LPS time limit has not expired.

### Examples

```
-> show port-security shutdown
LPS Shutdown Config      = 25 min,
Convert-to-static        = DISABLE,
No Aging                 = ENABLE,
Boot Up                  = ENABLE,
Remaining Learning Window = 882 sec,
```

#### *output definitions*

---

<b>LPS Shutdown Config</b>	The configured amount of time during which the LPS port can learn new MAC addresses.
<b>Convert-to-static</b>	Indicates whether or not dynamic MACs are converted to static MACs ( <b>enabled</b> or <b>disabled</b> ).
<b>No Aging</b>	Indicates whether or not learned MAC addresses can age out or get flushed during the LPS learning window time period ( <b>disabled</b> or <b>enabled</b> ).
<b>Boot Up</b>	Indicates whether or not the learning window automatically starts when the switch boots up ( <b>enabled</b> or <b>disabled</b> ).
<b>Remaining Learning Window</b>	The remaining amount of time during which the LPS port can learn MAC addresses.

---

## Release History

Release 6.1; command was introduced.

Release 6.1.5; **Convert-to-static** and **Remaining Learning Window** fields added.

Release 6.4.4; **No Aging** and **Boot Up** fields added.

## Related Commands

[port-security learn-trap-threshold](#)

Displays Learned Port Security (LPS) configuration and table entries.

## MIB Objects

learnedPortSecurityGlobalGroup

lpsConvertToStatic

lpsLearningWindowTime

lpsLearningWindowTimeWithStaticConversion

---

## show port-security brief

Displays the per port LPS parameters configured for all the ports.

**show port-security brief**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Displays the configured LPS parameters. The parameters are displayed even if the LPS is disabled on the port.

### Examples

```
-> show port-security brief
Legend: enable * = Learning Window has expired
```

Slot/ Port	Status	Max	Max-Filter	Nb Macs Bridged	Nb Macs Filtered	Nb Macs Static
1/1	ENABLED	5	100	5	10	0
1/2	ENABLED	5	100	0	10	5
1/3	RESTRICTED	5	100	5	100	0
1/4	SHUTDOWN	5	100	-	-	-
1/5	DISABLED	5	100	-	-	-
1/6	LOCKED	5	100	-	-	3

### output definitions

---

<b>Slot/Port</b>	The slot number for the module and the physical port number on that module (e.g., 1/2 specifies port 2 on slot 1)
<b>Status</b>	Displays the status of the LPS port.
<b>Max</b>	The maximum number of bridged MAC addresses that are allowed on this port. Configured through the <b>port-security maximum</b> command.
<b>Max-Filter</b>	The maximum number of filtered MAC addresses that the LPS port can learn. Configured through the <b>port-security max-filtering</b> command.
<b>Nb Macs Bridged</b>	Number of bridge MAC address learnt on corresponding port(s).
<b>Nb Macs Filtered</b>	Number of filtered MAC address learnt on corresponding port(s).
<b>Nb Macs Static</b>	Number of static MAC address configured on corresponding port(s).

---



## Release History

Release 6.4.4; command was introduced.

## Related Commands

### [port-security maximum](#)

Configures the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

### [port-security max-filtering](#)

Configures the maximum number of MAC addresses that can be filtered on the LPS port(s).

## MIB Objects

learnedPortSecurityTable

lpsMaxMacNum

lpsMaxFilteredMacNum

lpsMaxStaticMacNum

lpsOperStatus

lpsAdminStatus

---



# 41 Port Mirroring and Monitoring Commands

The Port Mirroring and Port Monitoring features are primarily used as diagnostic tools.

The Port Mirroring feature allows you to have all the traffic (inbound and outbound) of an Ethernet port sent to another port on the switch. When you enable port mirroring, the active, or “mirrored,” port transmits and receives network traffic normally and the “mirroring” port receives a copy of all transmit and receive traffic to the active port. You can connect an RMON probe or network analysis device to the mirroring port to see an exact duplication of traffic on the mirrored port without disrupting network traffic to and from the mirrored port.

The Port Monitoring feature allows you to examine packets to and from a specific Ethernet port.

MIB information for the Port Mirroring commands is as follows:

*Filename:* AlcatelIND1portMirMon.mib

*Module:* ALCATEL-IND1-PORT-MIRRORING-MONITORING-MIB

The following table summarizes the available commands:

<b>Port Mirroring Commands</b>	<a href="#">port mirroring source destination</a> <a href="#">port mirroring</a> <a href="#">show port mirroring status</a>
<b>Port Monitoring Commands</b>	<a href="#">port monitoring source</a> <a href="#">port monitoring</a> <a href="#">show port monitoring status</a> <a href="#">show port monitoring file</a>

## port mirroring source destination

Defines a port to mirror and the port that is to receive data from the mirrored port, and enables or disables port mirroring status. Also, enables or disables remote port mirroring.

**port mirroring** *port\_mirror\_sessionid* [**no**] **source** *slot/port[-port2]* [*slot/port[-port2]...*]  
**destination** *slot/port* [**rpmir-vlan** *vlan\_id*] [**bidirectional** | **inport** | **outport**] [**unblocked** *vlan\_id*]  
[**enable** | **disable**]

---

### Syntax Definitions

<i>port_mirror_sessionid</i>	Mirroring session identifier.
<b>source</b>	Adds the alphabet “a” to a port mirroring session.
<b>no source</b>	Removes a port or range of ports from a port mirroring session.
<i>slot</i>	Slot number you want to configure.
<i>port</i>	Port number of the interface you want to configure.
<i>port2</i>	Last port number in a range of ports you want to configure.
[ <i>slot/port[-port2]...</i> ]	Configures multiple source ports.
<b>rpmir-vlan</b> <i>vlan_id</i>	Reserved VLAN (1–4094) to carry the mirroring traffic.
<b>bidirectional</b>	Specifies bidirectional port mirroring.
<b>inport</b>	Specifies incoming unidirectional port mirroring.
<b>outport</b>	Specifies outgoing unidirectional port mirroring.
<i>vlan_id</i>	VLAN ID is the number (1–4094) that specifies the VLAN to protect from Spanning Tree changes while port mirroring/monitoring is active. Ports in this VLAN will remain unblocked.
<b>enable</b>	Enables port mirroring status.
<b>disable</b>	Disables port mirroring status.

### Defaults

parameter	default
<b>bidirectional</b>   <b>inport</b>   <b>outport</b>	<b>bidirectional</b>
<b>enable</b>   <b>disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The maximum number of mirroring sessions is limited to two on OmniSwitch 6850 and 6855

- You cannot configure port mirroring and monitoring on the same switching ASIC on OmniSwitch 6850 Series and OmniSwitch 6855 Series switches. Each switching ASIC controls 24 ports (e.g., ports 1–24, 25–48, etc.). For example, if a port mirroring session is configured for ports 1/12 and 1/22, then configuring a port monitoring session for any of the ports between 1 and 24 is not allowed.
- If a port mirroring session is configured across two switching ASICs, then configuring a monitoring session is not allowed on any of the ports controlled by each of the ASICs involved. For example, if a port mirroring session is configured for ports 1/8 and 1/30 on a 48-port switch, then configuring a port monitoring session involving any of the ports between 1 and 48 is not allowed.
- Port mirroring is not supported on logical link aggregate ports however, it is supported on individual ports that are members of a link aggregate.
- An “N-to-1” port mirroring session is configurable, where “N” can be a number from 1 to 24 (OS6855) or 1 to 128 (OS6850). In other words, you can configure up to 24 or 128 source ports for a single destination port in a session.
- Once you execute the **port mirroring source destination** command to define the mirrored port and enable port mirroring status, the **port mirroring** command must be used to enable the port mirroring session.
- By default, the mirroring port is subject to Spanning Tree changes that could cause it to go into a blocked state. To prevent this, specify the *vlan\_id* number of the mirroring port that is to remain **unblocked** when executing the command.

### Usage Guidelines - Remote Port Mirroring

- Remote Port mirroring is supported only on OS6850 switches
- Use the **rpmir-vlan** parameter with this command to configure remote port mirroring.
- There must not be any physical loop present in the remote port mirroring VLAN.
- Spanning Tree must be disabled for the remote port mirroring VLAN.
- Source learning must be disabled or overridden on the ports belonging to the remote port mirroring VLAN on intermediate and destination switches.
- On OS6850 switch the QoS redirect feature can be used to override source learning.

### Examples

```
-> port mirroring 6 destination 6/4
-> port mirroring 6 source 2/3
-> port mirroring 6 destination 6/4
-> port mirroring 6 source 2/3-5 2/7 2/10
-> port mirroring 8 destination 1/12 rpmir-vlan 7
-> port mirroring 8 source 1/7 bidirectional
-> port mirroring 7 destination 6/4 unblocked 750
-> port mirroring 7 source 2/3
-> port mirroring 9 destination 1/24
-> port mirroring 9 source 1/23 inport
-> port mirroring 9 disable
-> port mirroring 8 no source 1/7
-> port mirroring 6 no source 2/10-12 2/14
```

## Release History

Release 6.1; command was introduced.

Release 6.3.1; **rpmir-vlan** parameter added.

## Related Commands

[port mirroring](#)

Enables, disables, or deletes a port mirroring session.

[show port mirroring status](#)

Displays the status of mirrored ports. This value may be enabled or disabled.

## MIB Objects

mirrorTable

mirrorMirroringIfindex

mirrorDirection

mirrorStatus

mirrorUnblockedVLAN

mirrorTaggedVLAN

---

## port mirroring

Enables, disables, or deletes a port mirroring session.

**port mirroring** *port\_mirror\_sessionid* {**enable** | **disable**}

**no port mirroring** *port\_mirror\_sessionid* {**enable** | **disable**}

---

### Syntax Definitions

<i>port_mirror_sessionid</i>	Mirroring session identifier.
<b>enable</b>	Enables port mirroring.
<b>disable</b>	Disables port mirroring.
<b>no</b>	Optional syntax. Deletes a previously-configured port mirroring session.

### Defaults

---

parameter	default
<b>enable</b>   <b>disable</b>	<b>disable</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a port mirroring session.
- You must first enter the **port mirroring source destination** command to specify the mirrored and destination ports. Then use this command to enable or disable port mirroring activity on these ports.

### Examples

```
-> port mirroring 6 enable
-> port mirroring 6 disable
-> no port mirroring 6
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**port mirroring source  
destination**

Defines a port to mirror and the port that is to receive data from the mirrored port, and enables or disables port mirroring status.

**show port mirroring status**

Displays the status of mirrored ports. This value may be enabled or disabled.

## MIB Objects

mirrorTable

    mirrorMirroringIfindex

    mirrorStatus

---



## port monitoring source

Configures a port monitoring session.

```
port monitoring port_monitor_sessionid source slot/port
[no file | file filename [size filesize] | [overwrite {on | off}]]
[inport | outport | bidirectional] [timeout seconds] [enable | disable]
```

---

### Syntax Definitions

<i>port_monitor_sessionid</i>	Monitoring session identifier.
<i>slot/port</i>	Enter the slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<b>file filename</b>	Specifies a file name for the monitoring session (e.g., <b>/flash/port2</b> ).
<i>filesize</i>	Specifies the size of the file in 16K (16384) byte increments. For example, a value of 3 would specify a size of 49152 bytes. The file size can be up to 160 K (163840 bytes).
<b>no file</b>	Specifies that no file will be created for the monitoring session.
<b>on</b>	Specifies that any existing port monitoring file in flash memory will be overwritten if the total data exceeds the specified file size.
<b>off</b>	Specifies that any existing port monitoring file in flash memory will not be overwritten if the total data exceeds the specified file size.
<b>inport</b>	Specifies incoming unidirectional port monitoring.
<b>outport</b>	Specifies outgoing unidirectional port monitoring.
<i>seconds</i>	Specifies the number of seconds after which the session is disabled. The range is 0–2147483647 where 0 is forever.
<b>enable</b>	Enables the port monitoring status.
<b>disable</b>	Disables the port monitoring status.

### Defaults

parameter	default
<i>filesize</i>	1
<b>on   off</b>	<b>on</b>
<b>bidirectional   inport   outport</b>	<b>bidirectional</b>
<i>seconds</i>	0
<b>enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

## Usage Guidelines

- The maximum number of monitoring sessions is limited to one per chassis and/or stack.
- You cannot configure port mirroring and monitoring on the same switching ASIC on OmniSwitch 6850 Series and OmniSwitch 6855 Series switches. Each switching ASIC controls 24 ports (e.g., ports 1–24, 25–48, etc.). For example, if a port mirroring session is configured for ports 1/12 and 1/22, then configuring a port monitoring session for any of the ports between 1 and 24 is not allowed.
- If a port mirroring session is configured across two switching ASICs, then configuring a monitoring session is not allowed on any of the ports controlled by each of the ASICs involved. For example, if a port mirroring session is configured for ports 1/8 and 1/30 on a 48-port switch, then configuring a port monitoring session involving any of the ports between 1 and 48 is not allowed.
- By default, a file called **pmonitor.enc** is created in the **/flash** directory when you configure and enable a port monitoring session. Use the **file** option to create a user-specified file.
- By default, more-recent frames will overwrite older frames in a port monitoring file if the total data exceeds the specified file size. Use the **overwrite off** option to prevent this from occurring.
- Only the first 64 bytes of the traffic will be captured.
- The format of the file created is compliant with the ENC file format (Network General Sniffer Network Analyzer Format).

## Examples

```
-> port monitoring 6 source 2/3
-> port monitoring 6 source 2/3 file port3 size 2 enable
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">port monitoring</a>	Disables, pauses, resumes, or deletes a port monitoring session.
<a href="#">show port monitoring status</a>	Displays the port monitoring status.
<a href="#">show port monitoring file</a>	Displays the port monitoring data.

## MIB Objects

```
monitorTable
  monitorSessionNumber
  monitorIfindex
  monitorFileStatus
  monitorFileName
  monitorFileSize
  monitorScreenStatus
  monitorScreenLine
  monitorTrafficType
  monitorStatus
  monitorFileOverWrite
  monitorDirection
  monitorTimeout
```

## port monitoring

Disables, pauses, resume, or deletes an existing port monitoring session.

**port monitoring** *port\_monitor\_sessionid* {**disable** | **pause** | **resume**}

**no port monitoring** *port\_monitor\_sessionid*

---

### Syntax Definitions

<i>port_monitor_sessionid</i>	Monitoring session identifier.
<b>disable</b>	Disables the port monitoring session.
<b>pause</b>	Pauses the port monitoring session.
<b>resumes</b>	Resumes the port monitoring session.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to delete a port monitoring session.

### Examples

```
-> port monitoring 6 pause
-> port monitoring 6 disable
-> port monitoring 6 resume
-> no port monitoring 6
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">port monitoring</a>	Configures a port monitoring session.
<a href="#">show port monitoring status</a>	Displays the port monitoring status.

### MIB Objects

```
monitorTable
  monitorSessionNumber
  monitorScreenStatus
```

---

## show port mirroring status

Displays the status of mirrored ports.

**show port mirroring status** [*port\_mirror\_sessionid*]

---

### Syntax Definitions

*port\_mirror\_sessionid*                      Mirroring session identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If a port mirroring session identifier is not specified with this command, then all port mirroring sessions are displayed.

### Examples

-> show port mirroring status

Session	Mirror Destination	Mirror Direction	Unblocked Vlan	Config Status	Oper Status
6.	1/41	-	NONE	Enable	Off
	Mirror Source				
6.	1/20	bidirectional	-	Enable	Off
6.	1/21	bidirectional	-	Enable	Off
6.	1/22	bidirectional	-	Enable	Off
6.	1/23	bidirectional	-	Enable	Off
6.	1/24	bidirectional	-	Enable	Off
6.	1/25	bidirectional	-	Enable	Off
6.	1/26	bidirectional	-	Enable	Off
6.	1/27	bidirectional	-	Enable	Off
6.	1/28	bidirectional	-	Enable	Off
6.	1/29	bidirectional	-	Enable	Off
6.	1/30	bidirectional	-	Enable	Off

#### *output definitions*

---

<b>Session</b>	The port mirroring session identifier.
<b>Mirror Destination</b>	The location of the mirrored port.
<b>Mirror Direction</b>	The direction of the mirroring or mirrored port, which can be <b>bidirectional</b> (the default), <b>inport</b> , or <b>outport</b> .
<b>Unblocked VLAN</b>	The mirroring VLAN ID number.

*output definitions (continued)*


---

<b>Config Status</b>	The configuration status of the session.
<b>Oper Status</b>	The current status of the mirroring or mirrored port.
<b>Mirror Source</b>	The location of the mirroring port.

---

-> show port mirroring status

Session	Mirror Destination	Mirror Direction	Unblocked Vlan	Config Status	Oper Status
6.	1/41	-	NONE	Enable	Off
	Mirror Source				
6.	1/20	bidirectional	-	Enable	Off
6.	1/21	bidirectional	-	Enable	Off
6.	1/22	bidirectional	-	Enable	Off
6.	1/23	bidirectional	-	Enable	Off
6.	1/24	bidirectional	-	Enable	Off
6.	1/25	bidirectional	-	Enable	Off
6.	1/26	bidirectional	-	Enable	Off
6.	1/27	bidirectional	-	Enable	Off
6.	1/28	bidirectional	-	Enable	Off
6.	1/29	bidirectional	-	Enable	Off
6.	1/30	bidirectional	-	Enable	Off

*output definitions*


---

<b>Session</b>	The port mirroring session identifier.
<b>Mirror Destination</b>	The location of the mirrored port.
<b>Mirror Direction</b>	The direction of the mirroring or mirrored port, which can be <b>bidirectional</b> (the default), <b>inport</b> , or <b>outport</b> .
<b>Unblocked VLAN</b>	The mirroring VLAN ID number.
<b>Config Status</b>	The configuration status of the session.
<b>Oper Status</b>	The current status of the mirroring or mirrored port.
<b>Mirror Source</b>	The location of the mirroring port.

---

**Release History**

Release 6.1; command was introduced.

## Related Commands

[port mirroring](#)

Enables, disables, or deletes a port mirroring session.

[port mirroring source destination](#)

Defines a port to mirror and a port that will receive data from the mirrored port, and enables or disables port mirroring status.

## MIB Objects

mirrorTable

mirrorMirroringIfindex

mirrorDirection

mirrorStatus

mirrorUnblockedVLAN

---

## show port monitoring status

Displays port monitoring status.

**show port monitoring status** [*port\_monitor\_sessionid*]

---

### Syntax Definitions

*port\_monitor\_sessionid*            Monitoring session identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If a port monitoring session identifier is not specified with this command, then all port monitoring sessions are displayed.

### Examples

```
-> show port monitoring status
```

Session	Monitor slot/port	Monitor Direction	Overwrite	Operating Status	Admin Status
1.	1/ 9	Bidirectional	ON	ON	ON

### *output definitions*

---

<b>Session</b>	The port monitoring session identifier.
<b>Monitor slot/port</b>	The location of the monitored port.
<b>Monitor Direction</b>	The direction of the monitoring session, which can be <b>bidirectional</b> (the default), <b>inport</b> , or <b>outport</b> .
<b>Overwrite</b>	Whether files created by a port monitoring session can be overwritten. The default is ON.
<b>Operating Status</b>	The current operating status of the port monitoring session (on/off).
<b>Admin Status</b>	The current administrative status of the port monitoring session (on/off).

---

### Release History

Release 6.1; command was introduced.

**Related Commands**

<a href="#">port monitoring source</a>	Configures a port monitoring session.
<a href="#">port monitoring</a>	Disables, pauses, resumes, or deletes a port monitoring session.
<a href="#">show port monitoring file</a>	Displays port monitoring data.

**MIB Objects**

```
monitorTable
  monitorSessionNumber
  monitorIfindex
  monitorStatus
  monitorFileOverWrite
  monitorDirection
```

---



## show port monitoring file

Displays port monitoring data.

**show port monitoring file** [*port\_monitor\_sessionid*]

---

### Syntax Definitions

*port\_monitor\_sessionid*            Monitoring session identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

-> show port monitoring file

Destination	Source	Type	Data
01:80:C2:00:00:00	00:20:DA:8F:92:C6	BPDU	00:26:42:42:03:00:00:00:00:00
00:20:DA:C7:2D:D6	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:FE:4A:40:00
00:20:DA:A3:89:F6	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:89:40:00
00:20:DA:BF:5B:76	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:85:40:00
00:20:DA:A3:89:F6	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:8A:40:00
00:20:DA:BF:5B:76	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:86:40:00
00:20:DA:A3:89:F6	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:8B:40:00
01:80:C2:00:00:00	00:20:DA:8F:92:C6	BPDU	00:26:42:42:03:00:00:00:00:00
00:20:DA:BF:5B:76	08:00:20:95:F3:89	UDP	08:00:45:00:00:6B:CF:87:40:00

### *output definitions*

---

<b>Destination</b>	The destination MAC address of the packet.
<b>Source</b>	The source MAC address of the packet.
<b>Type</b>	The type of packet.
<b>Data</b>	The packet displayed in hexadecimal format.

---

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>port monitoring source</b>	Configures a port monitoring session.
<b>port monitoring</b>	Disables, pauses, resumes, or deletes a port monitoring session.
<b>show port monitoring status</b>	Displays the port monitoring status.

**MIB Objects**

```
monitorTable  
  monitorSessionNumber  
  monitorIfindex  
  monitorTrafficType
```

---

# 42 sFlow Commands

sFlow is a network monitoring technology that gives visibility in to the activity of the network, by providing network usage information. It provides the data required to effectively control and manage the network usage. sFlow is a sampling technology that meets the requirements for a network traffic monitoring solution.

sFlow provides a network-wide view of usage and active routes. It is used for measuring network traffic, collecting, storing, and analyzing the traffic data. As it is scalable, that doesn't add significant network load. sFlow is an industry standard with many vendors delivering products with this support. Some of the applications of the sFlow data include:

- Detecting, diagnosing, and fixing network problems
- Real-time congestion management
- Detecting unauthorized network activity
- Usage accounting and billing
- Understanding application mix
- Route profiling and peer optimization
- Capacity planning

sFlow is a sampling technology embedded within switches/routers. It provides the ability to monitor the traffic flows. It requires an sFlow agent software process running as part of the switch software and a sFlow collector which receives and analyses the monitored data. The sFlow collector makes use of SNMP to communicate with an sFlow agent in order to configure sFlow monitoring on the device (switch).

An sFlow agent running on the switch/router combines interface counters and traffic flow (packet) samples, preferably, on all the interfaces into sFlow datagrams that are sent across the network to an sFlow collector.

Packet sampling on the switch/router is typically performed by the switching/routing ASICs, providing wire-speed performance. In this case, an sFlow agent does very little processing, by packaging data into sFlow datagrams that are immediately sent on network. This minimizes the memory and CPU utilization by the sFlow agent.

MIB information for the sFlow commands is as follows:

```
Filename: AlcatelIND1PortMirMon.MIB
Module:   Alcatel-IND1-PORT-MIRRORING-MONITORING-MIB

Filename: SFLOW_RFC3176.MIB
Module:   SFLOW-MIB
```

A summary of the available commands is listed here:

---

**sflow agent**  
**sflow receiver**  
**sflow sampler**  
**sflow poller**  
**show sflow agent**  
**show sflow receiver**  
**show sflow sampler**  
**show sflow poller**

---

## sflow agent

Configures a specific sflow agent IP address.

**sflow agent ip** <ip\_address>

**no sflow agent ip** <ip\_address>

---

### Syntax Definitions

*ip\_address*                      The sflow agent IP address.

### Defaults

parameter	default
<i>ip-address</i>	0.0.0.0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete the IP address.
- If no IP address is configured 0.0.0.0 is used.
- If no IP address is configured but the Loopback0 address is configured, the Loopback0 address is used.

### Examples

```
-> sflow agent ip 192.168.1.1  
-> no sflow agent ip 192.168.1.1
```

### Release History

Release 6.3.4; command was introduced

Release 6.4.3; command was deprecated, use [ip managed-interface](#).

## sflow receiver

Sets the destination hosts where the sFlow datagrams are sent out. If there are multiple destinations, then each destination is associated with the receiver instance. All these destinations are attached to the sFlow manager instance and to an associated sampler/poller.

**sflow receiver** *num* **name** *string* **timeout** {*seconds* / **forever**} **address** {*ip\_address* / *ipv6address*} **udp-port** *port* **packet-size** *size* **Version** *num*

**sflow receiver** *receiver\_index* **release**

---

### Syntax Definitions

<i>num</i>	Specifies the receiver index.
<i>string</i>	Specifies the name.
<i>seconds</i> / <b>forever</b>	Specifies the timeout value.
<i>ip_address</i> / <i>ipv6address</i>	Specifies the 32/128-bit ip address.
<i>port</i>	Specifies the UDP (destination) port.
<i>size</i>	Specifies the maximum number of data bytes (size) that can be sent.
<i>num</i>	Specifies the version number.

### Defaults

parameter	default
<i>string</i>	empty
<i>seconds</i>	0
<i>ip_address</i>	0.0.0.0(ipv4)
<i>port</i>	6343
<i>size</i>	1400
<i>version num</i>	5

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **release** form at the end of the command to delete a receiver.

### Examples

```
-> sflow receiver 1 name Golden address 198.206.181.3
-> sflow receiver 1 release
```

## Release History

Release 6.1.1; command was introduced.

## Related Commands

[show sflow receiver](#)                      Displays the receiver table.

## MIB Objects

```
sFlowRcvrTable
  sFlowRcvrIndex
  sFlowRcvrOwner
  sFlowRcvrTimeout
  sFlowRcvrMaximumDatagramSize
  sFlowRcvrAddressType
  sFlowRcvrAddress
  sFlowRcvrPort
  sFlowRcvrDatagramVersion
```

---

## sflow sampler

Gets the hardware sampled from Q-dispatcher and fills up the sampler part of the UDP datagram.

**sflow sampler** *num portlist* **receiver** *receiver\_index* **rate** *value* **sample-hdr-size** *size*

**no sflow sampler** *num portlist*

---

### Syntax Definitions

<i>num</i>	Specifies the instance id.
<i>portlist</i>	Specifies the interface index range.
<i>receiver_index</i>	Specifies the receiver index.
<i>value</i>	Specifies the rate value for packet sampling.
<i>size</i>	Specifies the maximum number of bytes (size) that can be copied from a sampled packet.

### Defaults

parameter	default
<i>receiver_index</i>	0
<i>value</i>	0
<i>size</i>	128

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a sampler.
- A sampling rate of 1 counts all packets. A sampling rate of 0 disables sampling.

### Examples

```
-> sflow sampler 1 2/1-5 receiver 1 rate 1024
-> no sflow sampler 1 2/1-5
```

### Release History

Release 6.1.1; command was introduced.



## Related Commands

**show sflow sampler**                      Displays the sampler table.

## MIB Objects

sFlowFsTable  
    sFlowFsDataSource  
    sFlowFsInstance  
    sFlowFsReceiver  
    sFlowFsPacketSamplingRate  
    sFlowFsMaximumHeaderSize

---

## sflow poller

Gets counter samples from ethernet driver and fills up the counter part of the UDP datagram.

**sflow poller** *num portlist receiver receiver\_index interval value*

**no sflow poller** *num portlist*

---

### Syntax Definitions

<i>num</i>	Specifies the instance id.
<i>portlist</i>	Specifies the interface index range.
<i>receiver_index</i>	Specifies the receiver index.
<i>value</i>	Specifies the maximum number of seconds between successive samples (interval value).

### Defaults

parameter	default
<i>receiver_index</i>	0
<i>value</i>	0

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to delete a poller.

### Examples

```
-> sflow poller 1 2/6-10 receiver 1 interval 30
-> no sflow poller 1 2/6-10
```

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**show sflow poller** Displays the poller table.

## **MIB Objects**

sFlowCpTable

    sFlowCpDataSource

    sFlowCpInstance

    sFlowCpReceiver

    sFlowCpInterval

---

## show sflow agent

Displays the sflow agent table.

**show sflow agent**

---

### Syntax Definitions

**agent** Collects sample datagrams and send it to the collector across the network.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- It is necessary to execute the **ip interface** command to make a Loopback0 IP address as the fixed primary address of the switch, in order to avoid interface changes, which might need the collector software to be restarted for it to communicate using the new agent IP address. Normally, the primary IP address could change depending on the IP interface going up/down. Therefore, the sFlow agent always needs to send a fixed IP address in the datagram.
- The loopback address should be an IP interface configured on the switch.

### Examples

```
-> ip interface Loopback0 address 198.206.181.100
-> show sflow agent
Agent Version = 1.3; Alcatel-Lucent; 6.1.1
Agent IP      = 198.206.181.100
```

#### *output definitions*

<b>Agent Version</b>	Identifies the version which includes the MIB version, organization name, and the specific software build of the agent.
<b>Agent address</b>	IP address associated with the agent.

### Release History

Release 6.1.1; command was introduced.

### Related Commands

**show sflow receiver** Displays the receiver table.

## **MIB Objects**

sFlowAgent

    sFlowVersion

    sFlowAgentAddressType

    sFlowAgentAddress

---

## show sflow receiver

Displays the sflow receiver table.

**show sflow receiver** [*num*]

---

### Syntax Definitions

*num* Specifies the receiver index.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show sflow receiver
Receiver 1
Name      = Golden
Address   = IP_V4 198.206.181.3
UDP Port  = 6343
Timeout   = 65535
Packet Size= 1400
DatagramVer= 5
```

### *output definitions*

---

<b>Name</b>	Name of the entry to claim.
<b>Address</b>	IP address of the sFlow collector.
<b>UDP Port</b>	Destination port for sFlow datagrams.
<b>Timeout</b>	Time remaining before the sampler is released and stops sampling.
<b>Packet size</b>	Maximum number of data bytes that can be sent in a single sample datagram.
<b>Datagram ver</b>	Version of sFlow datagrams that should be sent.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

[sflow agent](#)

Sets the destination hosts where the sFlow datagrams are sent out.

## MIB Objects

sFlowRcvrTable

sFlowRcvrIndex

---

## show sflow sampler

Displays the sflow sampler table.

**show sflow sampler***[num]*

---

### Syntax Definitions

*num* Specifies the instance id.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A.

### Examples

```
-> show sflow sampler
Instance  Interface  Receiver  Sample-rate  Sample-hdr-size
-----
1         2/ 1       1         2048         128
1         2/ 2       1         2048         128
1         2/ 3       1         2048         128
1         2/ 4       1         2048         128
1         2/ 5       1         2048         128
```

### *output definitions*

---

<b>Instance</b>	Instance for the flow sampler.
<b>Interface</b>	Interface used for the flow sampler.
<b>Receiver</b>	Receiver associated with the flow sampler.
<b>Sample-rate</b>	Statistical sampling rate for packet sampling from the source.
<b>Sample-hdr-size</b>	Maximum number of bytes that should be copied from a sampled packet.

---

### Release History

Release 6.1.1; command was introduced.



## Related Commands

[sflow sampler](#)

Gets hardware sampled from Q-dispatcher.

## MIB Objects

sFlowFsTable

sFlowFsInstance

---

## show sflow poller

Displays the sflow poller table.

**show sflow poller** [*num*]

---

### Syntax Definitions

*num* Specifies the instance id.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show sflow poller
Instance  Interface      Receiver  Interval
-----
          1          2/ 6         1         30
          1          2/ 7         1         30
          1          2/ 8         1         30
          1          2/ 9         1         30
          1          2/10        1         30
```

### *output definitions*

---

<b>Instance</b>	Instance for the counter poller.
<b>Interface</b>	Interface used for the counter poller.
<b>Receiver</b>	Receiver associated with the counter poller.
<b>Interval</b>	The maximum number of seconds between successive samples of the counters associated with the data source.

---

### Release History

Release 6.1.1; command was introduced.

## Related Commands

[sflow poller](#) Gets counter samples.

## MIB Objects

sFlowCpTable

sFlowCpInstance

---



# 43 RMON Commands

Remote Network Monitoring (RMON) probes can be used to monitor, manage, and compile statistical data about network traffic from designated active ports in a LAN segment without negatively impacting network performance. This feature supports basic RMON 4 group implementation compliant with RFC 2819 (Remote Network Monitoring Management Information Base), but does not support RMON 10 group or RMON 2. This chapter includes descriptions of RMON commands used to enable or disable individual (or a group of a certain flavor type) RMON probes, show a list of (or individual) RMON probes and show a list of (or individual) RMON logged events.

MIB information for the RMON commands is as follows:

*Filename:* IETF\_RMON.mib  
*Module:* RMON-MIB

The following table summarizes the available commands:

---

**rmon probes**  
**show rmon probes**  
**show rmon events**

---

## rmon probes

This command enables or disables types of RMON probes.

```
rmon probes {stats | history | alarm} [entry-number] {enable | disable}
```

---

### Syntax Definitions

<b>stats</b>	Ethernet Statistics Table probe entries.
<b>history</b>	History Control Table probe entries.
<b>alarm</b>	Alarm Table probe entries.
<i>entry-number</i>	The entry number in the list of probes ( <i>optional</i> ).
<b>enable</b>	Enables the RMON probe.
<b>disable</b>	Disables the RMON probe.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Network activity on subnetworks attached to the RMON probe can be monitored by NMS applications.
- RMON will not monitor activities on the CMM onboard Ethernet Management port.

### Examples

```
-> rmon probes stats 4012 enable
-> rmon probes history 10240 disable
-> rmon probes alarm 11235 enable
-> rmon probes stats enable
-> rmon probes history disable
-> rmon probes alarm enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show rmon probes](#)

Displays a list of RMON probes or a single RMON probe.

[show rmon events](#)

Displays a list of RMON logged events or a single RMON event.

## MIB Objects

ETHERSTATSTABLE

etherStatsStatus

HISTORYCONTROLTABLE

historyControlStatus

ALARMTABLE

alarmStatus

---

## show rmon probes

Displays a list of RMON probes or a single RMON probe.

**show rmon probes** [**stats** | **history** | **alarm**] [*entry-number*]

---

### Syntax Definitions

<b>stats</b>	Ethernet Statistics Table probe entries.
<b>history</b>	History Control Table probe entries.
<b>alarm</b>	Alarm Table probe entries.
<i>entry-number</i>	The entry number in the list of probes ( <i>optional</i> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To display a list of current probes, omit the *entry-number* from the command line.
- To display statistics for a particular probe, include the probe's *entry-number* in the command line.
- The **show rmon probes** command displays the following information: Entry number, Slot/Port, Flavor (whether the probe type is Ethernet, History or Alarm), Status (Active or Inactive), Duration (time since the last change in status, in hours/minutes) and System Resources (the amount of memory allocated to this probe).
- The **show rmon probes entry-number** command displays the following information: Probe's Owner (probe type and location), Slot/Port, Entry number, Flavor (whether the probe type is Ethernet, History or Alarm), Status (Active or Inactive), Time since the last change in status (hours/minutes), and System Resources (the amount of memory allocated to this probe). Displayed statistics may vary, depending on whether the probe type is Ethernet, History or Alarm.

### Examples

```
-> show rmon probes stats
```

Entry	Slot/Port	Flavor	Status	Duration	System Resources
4001	4/1	Ethernet	Active	00:25:00	275 bytes
4008	4/8	Ethernet	Active	00:25:00	275 bytes
4005	4/5	Ethernet	Active	00:25:00	275 bytes



-> show rmon probes history

Entry	Slot/Port	Flavor	Status	Duration	System Resources
1	4/1	History	Active	00:25:00	9063 bytes
10240	4/5	History	Active	00:14:00	601 bytes
10325	4/8	History	Active	00:14:00	601 bytes

-> show rmon probes alarm

Entry	Slot/Port	Flavor	Status	Duration	System Resources
11235	4/8	Alarm	Active	00:07:00	835 bytes

-> show rmon probes stats 4005

Probe's Owner: Falcon Switch Auto Probe on Slot 4, Port 5  
 Entry 4005  
 Flavor = History, Status = Active  
 Time = 48 hrs 54 mins,  
 System Resources (bytes) = 275

-> show rmon probes history 10325

Probe's Owner: Analyzer-p:128.251.18.166 on Slot 4, Port 5  
 History Control Buckets Requested = 2  
 History Control Buckets Granted = 2  
 History Control Interval = 30 seconds  
 History Sample Index = 5859  
 Entry 10325  
 Flavor = History, Status = Active  
 Time = 48 hrs 53 mins,  
 System Resources (bytes) = 601

-> show rmon probes alarm 11235

Probe's Owner: Analyzer-t:128.251.18.166 on Slot 4, Port 8  
 Alarm Rising Threshold = 5  
 Alarm Falling Threshold = 0  
 Alarm Rising Event Index = 26020  
 Alarm Falling Event Index = 0  
 Alarm Interval = 10 seconds  
 Alarm Sample Type = delta value  
 Alarm Startup Alarm = rising alarm  
 Alarm Variable = 1.3.6.1.2.1.16.1.1.1.5.4008  
 Entry 11235  
 Flavor = Alarm, Status = Active  
 Time = 48 hrs 48 mins,  
 System Resources (bytes) = 1677

*output definitions*


---

<b>Probe's Owner</b>	Description and interface (location) of the probe.
<b>Slot/Port</b>	The Slot/Port number (interface) that this probe is monitoring.
<b>Entry</b>	The Entry number in the list of probes.
<b>Flavor</b>	Whether the probe type is Ethernet, History, or Alarm.
<b>Status</b>	The status of the probe— <b>Creating</b> (the probe is under creation), <b>Active</b> (the probe is Active), or <b>Inactive</b> (the probe is inactive).
<b>Duration</b>	Elapsed time (hours/minutes/seconds) since the last change in status.
<b>System Resources</b>	Amount of memory that has been allocated to this probe.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">rmon probes</a>	Enables or disables types of RMON probes.
<a href="#">show rmon events</a>	Displays RMON logged events.

**MIB Objects**

```
ETHERSTATSTABLE
    etherStatsIndex
HISTORYCONTROLTABLE
    historyControlIndex
ALARMTABLE
    alarmIndex
```

---

## show rmon events

Displays RMON events (actions that take place based on alarm conditions detected by the RMON probe).

**show rmon events** [*event-number*]

---

### Syntax Definitions

*event-number*                      The event number (*optional*) in the list of probes.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To display a list of logged events, omit the *event-number* from the command line.
- To display statistics for a particular event, include the *event-number* in the command line.
- The **show rmon events** command displays the following information for all RMON Logged Events: Entry number, Time (hours/minutes/seconds) since the last change in status and Description (nature of the event).
- The **show rmon events *event-number*** command displays the following information for a particular RMON Logged Event: Entry number, Time (hours/minutes/seconds) since the last change in status and Description (nature of the event).

### Examples

```
-> show rmon events
```

Entry	Time	Description
1	00:08:00	etherStatsPkts.4008: [Falling trap] "Falling Event"
2	00:26:00	etherStatsCollisions.2008: "Rising Event"

```
-> show rmon events 2
```

Entry	Time	Description
2	00:26:00	etherStatsCollisions.2008: "Rising Event"

*output definitions*

---

<b>Entry</b>	The entry number in the list of probes.
<b>Time</b>	Time (hours, minutes, and seconds) since the last change in status.
<b>Description</b>	Description of the Alarm condition detected by the probe.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">rmon probes</a>	Enables or disables types of RMON probes.
<a href="#">show rmon probes</a>	Displays RMON probes or a single RMON probe.

**MIB Objects**

EVENTTABLE  
eventIndex

---

# 44 VLAN Stacking Commands

The VLAN Stacking feature provides a method for tunneling multiple customer VLANs (CVLAN) through a service provider network using one or more service provider VLANs by way of 802.1Q double tagging or VLAN Translation. This feature enables service providers to provide their customers with Transparent LAN Services (TLS). This service is multipoint in nature so as to support multiple customer sites or networks distributed over the edges of a service provider network.

MIB information for the VLAN Stacking commands is as follows:

*Filename:* AlcatelIND1VlanStacking.MIB  
*Module:* Alcatel-IND1-VLAN-STACKING-MIB

*Filename:* AlcatelIND1VlanManager.MIB  
*Module:* Alcatel-IND1-VLAN-MGR-MIB

A summary of the available commands is listed here:

---

<b>VLAN Stacking Service Mode</b>	<b>ethernet-service</b> <b>ethernet-service source-learning</b> <b>ethernet-service service-name</b> <b>ethernet-service svlan nni</b> <b>ethernet-service nni</b> <b>ethernet-service sap</b> <b>ethernet-service sap uni</b> <b>ethernet-service sap cvlan</b> <b>ethernet-service sap-profile</b> <b>ethernet-service sap sap-profile</b> <b>ethernet-service uni-profile</b> <b>ethernet-service uni uni-profile</b> <b>show ethernet-service mode</b> <b>show ethernet-service vlan</b> <b>show ethernet-service</b> <b>show ethernet-service sap</b> <b>show ethernet-service port</b> <b>show ethernet-service nni</b> <b>show ethernet-service uni</b> <b>show ethernet-service uni-profile</b> <b>show ethernet-service sap-profile</b>
<b>Ethernet Service Hardware</b>	<b>loopback-test</b>
<b>Loopback Test</b>	<b>show loopback-test</b>

---

## ethernet-service

Creates a VLAN Stacking VLAN (SVLAN) for tunneling customer traffic, a management SVLAN for provider traffic, or an SVLAN that the IP Multicast VLAN (IPMV) application will use to distribute multicast traffic.

**ethernet-service** {svlan | ipmvlan | management-vlan} svid1[-svid2] [enable | disable] [[1x1 | flat] stp {enable | disable}] [name description]

**no ethernet-service** {svlan | ipmvlan | management-vlan} svid1[-svid2]

---

### Syntax Definitions

<b>svlan</b>	Creates an SVLAN for tunneling customer traffic.
<b>ipmvlan</b>	Creates an SVLAN used by IPMV to distribute multicast traffic.
<b>management-vlan</b>	Creates a management SVLAN for provider traffic.
<i>svid1</i>	The VLAN ID number identifying the SVLAN (2–4094).
<i>-svid2</i>	The last VLAN ID number in a range of SVLANs that you want to configure (e.g. 10-12 specifies VLANs 10, 11, and 12).
<b>enable</b>	Enables the SVLAN administrative status.
<b>disable</b>	Disables the SVLAN administrative status, which blocks all ports bound to that SVLAN.
<b>1x1</b>	Specifies that the Spanning Tree status for the SVLAN applies when the switch is running in the 1x1 Spanning Tree mode.
<b>flat</b>	Specifies that the Spanning Tree status for the SVLAN applies when the switch is running in the flat Spanning Tree mode.
<b>stp enable</b>	Enables the SVLAN Spanning Tree status for the service provider network topology.
<b>stp disable</b>	Disables the SVLAN Spanning Tree status for the service provider network topology.
<i>description</i>	An alphanumeric string of up to 32 characters. Use quotes around the string if the VLAN name contains multiple words with spaces between them (e.g., “Alcatel-Lucent Engineering”).

### Defaults

By default, the Spanning Tree status is enabled in both the 1x1 and flat mode when the SVLAN or IPMV is created

parameter	default
<b>enable   disable</b>	<b>enable</b>
<b>stp enable   disable</b>	<b>enable</b>
<i>description</i>	VLAN ID number

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete an SVLAN or a range of SVLANs. Note that SVLAN port associations are also removed when the SVLAN is deleted.
- This command does not work if the *svlan* specified already exists as a standard VLAN.
- Use the optional **1x1** or **flat** parameter with this command to configure the Spanning Tree status only for the Spanning Tree mode specified by the parameter. For example, if the **flat** parameter is specified when disabling STP for SVLAN 10, then the Spanning Tree status for SVLAN 10 is disabled when the switch is running in the flat mode. However, the current Spanning Tree status for SVLAN 10 in the 1x1 mode remains unchanged.
- If this command is used without specifying the **1x1** or **flat** parameter, then the Spanning Tree status for the specified SVLAN is changed for both operating modes.
- Note that the Spanning Tree status for an SVLAN only applies to the Spanning Tree topology calculations for the service provider network. This status is not applied to customer VLANs (CVLANs) and does not affect the customer network topology.

## Examples

```
-> ethernet-service svlan 1001 name "Customer ABC"  
-> ethernet-service ipmvlan 255  
-> ethernet-service management-vlan 355  
-> no ethernet-service svlan 1001  
-> no ethernet-service ipmvlan 255  
-> no ethernet-service management-vlan 355
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

- |                                                  |                                                      |
|--------------------------------------------------|------------------------------------------------------|
| <a href="#">show ethernet-service vlan</a>       | Displays a list of SVLANs configured from the switch |
| <a href="#">ethernet-service source-learning</a> | Configures the source learning status for an SVLAN.  |

## MIB Objects

```
vlanTable  
  vlanNumber  
  vlanDescription  
  vlanSvlanTrafficType  
  vlanAdmStatus  
  vlan1x1StpStatus  
  vlanFlatStpStatus  
  vlanStpStatus  
  vlanStatus
```

---

## ethernet-service source-learning

Configures the status of source learning on a VLAN Stacking VLAN (SVLAN) used for tunneling customer traffic or on an SVLAN that the IP Multicast VLAN (IPMV) application uses to distribute multicast network traffic.

**ethernet-service** {svlan | ipmvlan} *svid1*[-*svid2*] **source-learning** {enable| disable}

---

### Syntax Definitions

<b>svlan</b>	Specifies an SVLAN for tunneling customer traffic.
<b>ipmvlan</b>	Specifies an SVLAN used by IP Multicast VLAN to distribute multi-cast traffic.
<i>svid1</i>	The VLAN ID number identifying the SVLAN (2–4094).
<i>-svid2</i>	The last VLAN ID number in a range of SVLANs that you want to configure (e.g. 10-12 specifies SVLANs 10, 11, and 12).
<b>enable</b>	Enables source MAC address learning.
<b>disable</b>	Disables source MAC address learning.

### Defaults

parameter	default
<b>enable   disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6855-U24X, 9000E

### Usage Guidelines

- By default, source MAC address learning is enabled on all the SVLANs.
- Disabling source learning on an SVLAN clears all the dynamically learned MAC addresses associated with the VLAN from the MAC address table.
- Static MAC addresses associated with an SVLAN are *not* cleared when source learning is disabled for the SVLAN.
- Configuring the source learning status is not supported on Management SVLANs.

### Examples

```
-> ethernet-service svlan 120-150 source-learning disable
-> ethernet-service ipmvlan 320-350 source-learning disable
```

### Release History

Release 6.4.2; command introduced.



## Related Commands

- ethernet-service**                      Creates a VLAN Stacking VLAN (SVLAN).  
**show ethernet-service vlan**        Displays a list of SVLANs configured for the switch.

## MIB Objects

```
vlanTable  
  vlanEntry  
  vlanNumber  
  vlanStatus  
  vlanMacLearningControlStatus
```

---

## ethernet-service service-name

Creates a VLAN Stacking service and associates the service with an SVLAN or an IP Multicast VLAN (IPMV). The SVLAN or IPMV specified is the VLAN that will transport traffic for the service.

**ethernet-service service-name** *service-name* {svlan | ipmvlan} *svid*

**no ethernet-service service-name** *service-name* {svlan | ipmvlan} *svid*

---

### Syntax Definitions

*service-name*                      The name of the VLAN Stacking service; an alphanumeric string of up to 32 characters. Use quotes around string if the VLAN name contains multiple words with spaces between them (e.g., “Alcatel-Lucent Engineering”).

*svid*                                      The VLAN ID number that identifies an existing SVLAN or IPMV to associate with the VLAN Stacking service (2–4094).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a VLAN Stacking service. Note that when a service is removed, the SVLAN or IPMV association with that service is also removed.
- If the VLAN Stacking service is associated with a Service Access Point (SAP) remove the SAP associations before attempting to remove the service.
- Each VLAN Stacking service is associated with one SVLAN or IPMV. Specifying an additional VLAN ID for an existing service is not allowed.

### Examples

```
-> ethernet-service service-name Marketing svlan 10
-> ethernet-service service-name Finance ipmvlan 20
-> no ethernet-service service-name Marketing
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### [ethernet-service](#)

Creates an SVLAN for customer traffic, a management VLAN for provider traffic, or an IPMV for multicast traffic.

## MIB Objects

```
alaEServiceTable  
  alaEServiceID  
  alaEServiceSVLAN  
  alaEServiceVlanType  
  alaEServiceRowStatus
```

---

## ethernet-service svlan nni

Configures the switch port as a VLAN Stacking Network Network Interface (NNI) port and associates the port with a customer SVLAN or management SVLAN. A network port connects to another provider bridge and carries both customer and provider traffic.

```
ethernet-service svlan svid1[-svid2] nni {slot/port1[-port2] / linkagg agg_num} [stp | erp]
```

```
no ethernet-service svlan svid1[-svid2] nni {slot/port1[-port2] / linkagg agg_num}
```

---

### Syntax Definitions

<i>svid1</i>	The VLAN ID number identifying the SVLAN (2–4094).
- <i>svid2</i>	The last VLAN ID number in a range of SVLANs that you want to specify (e.g. 10-12 specifies VLANs 10, 11, and 12).
<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
- <i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g. 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>agg_num</i>	The link aggregate ID number (0–31).
stp	Specifies Spanning Tree control for the SVLAN-NNI association.
erp	Specifies Ethernet Ring Protection (ERP) control for the SVLAN-NNI association.

### Defaults

parameter	default
stp   erp	stp

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an association between an NNI port and an SVLAN. Note that when the last SVLAN association is removed, the NNI port reverts to a conventional switch port.
- This SVLAN ID specified with this command must already exist in the switch configuration. Only SVLAN IDs are accepted; IPMVLAN IDs are not supported with this command.
- When this command is used, the default VLAN for the NNI port is changed to a VLAN reserved by the switch for applications such as VLAN Stacking. The reserved VLAN is not configurable using standard VLAN management commands.
- Associating a network port to an SVLAN is required.

## Examples

```
-> ethernet-service svlan 10 nni 1/3
-> ethernet-service svlan 255 nni 2/10-15
-> ethernet-service svlan 500 nni linkagg 31
-> no ethernet-service svlan 10 nni 1/3
-> no ethernet-service svlan 255 nni 2/12
```

## Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **stp** and **erp** parameters added.

## Related Commands

### [ethernet-service](#)

Creates an SVLAN for customer traffic, a management VLAN for provider traffic, or an IPMV for multicast traffic.

### [ethernet-service nni](#)

Configures the vendor TPID value, the legacy BPDU processing status, and the transparent bridging status for a VLAN Stacking Network Network Interface (NNI).

## MIB Objects

```
alaEServiceNniSvlanTable
  alaEServiceNniSvlanNni
  alaEServiceNniSvlanSvlan
  alaEServiceNniSvlanRowStatus
```

---

## ethernet-service nni

Configures the vendor TPID value, the legacy BPDU processing status, and the transparent bridging status for a VLAN Stacking Network Network Interface (NNI).

```
ethernet-service nni {slot/port1[-port2] / agg_num} [tpid value] [{stp | gvrp | mvrp} legacy-bpdu
{enable | disable}] [transparent-bridging {enable | disable}]
```

---

### Syntax Definitions

<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g., 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>agg_num</i>	The link aggregate ID number (0–31).
<i>value</i>	Specifies the TPID value of the port.
<b>stp</b>	Specifies Spanning Tree legacy BPDU support.
<b>gvrp</b>	Specifies GVRP legacy BPDU support.
<b>mvrp</b>	Specifies MVRP legacy BPDU support.
<b>legacy-bpdu enable</b>	Enables the specified legacy BPDU support.
<b>legacy-bpdu disable</b>	Disables the specified legacy BPDU support.
<b>transparent-bridging enable</b>	Enables transparent bridging.
<b>transparent-bridging disable</b>	Disables transparent bridging.

### Defaults

parameter	default
<i>value</i>	<b>0x8100</b>
<b>stp legacy-bpdu enable   disable</b>	<b>disable</b>
<b>gvrp legacy-bpdu enable   disable</b>	<b>disable</b>
<b>mvrp legacy-bpdu enable   disable</b>	<b>disable</b>
<b>transparent-bridging enable   disable</b>	<b>disable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command only applies to ports configured as VLAN Stacking NNI ports.

- Enable legacy BPDU support only on VLAN Stacking network ports that are connected to legacy BPDU switches. Enabling legacy BPDU between AOS switches may cause flooding or an unstable network.
- If legacy BPDU is enabled on a network port while at same time BPDU flooding is enabled on user ports, make sure that tagged customer BPDUs are not interpreted by intermediate switches in the provider network.
- Note that if the peer switch connected to the VLAN Stacking network port supports the Provider MAC address (i.e., STP, 802.1ad/D6.0 MAC), then enabling legacy BPDU support is not required on the network port. Refer to the following table to determine the type of STP, GVRP, or MVRP MAC used:

---

### STP

Customer MAC address	{0x01, 0x80, 0xc2, 0x00, 0x00, 0x00}
Provider MAC address (802.1ad/D6.0)	{0x01, 0x80, 0xc2, 0x00, 0x00, 0x08}
Provider MAC address (Legacy MAC)	{0x01, 0x80, 0xc2, 0x00, 0x00, 0x00}

### GVRP

Customer MAC address	{0x01, 0x80, 0xc2, 0x00, 0x00, 0x21}
Provider MAC address	{0x01, 0x80, 0xc2, 0x00, 0x00, 0x0D}

### MVRP

Customer MAC address	(0x01, 0x80, 0xc2, 0x00, 0x00, 0x21)
Provider MAC address	(0x01, 0x80, 0xc2, 0x00, 0x00, 0x0D)

- GVRP legacy BPDU are supported only on network ports that already have GVRP enabled for the port.
- STP legacy BPDU and transparent bridging are supported only when the flat Spanning Tree mode is active on the switch.
- When transparent bridging is enabled, the NNI forwards SVLAN traffic without processing packet contents. As a result, the NNI port can also forward traffic for SVLANs that are not configured on the local switch, thus allowing for a greater number of NNI port associations with SVLANs.
- Note that enabling transparent bridging is recommended only on NNI ports that are known to and controlled by the network administrator.
- If the Spanning Tree operating mode for the switch is changed from flat mode to 1x1 mode, transparent bridging is automatically disabled on all NNI ports.

## Examples

```
-> ethernet-service nni 2/10-15 tpid 88a8
-> ethernet-service nni 31 stp legacy-bpdu enable
-> ethernet-service nni 10 gvrp legacy-bpdu enable
-> ethernet-service nni 7/1 mvrp legacy-bpdu enable
-> ethernet-service nni 1/10 transparent bridging enable
```

## Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **transparent-bridging** parameter added.

Release 6.4.3; **mvrp** parameter added.

## Related Commands

**ethernet-service svlan nni** Configures the switch port as a VLAN Stacking NNI port and associates the port with a customer SVLAN, management SVLAN, or an IP Multicast VLAN (IPMV).

**show ethernet-service nni** Displays configuration information for NNI ports.

## MIB Objects

```
alaEServicePortTable
  alaEServicePortID
  alaEServicePortType
  alaEServicePortVendorTpid
  alaEServicePortLegacyStpBpdu
  alaEServicePortLegacyGvrpBpdu
  alaEServicePortLegacyMvrpBpdu
  alaEServicePortRowStatus
```

---



## ethernet-service sap

Creates a VLAN Stacking Service Access Point (SAP) and associates the SAP with a VLAN Stacking service.

**ethernet-service sap** *sapid* **service-name** *service-name*

**no ethernet-service sap** *sapid*

---

### Syntax Definitions

*sapid* The SAP ID number identifying the service instance (1-1024).

*service-name* The name of the service to associate with this SAP.

### Defaults

The “default-sap-profile” profile is automatically associated with the SAP ID when the SAP is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a VLAN Stacking SAP. When a SAP is deleted, all port and CVLAN associations with the SAP are also deleted.
- The service name specified with this command must already exist in the switch configuration. Use the **ethernet-service service-name** command to create a service to associate with the SAP.
- Each SAP ID is associated with only one service. However, it is possible to associate one service with multiple SAP IDs.

### Examples

```
-> ethernet-service sap 10 service-name CustomerA
```

```
-> no ethernet-service sap 11
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**ethernet-service service-name** Creates a VLAN Stacking service and associates the service with an SVLAN or an IP Multicast VLAN (IPMV).

**ethernet-service sap-profile** Creates a VLAN Stacking SAP profile.

**ethernet-service sap sap-profile** Associates a SAP profile with a SAP ID.

## MIB Objects

```
alaEServiceSapTable
  alaEServiceSapID
  alaEServiceSapService
  alaEServiceSapRowStatus
```

---

## ethernet-service sap uni

Configures the switch port as a VLAN Stacking User Network Interface (UNI) and associates the port with a VLAN Stacking Service Access Point (SAP). A UNI port is a customer facing port on which traffic enters the SAP.

```
ethernet-service sap sapid uni {slot/port1[-port2] / linkagg agg_num}
```

```
ethernet-service sap sapid no uni {slot/port1[-port2] / linkagg agg_num}
```

---

### Syntax Definitions

<i>sapid</i>	The SAP ID number identifying the service instance (1–1024).
<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g, 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>agg_num</i>	The link aggregate ID number (0–31).

### Defaults

A switch port or a link aggregate becomes a VLAN Stacking UNI port by default when the port or link aggregate is associated with a VLAN Stacking SAP.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an association between a UNI port and a SAP. Note that when the last SAP association is removed, the UNI port converts back to a conventional switch port.
- The SAP ID specified with this command must already exist. Use the **ethernet-service sap** command to create a SAP.
- Note that if the SAP ID specified with this command is associated with an IPMVLAN, the SAP profile must specify CVLAN translation. In addition, multicast traffic is not associated with the IPMVLAN until the UNI port is associated with the IPMVLAN as a receiver port. For more information, see the “IP Multicast VLAN Commands” chapter in this guide.
- When this command is used, the default VLAN for the UNI port is changed to a reserved VLAN and all customer traffic received is dropped until the type of traffic for the port is configured using the **ethernet-service sap cvlan** command.

### Examples

```
-> ethernet-service sap 10 uni 1/3
-> ethernet-service sap 10 uni 2/10-15
-> ethernet-service sap 10 uni linkagg 31
-> ethernet-service sap 10 no uni 1/3
-> ethernet-service sap 10 no uni linkagg 31
```

## Release History

Release 6.3.1; command was introduced.

## Related Commands

- ethernet-service sap** Creates a VLAN Stacking SAP and associates the SAP with a VLAN Stacking SAP profile and service.
- ethernet-service sap sap-profile** Creates a UNI profile that is used to specify how to process control packets ingressing on UNI ports.
- ethernet-service uni uni-profile** Associates a VLAN Stacking UNI profile with a UNI port.

## MIB Objects

```
alaEServiceSapUniTable  
  alaEServiceSapUniSap  
  alaEServiceSapUniUni  
  alaEServiceSapUniRowStatus
```

---

## ethernet-service sap cvlan

Associates customer VLAN (CVLAN) traffic with a VLAN Stacking Service Access Point (SAP). The parameter values configured with this command are applied to frames received on all SAP UNI ports and determines the type of customer traffic that is accepted on the UNI ports and processed by the service.

**ethernet-service sap *sapid* cvlan {all / *cvid* | *cvid1-cvid2* / **untagged**}**

**ethernet-service sap *sapid* no cvlan {all / *cvid* | *cvid1-cvid2* / **untagged**}**

---

### Syntax Definitions

<i>sapid</i>	The SAP ID number (1–1024).
<b>all</b>	Applies the SAP profile to tagged and untagged frames.
<i>cvid1</i>	Applies the SAP profile to frames tagged with this CVLAN ID.
<i>cvid1-cvid2</i>	Applies the SAP profile to frames tagged with a CVLAN ID that falls within this range of CVLAN IDs (for example, 10-12 specifies frames tagged with CVLAN 10, 11, or 12).
<b>untagged</b>	Applies the SAP profile only to untagged frames.

### Defaults

By default, no CVLAN traffic is associated with the SAP ID when the SAP is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove a CVLAN ID or the designation for **all** or **untagged** frames from the SAP. Note that when the last CVLAN parameter is deleted from an SAP configuration, the SAP itself is not automatically deleted.
- The **all** and **untagged** parameters are configurable in combination with a CVLAN ID. For example, if **untagged** and a CVLAN ID are associated with the same SAP ID, then the SAP profile is applied to only untagged traffic *and* traffic tagged with the specified CVLAN ID. All other traffic is dropped.
- The SAP ID specified with this command must already exist. Use the **ethernet-service sap** command to create a SAP.
- Note that this command is not supported with SAP IDs that are associated with an IPMVLAN.
- Configuring both the **all** and **untagged** parameter for the same SAP is not allowed. Specify only one of these two parameters per SAP.
- When either the **all** or **untagged** parameter is configured for the SAP, the default VLAN for the UNI ports associated with the SAP is changed to the VLAN assigned to the service that is associated with the SAP.

- Only one SAP with the **all** or **untagged** option per UNI is allowed. For example, if UNI port 1/17 is part of SAP 10 and SAP 20 and SAP 10 is configured for **all** traffic, then only **untagged** or a CVLAN ID is allowed for SAP 20.

### Examples

```
-> ethernet-service sap 10 cvlan 200
-> ethernet-service sap 10 cvlan all
-> ethernet-service sap 11 cvlan 100-150
-> ethernet-service sap 11 cvlan untagged
-> ethernet-service sap 10 no cvlan 200
-> ethernet-service sap 10 no cvlan 100-150
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

#### [ethernet-service sap](#)

Creates a VLAN Stacking Service Access Point (SAP) and associates the SAP with a VLAN Stacking service.

### MIB Objects

```
alaEServiceSapCvlanTable
  alaEServiceSapUniSap
  alaEServiceSapUniUni
  alaEServiceSapUniRowStatus
```

---

## ethernet-service sap-profile

Creates a profile for a VLAN Stacking Service Access Point (SAP). Profile attributes are used to define traffic engineering policies that are applied to traffic serviced by the SAP.

**ethernet-service sap-profile** *sap-profile-name*

**[bandwidth not-assigned]**

**[egress-bandwidth** *mbps*]

**[{shared | not-shared} ingress-bandwidth** *mbps*]

**[cvlan-tag {preserve | translate}]**

**[priority [not-assigned | map-inner-to-outer-p | map-dscp-to-outer-p | fixed** *value*]]

**no ethernet-service sap-profile** *sap-profile-name*

---

### Syntax Definitions

<i>sap-profile-name</i>	Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").
<b>bandwidth not-assigned</b>	Specifies that the profile will not allocate switch resources to enforce bandwidth requirements. Applies only when the profile specifies the default ingress bandwidth value (zero).
<b>egress-bandwidth</b> <i>mbps</i>	The maximum amount of egress bandwidth, in megabits per second, to be allowed for SAP ports (0-9999).
<b>shared</b>	Shares the ingress bandwidth limit across all SAP ports and CVLANs.
<b>not shared</b>	Applies the ingress bandwidth limit to individual SAP ports and CVLANs; bandwidth is not shared.
<b>ingress-bandwidth</b> <i>mbps</i>	The maximum amount of ingress bandwidth, in megabits per second, to be allowed for SAP ports.
<b>cvlan-tag preserve</b>	Retains the customer VLAN ID (inner tag) and double tags the frame with the SVLAN ID (outer tag).
<b>cvlan-tag translate</b>	Replaces the customer VLAN ID with the SVLAN ID.
<b>priority not-assigned</b>	Specifies that the SAP profile will not allocate switch resources to enforce the priority mapping. Applies only when the profile specifies the default priority value (fixed).
<b>priority map-inner-to-outer-p</b>	Maps the customer VLAN (inner tag) priority bit value to the SVLAN (outer tag) priority bit value.
<b>priority map-dscp-to-outer-p</b>	Maps the customer VLAN (inner tag) DSCP value to the SVLAN (outer tag) priority bit value.
<b>priority fixed</b> <i>value</i>	Sets the SVLAN (outer tag) priority bit to the specified value. Values range from 0 (lowest priority) to 7 (highest priority).

## Defaults

parameter	default
<b>shared   not shared</b>	<b>shared</b>
<i>mbps</i>	0
<b>preserve   translate</b>	preserve
<b>not-assigned   map-inner-to-outer-p   map-dscp-to-outer-p   fixed <i>value</i></b>	<b>fixed 0</b>

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

OmniSwitch 6400, 6855-U24X, 9000E; **egress-bandwidth** parameter supported.

## Usage Guidelines

- Use the **no** form of this command to delete a SAP profile.
- If a profile is not specified when a SAP is created, a default profile (default-sap-profile) is automatically associated with the SAP.
- Use the **ethernet-service sap sap-profile** command to associate a profile to a VLAN Stacking SAP.
- Only one SAP profile name is associated with each SAP ID; however, it is possible to associate the same SAP profile name to multiple SAP IDs.
- By default, the **bandwidth not-assigned** and **priority not-assigned** parameters are not specified when a profile is created. This means that even if no bandwidth value is specified or the priority is set to fixed (the default), QoS still allocates switch resources to enforce bandwidth and priority settings for the profile. In addition, QoS policy rules cannot override the profile bandwidth or priority settings.
- Use the **bandwidth not-assigned** and **priority not-assigned** parameters to prevent the profile from triggering QoS allocation of switch resources. When a profile is created using these parameters, QoS policy rules/ACLs are then available to define more custom bandwidth and priority settings for profile traffic. For example, mapping several inner DSCP/ToS values to the same outer 802.1p value.
- Egress bandwidth can be configured only for SVLANs and not for IPMVLANs.
- A CVLAN-UNI combination associated with a SAP having egress bandwidth configuration is unique and it cannot be configured on any other SAP with egress bandwidth configuration.

## Examples

```
-> ethernet-service sap-profile video1 egress-bandwidth 1000
-> ethernet-service sap-profile video1 ingress-bandwidth 10 cvlan translate
map-inner-to-outer-p
-> ethernet-service sap-profile voice1 not-shared ingress-bandwidth 10 cvlan
preserve fixed 1
-> ethernet-service sap-profile "QoS Mapping" bandwidth not-assigned priority
not-assigned
-> no ethernet-service sap-profile video1
```



## Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **bandwidth not-assigned** parameter added.

Release 6.4.2; **egress-bandwidth** parameter added.

Release 6.4.3; **priority not-assigned** parameter added.

## Related Commands

**ethernet-service sap** Creates a VLAN Stacking SAP and associates the SAP with a service.

**ethernet-service sap sap-profile** Associates a SAP profile with a SAP ID.

**show ethernet-service sap-profile** Displays the profile attribute configuration for a SAP profile.

## MIB Objects

```
alaEServiceSapProfileTable
  alaEServiceSapProfileID
  alaEServiceSapProfileCVLANTreatment
  alaEServiceSapProfilePriorityMapMode
  alaEServiceSapProfileFixedPriority
  alaEServiceSapProfileIngressBW
  alaEServiceSapProfileEgressBW
  alaEServiceSapProfileBandwidthShare
  alaEServiceSapRowStatus
```

---

## ethernet-service sap sap-profile

Associates a VLAN Stacking Service Access Point (SAP) with a SAP profile. This command is also used to change an existing SAP profile association.

**ethernet-service sap** *sapid* **sap-profile** *sap-profile-name*

---

### Syntax Definitions

<i>sapid</i>	The SAP ID number (1–1024).
<i>sap-profile-name</i>	The name of the SAP profile to associate with this SAP ID.

### Defaults

The “default-sap-profile” profile is automatically associated with the SAP ID when the SAP is created.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If a profile association already exists for the specified SAP ID, the current profile is replaced with the profile specified with this command.
- The SAP ID specified with this command must already exist. Use the **ethernet-service sap** command to create a SAP.
- The SAP profile specified with this command must already exist. Use the **ethernet-service sap-profile** command to create a SAP profile.
- To change the profile associated with the SAP back to the default profile, enter “default-sap-profile” with this command.
- Note that if the SAP ID specified with this command is associated with an IPMVLAN, the profile associated with the SAP ID must specify CVLAN tag translation. Double tagging is not supported with IPMVLAN SAPs that are also associated with a UNI port.
- Do not specify a service name; doing so will return an error message. This command is only for associating an existing profile to a VLAN Stacking SAP.

### Examples

```
-> ethernet-service sap 10 sap-profile CustomerC  
-> ethernet-service sap 11 sap-profile CustomerD
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

- ethernet-service sap** Creates a VLAN Stacking SAP and associates the SAP with a VLAN Stacking SAP profile and service.
- ethernet-service sap-profile** Creates a VLAN Stacking SAP profile.

## MIB Objects

alaEServiceSapTable  
  alaEServiceSapID  
  alaEServiceSapProfile  
  alaEServiceSapRowStatus

---

## ethernet-service uni-profile

Creates a User Network Interface (UNI) profile that is used to specify how to process control packets ingressing on UNI ports.

**ethernet-service uni-profile** *uni-profile-name* [**tunnel-mac** *mac-address*] [**I2-protocol** {**vtp** | **vlan** | **uplink** | **udld** | **stp** | **pvst** | **pagp** | **oam** | **mvrp** | **lacpmarker** | **gvrp** | **dtp** | **cdp** | **amap** | **802.3ad** | **802.1x** | **802.1ab** {**peer** | **discard** | **tunnel** | **mac-tunnel**}}

**no ethernet-service uni-profile** *uni-profile-name*

---

### Syntax Definitions

<i>uni-profile-name</i>	Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").
<i>mac-address</i>	The mac address to be used when configuring a protocol for tunnel-mac.
<b>vtp</b>	Cisco's VTP Protocol.
<b>vlan</b>	Cisco's VLAN Protocol.
<b>uplink</b>	Cisco's Uplink Fast Protocol
<b>udld</b>	Cisco's UDLD Protocol.
<b>stp</b>	Spanning Tree BPDU.
<b>pvst</b>	Cisco's PVST Protocol.
<b>pagp</b>	Cisco's PAGP Protocol.
<b>oam</b>	OAM Protocol.
<b>mvrp</b>	MVRP Protocol.
<b>lacpmarker</b>	LACP Marker Protocol.
<b>gvrp</b>	Specifies how GARP VLAN Registration Protocol packets will be processed on the UNI port.
<b>dtp</b>	Cisco's DTP Protocol.
<b>cdp</b>	Cisco's DTP Protocol.
<b>amap</b>	Specifies how Alcatel Management Adjacency Protocol packets will be processed on the UNI port.
<b>802.3ad</b>	Specifies how 802.3ad and 802.3ah control frames will be processed on the UNI port.
<b>802.1x</b>	Specifies how 802.1x control frames will be processed on the UNI port.
<b>802.1ab</b>	Specifies how 802.1ab control frames will be processed on the UNI port.
<b>peer</b>	Allows the UNI port to participate in the specified protocol.

<b>discard</b>	Discards the specified PDU.
<b>tunnel</b>	Tunnels the specified PDU across the provider network without modifying the MAC address.
<b>mac-tunnel</b>	Changes the destination MAC address to either the configured or default tunnel MAC address before forwarding.

## Defaults

parameter	default	Protocol DA MAC Address	Default Tunnel MAC	Other	Other
<b>stp</b>	<b>tunnel</b>	0180c2000000	0100ccdcdd0	-	
<b>gvrp</b>	<b>tunnel</b>	0180c2000021	0100ccdcdd0	-	
<b>802.3ad</b>	<b>peer</b>	0180c2000002	0100ccdcdd0	-	
<b>802.1x</b>	<b>discard</b>	-	-	-	
<b>802.1ab</b>	<b>discard</b>	0180c200000e	0100ccdcdd0	-	
<b>amap</b>	<b>discard</b>	0020da007004	0100ccdcdd0	-	
<b>vtp</b>	<b>discard</b>	01000cccccc	0100ccdcdd0	-	-
<b>vlan</b>	<b>discard</b>	0100ccdcdee	0100ccdcdd0	-	-
<b>uplink</b>	<b>discard</b>	0100ccdcddcd	0100ccdcdd0	-	-
<b>udld</b>	<b>discard</b>	01000cccccc	0100ccdcdd0	-	-
<b>pvst</b>	<b>discard</b>	01000cccccd	0100ccdcdd0	-	-
<b>pagp</b>	<b>discard</b>	01000cccccc	0100ccdcdd0	-	
<b>oam</b>	<b>peer</b>	0180c2000002	0100ccdcdd0	-	
<b>mvrp</b>	<b>tunnel</b>	-	0100ccdcdd0	-	
<b>lacpmarker</b>	<b>peer</b>	0180c2000002	0100ccdcdd0	-	
<b>dtp</b>	<b>discard</b>	01000cccccc	0100ccdcdd0	-	-
<b>cdp</b>	<b>discard</b>	01000cccccc	0100ccdcdd0	-	

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **no** form of this command to delete a UNI profile.
- Remove any UNI profile associations with UNI ports before attempting to modify or delete the profile.
- If a protocol is configured with the **mac-tunnel** parameter and no mac address has been configured, the default Tunnel MAC address from the table above is used.

- Not all of the protocol parameters are currently supported with the **peer**, **tunnel**, and **discard** parameters. Use the following table to determine the parameter combinations that are supported:

	<b>peer</b>	<b>discard</b>	<b>tunnel</b>
<b>stp</b>	no	yes	yes
<b>802.1x</b>	no	yes	yes
<b>802.1ab</b>	yes	yes	yes
<b>802.3ad</b>	yes	yes	yes
<b>gvrp</b>	no	yes	yes
<b>amap</b>	yes	yes	yes
<b>vtp</b>	no	yes	yes
<b>vlan</b>	no	yes	yes
<b>uplink</b>	no	yes	yes
<b>udld</b>	yes	yes	yes
<b>pvst</b>	no	yes	yes
<b>pagp</b>	no	yes	yes
<b>oam</b>	yes	yes	yes
<b>mvrp</b>	no	yes	yes
<b>lacpmarker</b>	yes	yes	yes
<b>dtp</b>	no	yes	yes
<b>cdp</b>	no	yes	yes

- Note that 802.3ad and 802.3ah control frames are processed the same. The **802.3ad** parameter specifies how both 802.3ad and 802.3ah control frames are to be processed on the UNI port.
- Note that the VLAN Stacking provider edge (PE) switch will not tunnel GVRP frames unless the GVRP feature and/or GVRP transparent switching functionality is enabled on the PE switch. This is true even if GVRP processing is enabled for the VLAN Stacking port.
- If a user-configured UNI profile is *not* associated with a UNI port, then the default profile (default-uni-profile) is used to process control packets ingressing on the port.

## Examples

```
-> ethernet-service uni-profile uni_1 l2-protocol stp gvrp discard
-> ethernet-service uni-profile uni_1 l2-protocol vrp mac-tunnel
-> ethernet-service uni-profile uni_config_tunnel_mac tunnel-mac 00:00:00:00:00:99
-> ethernet-service uni-profile uni_config_tunnel_mac l2-protocol gvrp mac-tunnel
-> no ethernet-service uni-profile uni_1
```

## Release History

Release 6.3.1; command was introduced.

Release 6.4.3; **tunnel-mac** and **mac-tunnel** parameters were added.

## Related Commands

- ethernet-service uni uni-profile** Associates a VLAN Stacking UNI profile with a UNI port.
- ethernet-service sap uni** Configures the switch port as a VLAN Stacking UNI and associates the port with a VLAN Stacking Service Access Point (SAP).
- show ethernet-service uni** Displays the profile associations for VLAN Stacking UNI ports.
- show ethernet-service uni-profile** Displays the profile attribute configuration for VLAN Stacking UNI profiles.

## MIB Objects

```
alaEServiceUNIProfileTable
  alaEServiceUNIProfileID
  alaEServiceUNIProfileStpBpduTreatment
  alaEServiceUNIProfile8021xTreatment
  alaEServiceUNIProfile8021ABTreatment
  alaEServiceUNIProfile8023adTreatment
  alaEServiceUNIProfileGvrpTreatment
  alaEServiceUNIProfileAmapTreatment
  alaEServiceUNIProfileLacpTreatment
  alaEServiceUNIProfileLacpMarkerTreatment
  alaEServiceUNIProfileOamTreatment
  alaEServiceUNIProfileCiscoPagpTreatment
  alaEServiceUNIProfileCiscoUldTreatment
  alaEServiceUNIProfileCiscoCdpTreatment
  alaEServiceUNIProfileCiscoVtpTreatment
  alaEServiceUNIProfileCiscoDtpTreatment
  alaEServiceUNIProfileCiscoPvstTreatment
  alaEServiceUNIProfileCiscoVlanTreatment
  alaEServiceUNIProfileCiscoUplinkTreatment
alaEServiceUNIProfileProtocolTreatment
  alaEServiceUNIProfileTunnelMac
  alaEServiceUNIProfileRowStatus
```

---

## ethernet-service uni uni-profile

Associates a VLAN Stacking User Network Interface (UNI) profile with a UNI port.

**ethernet-service uni** {*slot/port1*[-*port2*] | *agg\_num*} **uni-profile** *uni-profile-name*

---

### Syntax Definitions

<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g., 3/1-4 specifies ports 1, 2, 3, and 4 on slot 3).
<i>agg_num</i>	The link aggregate ID number (0–31).
<i>uni-profile-name</i>	Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., “Alcatel-Lucent Engineering”).

### Defaults

The default profile (default-uni-profile) is used to process control packets ingressing on a UNI port. This profile is assigned at the time a port is configured as a VLAN Stacking UNI.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This UNI specified with this command must already exist in the switch configuration.
- To change the profile associated with a UNI port, use this command and specify a different profile name than the one currently associated with the port. The last profile associated with the port, is the profile that is applied to UNI port traffic.
- To change the profile associated with a UNI port back to the default profile, enter “default-uni-profile” with this command.

### Examples

```
-> ethernet-service uni 1/3 uni-profile uni_1
-> ethernet-service uni 2/10-15 uni-profile default-uni-profile
-> no ethernet-service uni 1/3 uni-profile uni_1
```

### Release History

Release 6.3.1; command was introduced.



## Related Commands

**ethernet-service sap sap-profile** Creates a UNI profile that is used to specify how to process control packets ingressing on UNI ports.

**ethernet-service sap uni** Configures the switch port as a VLAN Stacking UNI and associates the port with a VLAN Stacking Service Access Point (SAP).

## MIB Objects

alaEServicePortTable  
  alaEServicePortID  
  alaEServicePortType  
  alaEServicePortUniProfile  
  alaEServiceSapUniRowStatus

---

---

## show ethernet-service mode

Displays the active VLAN Stacking mode for the switch.

**show ethernet-service mode**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command is available in both modes: Legacy or EServices.

### Examples

```
-> show ethernet-service mode
Vlan Stacking Mode: Legacy Mode
```

```
-> show ethernet-service mode
Vlan Stacking Mode: EServices Mode
```

### *output definitions*

---

<b>Vlan Stacking Mode</b>	Displays the current VLAN Stacking mode ( <b>Legacy Mode</b> or <b>EServices Mode</b> ).
---------------------------	------------------------------------------------------------------------------------------

---

### Release History

Release 6.3.1; command was introduced.

### Related Commands

[show ethernet-service](#) Displays configuration information for VLAN Stacking Ethernet services.

### MIB Objects

```
alaEServiceInfo
  alaEServiceMode
```

---

## show ethernet-service vlan

Displays a list of SVLANs configured from the switch.

**show ethernet-services vlan** [*svid1*-[*svid2*]]

---

### Syntax Definitions

<i>svid1</i>	The VLAN ID number identifying the SVLAN (2–4094).
- <i>svid2</i>	The last VLAN ID number in a range of SVLANs that you want to specify (e.g. 10-12 specifies VLANs 10, 11, and 12).

### Defaults

By default, all SVLANs are displayed if an SVLAN or range of SVLANs is not specified with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specify a single SVLAN ID or a range of SVLAN IDs to display configuration information for a specific SVLAN or range of SVLANs.

### Examples

```
-> show ethernet-services vlan
vlan          Type          name
+-----+-----+-----+
 4010         svlan          Customer ABC
 4011         ipmvlan       Video-Service
 4020         mgmt          Provider Management
 4021         svlan          Customer XYZ
 4030         ipmvlan       HBO
```

```
-> show ethernet-service vlan 4010
Name          : Customer ABC
Traffic Type  : svlan
```

#### output definitions

---

<b>vlan</b>	The SVLAN ID number identifying the instance.
<b>Traffic Type</b>	The type of SVLAN ( <b>svlan</b> = customer traffic, <b>mgmt</b> = management traffic, or <b>ipmvlan</b> = IP Multicast VLAN traffic).
<b>name</b>	The user-defined text description for the SVLAN. By default, the SVLAN ID is specified for the description.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### [ethernet-service](#)

Creates a VLAN Stacking VLAN (SVLAN) for tunneling customer traffic, a management SVLAN for provider traffic, or an SVLAN that the IP Multicast VLAN (IPMV) application will use to distribute multicast traffic.

### [show ethernet-service](#)

Displays configuration information for VLAN Stacking Ethernet services.

## MIB Objects

vlanTable

    vlanNumber

    vlanDescription

    vlanSvlanTrafficType

---

## show ethernet-service

Displays configuration information for VLAN Stacking Ethernet services.

**show ethernet-service** [**service-name** *service-name* / **svlan** *svlan*]

---

### Syntax Definitions

<i>service-name</i>	The name of an existing VLAN Stacking service; an alphanumeric string of up to 32 characters. Use quotes around string if the VLAN name contains multiple words with spaces between them (e.g., “Alcatel-Lucent Engineering”).
<i>svlan</i>	The VLAN ID number that identifies an existing SVLAN (2–4094).

### Defaults

By default, all services are displayed if a service name or SVLAN ID is not specified with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Enter the name of a service to display configuration information for a specific service.
- Enter an SVLAN ID to display configuration information for all services that are associated with a specific SVLAN.

### Examples

```
-> show ethernet-service
```

```
Service Name : VideoOne
  SVLAN      : 300
  NNI(s)    : 2/1, 3/2
  SAP Id    : 20
    UNIs     : 1/1, 1/2
    CVLAN(s) : 10, 20
    sap-profile : sap-video1
  SAP Id    : 30
    UNIs     : 1/3
    CVLAN(s) : untagged, 40
    sap-profile : sap-video2

Service Name : CustomerABC
  SVLAN      : 255
  NNI(s)    : 1/22
  SAP Id    : 10
    UNIs     : 2/10, 2/11
    CVLAN(s) : 500, 600
    sap-profile : default-sap-profile
```

```

Service Name : ipmv_service
  IPMVLAN : 40
  NNI(s)   : No NNIs configured
  SAP Id   : 2
    UNIs    : 1/22
    CVLAN(s) : 100
    sap-profile : translate_profile

-> show ethernet-service service-name CustomerABC

```

```

Service Name : CustomerABC
  SVLAN     : 255
  NNI(s)    : 1/22
  SAP Id    : 10
    UNIs    : 2/10, 2/11
    CVLAN(s) : 500, 600
    sap-profile : default-sap-profile

```

```

-> show ethernet-service svlan 300

```

```

Service Name : VideoOne
  SVLAN     : 300
  NNI(s)    : 2/1, 3/2
  SAP Id    : 20
    UNIs    : 1/1, 1/2
    CVLAN(s) : 10, 20
    sap-profile : sap-video1
  SAP Id    : 30
    UNIs    : 1/3
    CVLAN(s) : 30, 40
    sap-profile : sap-video2

```

### *output definitions*

---

<b>Service Name</b>	The name of the VLAN Stacking service.
<b>SVLAN or IPMVLAN</b>	Displays the SVLAN ID associated with the service. Note that SVLAN appears as the field name if the VLAN ID is an SVLAN; IPMVLAN appears as the field name if the VLAN ID is an IP Multicast SVLAN.
<b>NNI(s)</b>	VLAN Stacking Network Network Interface ports associated with the service to tunnel SVLAN customer traffic.
<b>SAP Id</b>	The ID number for the VLAN Stacking Service Access Point that is applied to the service (1-1024).
<b>UNIs</b>	VLAN Stacking User Network Interface ports that receive customer traffic.
<b>CVLAN(s)</b>	Customer VLAN IDs ingressing on UNI ports.
<b>sap-profile</b>	The name of the SAP profile associated with the SAP.

---

### **Release History**

Release 6.3.1; command was introduced.

## Related Commands

- ethernet-service service-name** Creates a VLAN Stacking service and associates the service with an SVLAN or an IPMVLAN.
- show ethernet-service vlan** Displays a list of all or a range of configured SVLANs or the parameters of a specified SVLAN.

## MIB Objects

```
alaEServiceTable
  alaEServiceID
  alaEServiceSVLAN
alaEServiceNniSvlanTable
  alaEServiceNniSvlanNni
alaEServiceSapTable
  alaEServiceSapID
alaEServiceSapUniTable
  alaEServiceSapUniUni
alaEServiceSapCvlanTable
  alaEServiceSapCvlanCvlan
  alaEServiceSapCvlanMapType
alaEServiceSapProfileTable
  alaEServiceProfileID
```

---





*output definitions*

---

<b>SAP Id</b>	The ID number for the VLAN Stacking Service Access Point that is applied to the service.
<b>UNIs</b>	VLAN Stacking User Network Interface ports that receive customer traffic.
<b>CVLAN(s)</b>	Customer VLAN IDs ingressing on UNI ports.
<b>sap-profile</b>	The name of the SAP profile associated with the SAP.

---

**Release History**

Release 6.3.1; command was introduced.

**Related Commands**

- [ethernet-service sap](#) Creates a VLAN Stacking Service Access Point (SAP) and associates the SAP with a VLAN Stacking SAP profile and service.
- [show ethernet-service](#) Displays configuration information for VLAN Stacking Ethernet services.
- [show ethernet-service sap-profile](#) Displays the profile attribute configuration for SAP profiles.

**MIB Objects**

```
alaEServiceSapTable
  alaEServiceSapID
alaEServiceSapUniTable
  alaEServiceSapUniUni
alaEServiceSapCvlanTable
  alaEServiceSapCvlanCvlan
  alaEServiceSapCvlanMapType
alaEServiceSapProfileTable
  alaEServiceProfileID
```

---

## show ethernet-service port

Displays configuration information for a VLAN Stacking service port.

**show ethernet-services port** {*slot/port* / **linkagg** *agg\_num*}

---

### Syntax Definitions

*slot/port*                      The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num*                        The link aggregate ID number (0–31).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specifying a slot/port or link aggregate ID number is required with this command.

### Examples

```
-> show ethernet-service port 1/10
```

```
Interface : 1/10
Port Type  : UNI
  UNI Profile : default-uni-profile
  Default SVLAN : 4095
```

```
Service Name : ipmv_service
  IPMVLAN : 40
  NNI(s) : No NNIs configured
  SAP Id : 2
    UNIs : 1/10
    CVLAN(s) : 100
  sap-profile : translate_profile
```

```
Service Name : svlan_service
  SVLAN : 20
  NNI(s) : No NNIs configured
  SAP Id : 1
    UNIs : 1/10
    CVLAN(s) : 200
  sap-profile : translate_profile
```

```

-> show ethernet-service port 1/22

Interface : 1/22
Port Type : NNI

Service Name : CustomerABC
  SVLAN      : 255
  NNI(s)     : 1/22
  SAP Id     : 10
  UNIs       : 2/10, 2/11
  CVLAN(s)   : 500, 600
  sap-profile : default-sap-profile

Service Name : Video-Service
  SVLAN      : 300
  NNI(s)     : 1/22, 3/2
  SAP Id     : 20
  UNIs       : 1/1, 1/2
  CVLAN(s)   : 10, 20
  sap-profile : sap-video1
  SAP Id     : 30
  UNIs       : 1/3
  CVLAN(s)   : 30, 40
  sap-profile : sap-video2
  
```

***output definitions***

---

<b>Interface</b>	The slot and port number or link aggregate ID for the specified interface.
<b>Port Type</b>	The type of VLAN Stacking port ( <b>UNI</b> or <b>NNI</b> ).
<b>Service Name</b>	The name of the VLAN Stacking service.
<b>SVLAN or IPMVLAN</b>	Displays the SVLAN ID associated with the service. Note that SVLAN appears as the field name if the VLAN ID is an SVLAN; IPMVLAN appears as the field name if the VLAN ID is an IP Multicast SVLAN.
<b>NNI(s)</b>	VLAN Stacking Network Network Interface ports associated with the service to tunnel SVLAN customer traffic.
<b>SAP Id</b>	The ID number for the VLAN Stacking Service Access Point that is applied to the service (1-1024).
<b>UNIs</b>	VLAN Stacking User Network Interface ports that receive customer traffic.
<b>CVLAN(s)</b>	Customer VLAN IDs ingressing on UNI ports.
<b>sap-profile</b>	The name of the SAP profile associated with the SAP.

---

**Release History**

Release 6.3.1; command was introduced.

## Related Commands

<b>ethernet-service svlan nni</b>	Configures the switch port as a VLAN Stacking NNI port and associates the port with a customer SVLAN, management SVLAN, or an IP Multicast VLAN (IPMV).
<b>ethernet-service sap uni</b>	Configures the switch port as a VLAN Stacking UNI and associates the port with a VLAN Stacking SAP.
<b>show ethernet-service</b>	Displays configuration information for VLAN Stacking Ethernet services.

## MIB Objects

```
alaEServiceTable
  alaEServiceID
  alaEServiceSVLAN
alaEServiceNniSvlanTable
  alaEServiceNniSvlanNni
alaEServiceSapTable
  alaEServiceSapID
alaEServiceSapUniTable
  alaEServiceSapUniUni
alaEServiceSapCvlanTable
  alaEServiceSapCvlanCvlan
  alaEServiceSapCvlanMapType
alaEServiceSapProfileTable
  alaEServiceProfileID
```

---

## show ethernet-service nni

Displays configuration information for VLAN Stacking Network Network Interface (NNI) ports.

**show ethernet-services nni** [*slot/port* / **linkagg** *agg\_num*]

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num* The link aggregate ID number (0–31).

### Defaults

By default, all NNI ports are displayed if a slot/port or link aggregate ID number is not specified.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *slot/port* or **linkagg** *agg\_num* parameter to display information for a specific switch port or link aggregate ID.

### Examples

```
-> show ethernet-service nni
```

```
Port  TPID  Legacy STP BPDU Legacy GVRP BPDU Legacy MVRP BPDU Transparent Bridging
-----+-----+-----+-----+-----+-----+-----+-----
1/22  0x8100  Disable          Disable          Disable          Disable
1/23  0x8100  Disable          Disable          Disable          Disable
```

```
- show ethernet-service nni 1/23
```

```
Port  TPID  Legacy STP BPDU Legacy GVRP BPDU Legacy MVRP BPDU Transparent Bridging
-----+-----+-----+-----+-----+-----+-----+-----
1/23  0x8100  Disable          Disable          Disable          Disable
```

### output definitions

---

<b>Port</b>	The slot/port number or link aggregate ID for the NNI port.
<b>TPID</b>	The vendor TPID value configured for the NNI port.
<b>Legacy STP BPDU</b>	Whether or not the NNI port will process STP legacy BPDU.
<b>Legacy GVRP BPDU</b>	Whether or not the NNI port will process GVRP legacy BPDU.
<b>Legacy MVRP BPDU</b>	Whether or not the NNI port will process MVRP legacy BPDU.
<b>Transparent Bridging</b>	Whether or not transparent bridging is enabled for the NNI port.

---

## Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **Transparent Bridging** field added.

Release 6.4.3: **Legacy MVRP BPDU** field added.

## Related Commands

<a href="#">ethernet-service svlan nni</a>	Configures the switch port as a VLAN Stacking NNI port and associates the port with a customer SVLAN, management SVLAN, or an IP Multicast VLAN (IPMV).
<a href="#">ethernet-service nni</a>	Configures the vendor TPID value, the legacy BPDU processing status, and the transparent bridging status for a VLAN Stacking NNI port.
<a href="#">show ethernet-service</a>	Displays configuration information for VLAN Stacking Ethernet services.

## MIB Objects

```
alaEServicePortTable
  alaEServicePortID
  alaEServicePortVendorTpid
  alaEServicePortLegacyStpBpdu
  alaEServicePortLegacyGvrpBpdu
  alaEServicePortLegacyMvrpBpdu
```

---

## show ethernet-service uni

Displays a list of UNI ports configured for the switch and the profile association for each port.

**show ethernet-services uni** [*slot/port* / **linkagg** *agg\_num*]

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num* The link aggregate ID number (0–31).

### Defaults

By default, profile information for all UNI ports is displayed if a slot/port or link aggregate ID number is not specified.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specify a slot/port or link aggregate ID number to display information for a single slot/port or link aggregate ID.

### Examples

```
-> show ethernet-service uni
```

```

  Port      UNI Profile
+-----+-----+
  1/1      uni-profile-default
  1/2      multi-site
  1/3      multi-site

```

```
- show ethernet-service uni 1/3
```

```

  Port      UNI Profile
+-----+-----+
  1/3      multi-site

```

#### *output definitions*

---

<b>Port</b>	The slot/port number or link aggregate ID for the UNI port.
<b>UNI Profile</b>	The UNI profile associated with the port.

---

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**ethernet-service sap sap-profile** Creates a UNI profile that is used to specify how to process control packets ingressing on UNI ports.

**ethernet-service uni uni-profile** Associates a VLAN Stacking UNI profile with a UNI port.

**show ethernet-service uni-profile** Displays the profile attribute configuration for VLAN Stacking User Network Interface (UNI) profiles.

## MIB Objects

```
alaEServiceUniProfileTable  
  alaEServicePortID  
  alaEServicePortProfileID
```

---



## show ethernet-service uni-profile

Displays the profile attribute configuration for VLAN Stacking User Network Interface (UNI) profiles.

**show ethernet-service uni-profile** [*uni-profile-name*]

---

### Syntax Definitions

*uni-profile-name*

Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").

### Defaults

By default, all UNI profiles are displayed if a UNI profile name is not specified with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Specify a UNI profile name to display attributes for a single UNI profile.

### Examples

```
-> show ethernet-service uni-profile
Profile Name: default-uni-profile
  Tunnel MAC : 01:00:0c:cd:cd:d0,
  STP : tunnel,      802.1x : drop,      802.3ad : peer,      802.1ab : drop,
  GVRP: tunnel,     AMAP : drop,      OAM : peer,         LACPMARKER : peer,
  UDLD: drop,       PAGP : drop,      CDP : drop,         VTP : drop,
  DTP : drop,       PVST : drop,      VLAN : drop,        UPLINK : drop,
  MVRP: tunnel
```

### output definitions

---

<b>Profile Name</b>	The name of the UNI profile.
<b>Tunnel MAC</b>	The MAC address to be used for mac tunneling.
<b>PROTOCOL: mode</b>	The protocol and configured mode: <b>peer</b> - The UNI port is participating in the specified protocol. <b>drop</b> - Discards the specified PDU <b>tunnel</b> - The PDU is being tunneled across the provider network without modifying the MAC address. <b>mac-tunnel</b> - The PDU is being tunneled across the provider network after changing the destination MAC address.

---

### Release History

Release 6.3.1; command was introduced.

Release 6.4.3; **Tunnel MAC** field and **mac-tunnel** mode were added.

## Related Commands

- ethernet-service uni-profile** Creates a UNI profile that is used to specify how to process control packets ingressing on UNI ports.
- ethernet-service uni uni-profile** Associates a VLAN Stacking UNI profile with a UNI port.
- show ethernet-service uni** Displays the profile associations for VLAN Stacking User Network Interface (UNI) ports.

## MIB Objects

```

alaEServiceUNIProfileTable
  alaEServiceUNIProfileID
  alaEServiceUNIProfileStpBpduTreatment
  alaEServiceUNIProfile8021xTreatment
  alaEServiceUNIProfile8021ABTreatment
  alaEServiceUNIProfile8023adTreatment
  alaEServiceUNIProfileGvrpTreatment
  alaEServiceUNIProfileAmapTreatment
  alaEServiceUNIProfileLacpTreatment
  alaEServiceUNIProfileLacpMarkerTreatment
  alaEServiceUNIProfileOamTreatment
  alaEServiceUNIProfileCiscoPagpTreatment
  alaEServiceUNIProfileCiscoUlldTreatment
  alaEServiceUNIProfileCiscoCdpTreatment
  alaEServiceUNIProfileCiscoVtpTreatment
  alaEServiceUNIProfileCiscoDtpTreatment
  alaEServiceUNIProfileCiscoPvstTreatment
  alaEServiceUNIProfileCiscoVlanTreatment
  alaEServiceUNIProfileCiscoUplinkTreatment
alaEServiceUNIProfileProtocolTreatment
  alaEServiceUNIProfileTunnelMac
  alaEServiceUNIProfileRowStatus

```

## show ethernet-service sap-profile

Displays the profile attribute configuration for VLAN Stacking Service Access Point (SAP) profiles.

**show ethernet-service sap-profile** *sap-profile-name*

---

### Syntax Definitions

*sap-profile-name*                      Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").

### Defaults

By default, all SAP profiles are displayed if a SAP profile name is not specified with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Specify a SAP profile name to display attributes for a single SAP profile.
- Egress bandwidth can be configured only for SVLANs and not for IPMVLANs.

### Examples

-> show ethernet-service sap-profile

Profile Name	Ingr/Egr Bw	Ingr Bw Sharing	Inner Tag Option	Priority Mapping	Priority Value
audiosap	0/10	Disable	Preserve	fixed	0
default-sap-profile	0/0	Enable	Preserve	fixed	0
sap-video1	0/0	NA	Preserve	in-out	P
sap-conf-video2	10/20	Enable	Preserve	NA	NA

-> show ethernet-service sap-profile sap-video1

Profile Name	Ingr/Egr Bw	Ingr Bw Sharing	Inner Tag Option	Priority Mapping	Priority Value
sap-video1	0/0	NA	Preserve	in-out	P

### output definitions

---

<b>Profile Name</b>	The name of the SAP profile.
<b>Ingr/Egr Bw</b>	The maximum amount of ingress-bandwidth (1=1,000,000 mbps) and egress-bandwidth (0-9999) allowed for SAP ports.

*output definitions*


---

<b>Ingr Bw Sharing</b>	The status of bandwidth sharing ( <b>enable</b> , <b>disable</b> , or <b>NA</b> ). If enabled, the ingress bandwidth value is shared across all SAP ports and CVLANs. If disabled, the bandwidth value is not shared and applied to individual SAP ports and CVLANs. If <b>NA</b> displays in this field, the bandwidth value for the profile is not assigned.
<b>Inner Tag Option</b>	Indicates how the CVLAN tag is processed ( <b>translate</b> or <b>preserve</b> ). If set to <b>preserve</b> , the CVLAN tag is retained and the SVLAN is added to the frame. If set to <b>translate</b> , the CVLAN tag is changed to the SVLAN tag.
<b>Priority Mapping</b>	Indicates how the priority value is configured for the SVLAN ( <b>in-ou</b> , <b>fixed</b> , or <b>NA</b> ). If set to <b>in-out</b> , the CVLAN priority value is mapped to the SVLAN. If set to <b>fixed</b> , a user-specified priority value is used for the SVLAN priority. If set to <b>NA</b> , the priority for the profile is not assigned.
<b>Priority Value</b>	Indicates the priority value mapped to the SVLAN (a number, <b>P</b> , <b>DSCP</b> , or <b>NA</b> ). A number indicates a fixed, user-specified value is used; <b>P</b> indicates the CVLAN 802.1p bit value is used; <b>DSCP</b> indicates the CVLAN DSCP value is used; <b>NA</b> indicates the priority value for the profile is not assigned.

---

**Release History**

Release 6.3.1; command was introduced.

Release 6.4.2; **Egr** (egress bandwidth) field added along with **Ingr** (ingress bandwidth) field.

Release 6.4.3; **NA** used to indicate bandwidth/priority values for the profile are not assigned.

**Related Commands**

<b>ethernet-service sap-profile</b>	Creates a profile for a VLAN Stacking Service Access Point (SAP).
<b>ethernet-service sap</b>	Creates a VLAN Stacking SAP and associates the SAP with a service and SAP profile.
<b>ethernet-service sap sap-profile</b>	Specifies a different SAP profile for the SAP.
<b>show ethernet-service sap</b>	Displays configuration information for VLAN Stacking SAPs.

**MIB Objects**

```

alaEServiceSapProfileTable
  alaEServiceSapProfileID
  alaEServiceSapProfileCVLANTreatment
  alaEServiceSapProfilePriorityMapMode
  alaEServiceSapProfileFixedPriority
  alaEServiceSapProfileIngressBW
  alaEServiceSapProfileEgressBW
  alaEServiceSapProfileBandwidthShare

```

---

## loopback-test

Configures a wire-speed Ethernet loopback test profile and enables or disables the activation of the profile. The loopback test profile specifies the switch attributes that are required to conduct an ingress or egress loopback operation on a switch port.

```
loopback-test profile_name source-mac src_address destination-mac dest_address vlan vlan_id  
loopback-port slot/port type {inward | outward}
```

```
loopback-test profile_name {enable | disable}
```

```
no loopback-test profile_name
```

---

### Syntax Definitions

<i>profile_name</i>	Alphanumeric string of up to 31 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., “Alcatel-Lucent Engineering”).
<i>src_address</i>	A unique source MAC address for the test frame.
<i>dest_address</i>	A unique destination MAC address for the test frame.
<i>vlan_id</i>	The VLAN ID of the test frame. Always use the outer VLAN ID.
<i>slot/port</i>	The switch port number to use for the loopback test.
<b>inward</b>	Sets the type of loopback test to ingress.
<b>outward</b>	Sets the type of loopback test to egress.
<b>enable</b>	Enables the loopback test profile.
<b>disable</b>	Disables the loopback test profile.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Use the **no** form of this command to delete a loopback profile.
- Use the **loopback-test enable** command to enable the loopback test profile on the specified port. When the profile is enabled, the loopback operation is enabled for the port.
- Use the **loopback-test disable** command to disable the loopback operation for the specified port.
- Once a UNI or NNI port is designated as a loopback port, the port is no longer eligible to participate in other switch functions. In addition, an outward loopback port goes “out-of-service” and will no longer carry customer traffic but remains active for test frame traffic. However, an inward loopback port remains “in-service” and will continue to carry customer traffic as well as test frame traffic.

- Only Layer 2 loopback tests are supported, so test frames are not routed. As a result, the loopback test operation will only swap the source and destination MAC address of bridged test frames.
- In a typical ingress loopback scenario, specifying the switch base MAC address as the destination address is recommended. In a typical egress loopback scenario, a customer premises equipment (CPE) MAC address can be used, but configuring and using a static MAC address on the egress loopback port is recommended.
- The port specified for an inward loopback test is the port on which test frames are received and looped back. The port specified for an outward test is the egress destination port on which test frames are looped back. The loopback operation performed on the specified port swaps the source and destination MAC address of the test frame and then forwards the frame back to the test head.
- The switch creates a static MAC address entry for the egress port when the outward loopback profile is applied on that port. The static address created is the destination MAC address specified in the profile. If the switch receives a non-test frame that contains the same MAC address, both the test and non-test frames are filtered even if they were received on different ports.
- If the MAC addresses specified in the loopback test profile are actual network address (for example, 02:da:95:e1:22:10, not aa:aa:aa:aa:aa:aa), flush the MAC address table for the switch when the loopback test is finished.

## Examples

The following command examples create an ingress UNI and NNI test profile:

```
-> loopback-test PE1-inward-UNI source-mac 00:00:00:dd:aa:01 destination-mac
00:00:00:cc:aa:bb vlan 1001 loopback-port 1/1 type inward

-> loopback-test PE2-inward-NNI source-mac 00:00:00:dd:aa:02 destination-mac
00:00:00:cc:aa:bc vlan 1001 loopback-port 2/1 type inward
```

The following command examples create an egress UNI and NNI test profile:

```
-> loopback-test PE2-outward-UNI source-mac 00:00:00:dd:ab:01 destination-mac
00:00:00:cc:ab:bb vlan 1001 loopback-port 1/1 type outward

-> loopback-test PE1-outward-NNI source-mac 00:00:00:cc:ab:bb destination-mac
00:00:00:dd:ab:01b vlan 1001 loopback-port 2/1 type outward
```

The following command examples enable and disable a loopback test profile:

```
-> loopback-test PE1-outward-UNI enable
-> loopback-test PE1-outward-UNI disable
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

- |                                           |                                                                   |
|-------------------------------------------|-------------------------------------------------------------------|
| <code>ethernet-service sap-profile</code> | Creates a profile for a VLAN Stacking Service Access Point (SAP). |
| <code>show loopback-test</code>           | Displays the profile configuration for a loopback test profile.   |

## MIB Objects

```
alaQoSHwLoopbackProfileTable  
  alaQoSHwLoopbackProfileName  
  alaQoSHwLoopbackSourceMac  
  alaQoSHwLoopbackDestinationMac  
  alaQoSHwLoopbackVlan  
  alaQoSHwLoopbackPort  
  alaQoSHwLoopbackType  
  alaQoSHwLoopbackProfileStatus  
  alaQoSHwLoopbackProfileRowStatus
```

---

## show loopback-test

Displays the profile configuration for a hardware loopback test profile.

```
show loopback-test [profile_name]
```

---

### Syntax Definitions

*profile\_name*                      The name of an existing hardware loopback test profile.

### Defaults

By default, all profiles are displayed if a profile name is not specified with this command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *profile\_name* parameter to display the loopback test configuration for a specific profile.

### Examples

```
-> show loopback-test
Profile-Name      Src-Mac                Dest-Mac                Vlan   Port   Type   Status
-----|-----|-----|-----|-----|-----+-----
pro1             00:d0:95:f3:63:58     00:00:00:00:00:0a     100    6/1   Inward Start
Total Entries = 1
```

#### output definitions

---

<b>Profile Name</b>	The name of the loopback test profile.
<b>Src-Mac</b>	The source MAC address of the test packet.
<b>Dest-Mac</b>	The destination MAC address of the test packet.
<b>Vlan</b>	The VLAN ID of the loopback port.
<b>Port</b>	The UNI or NNI loopback port.
<b>Type</b>	The type of loopback test; <b>Inward</b> (ingress) or <b>Outward</b> (egress).
<b>Status</b>	The status of the loopback test ( <b>Enable</b> , <b>Disable</b> , or <b>Config</b> ).

---

### Release History

Release 6.4.3; command was introduced.



## Related Commands

- loopback-test** Configures a loopback test profile.
- ethernet-service sap-profile** Creates a profile for a VLAN Stacking Service Access Point (SAP).

## MIB Objects

```
alaQoSHwLoopbackProfileTable  
  alaQoSHwLoopbackProfileName  
  alaQoSHwLoopbackSourceMac  
  alaQoSHwLoopbackDestinationMac  
  alaQoSHwLoopbackVlan  
  alaQoSHwLoopbackPort  
  alaQoSHwLoopbackType  
  alaQoSHwLoopbackProfileStatus  
  alaQoSHwLoopbackProfileRowStatus
```

---



# 45 Ethernet OAM Commands

Service provider networks are large and complex with a wide user base, and they often involve different operators that must work together in order to provide end-to-end services to enterprise customers. Operations, Administration, and Maintenance (OAM) provides service assurance over a converged network that service providers are looking for in an Ethernet network. Ethernet OAM addresses areas such as availability, mean time to repair and more. Ethernet OAM focuses on two main areas that are most in need by service providers and are rapidly evolving in the standards bodies, Service OAM and Link OAM. These two OAM protocols have unique objectives but are complementary to each other. Service OAM provides monitoring and troubleshooting of end-to-end Ethernet service instances, while Link OAM allows a provider to monitor and troubleshoot an individual Ethernet link.

MIB information for the Ethernet OAM commands is as follows:

*Filename:* AlcatelIND1Eoam.MIB  
*Module:* Alcatel-IND1-ETHERNET-OAM-MIB

*Filename:* IETF\_802\_1ag.MI  
*Module:* IEEE8021-CFM-MIB

A summary of the available commands is listed here:

<b>EthOAM vlan Configuration Commands</b>	<a href="#">ethoam vlan</a>
<b>EthOAM Domain Configuration Commands</b>	<a href="#">ethoam domain</a> <a href="#">ethoam domain mhf</a> <a href="#">ethoam domain id-permission</a>
<b>EthOAM Management Association Configuration Commands</b>	<a href="#">ethoam association</a> <a href="#">ethoam association mhf</a> <a href="#">ethoam association id-permission</a> <a href="#">ethoam association ccm-interval</a> <a href="#">ethoam association endpoint-list</a> <a href="#">clear ethoam statistics</a>
<b>EthOAM Default-Domain Configuration Commands</b>	<a href="#">ethoam default-domain level</a> <a href="#">ethoam default-domain mhf</a> <a href="#">ethoam default-domain id-permission</a> <a href="#">ethoam default-domain primary-vlan</a>
<b>EthOAM Management Point Configuration Commands</b>	<a href="#">ethoam endpoint</a> <a href="#">ethoam endpoint admin-state</a> <a href="#">ethoam endpoint rfp</a> <a href="#">ethoam endpoint ccm</a> <a href="#">ethoam endpoint priority</a> <a href="#">ethoam endpoint lowest-priority-defect</a>

---

<b>EthOAM Loopback and Linktrace Commands</b>	<b>ethoam linktrace</b> <b>ethoam loopback</b>
<b>EthOAM Timer Configuration Commands</b>	<b>ethoam fault-alarm-time</b> <b>ethoam fault-reset-time</b>
<b>EthOAM Performance Monitoring Configuration Commands</b>	<b>ethoam one-way-delay</b> <b>ethoam two-way-delay</b> <b>clear ethoam</b>
<b>EthOAM Show Commands</b>	<b>show ethoam</b> <b>show ethoam domain</b> <b>show ethoam domain association</b> <b>show ethoam domain association end-point</b> <b>show ethoam default-domain configuration</b> <b>show ethoam default-domain</b> <b>show ethoam remote-endpoint domain</b> <b>show ethoam cfmstack</b> <b>show ethoam linktrace-reply</b> <b>show ethoam linktrace-tran-id</b> <b>show ethoam vlan</b> <b>show ethoam statistics</b> <b>show ethoam config-error</b> <b>show ethoam one-way-delay</b> <b>show ethoam two-way-delay</b>

---

## ethoam vlan

Creates an association between Primary VID and Non-Primary VID(s).

**ethoam vlan** {*vlanid-list*} **primary-vlan** {*vlan-id*}

**no ethoam vlan** {*vlanid-list*}

---

### Syntax Definitions

*vlanid-list* VLAN Identifier List e.g. '10 30-40' or '10'

*vlan-id* VLAN Identifier e.g. '20'

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Each VLAN ID specified must be created before creating any association.
- Each VLAN ID specified must be between 1 and 4094.
- Each VLAN ID specified must be static.
- A Non-Primary VID can only be associated with single Primary VID only.
- Once Primary VID is associated with Non-Primary VID, then it can not be configured as Non-Primary VID. Its association must be removed before it is configured as Non-Primary VID.
- This CLI shall trigger Automip for this VLAN, if either 'mhf' is enabled for MA or default-MD with primary VLAN same as the primary VLAN of this VLAN.
- If the VLAN is deleted using VLAN CLI (no vlan <vid>) and VLAN is non-primary, then the entry for this VLAN in the VLAN table will be deleted. This shall in turn delete all MEPs and MIPs associated with it. If the deleted VLAN is primary VLAN, then all its associated VLAN entries in the VLAN table shall be deleted. This shall in turn delete all MAs on this deleted VLAN.
- Use the **no** form of this command to dissociate Primary VID from the Non-Primary VID(s).

### Examples

```
-> ethoam vlan 10 primary-vlan 20
-> ethoam vlan 11-15 primary-vlan 20
-> ethoam vlan 30 40-50 primary-vlan 20
-> no ethoam vlan 10
```

### Release History

Release 6.4.3; command was introduced

## Related Commands

### `show ethoam vlan`

Displays the Ethernet OAM statistics of all the Management Domains configured on the bridge.

## MIB Objects

```
dot1agCfmVlanTable  
  dot1agCfmVlanComponentId  
  dot1agCfmVlanVid  
  dot1agCfmVlanPrimaryVid  
  dot1agCfmVlanRowStatus
```

---

## ethoam domain

Creates an Ethernet domain with a specific name.

**ethoam domain** *name* **format** {**none** | **dnsname** | **mac-address-uint** | **string**}  
**level** *num*

**no ethoam domain** *name*

---

### Syntax Definitions

<i>name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<b>none</b>	This format is supported for the inter-op with ITU-T Y.1731.
<b>string</b>	Character String.
<b>mac-address-uint</b>	MAC address + 2-octet (unsigned) integer.
<b>dnsname</b>	Domain Name like string, globally unique text string derived from a DNS name.
<i>num</i>	MD Level and it ranges from 0 to 7

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Maximum domain length is 43.
- Use format as 'none' for inter-op with ITU-T Y.1731.
- Domain name is unique in a system.
- Deletion of MD shall result in the deletion of all MAs, MEPs and MIPs configured in it.

### Examples

```
-> ethoam domain MD format none level 3  
-> ethoam domain MD1 format string level 4
```

### Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **carriercode**, **countrycode**, **vpnId** parameters deleted; **mac-address** parameter replaced with **mac-address-uint** parameter; **level** and *mac\_address* parameters added.

Release 6.4.3 *domain\_name / mac\_address, level\_num* parameters replaced with *name,num* parameters; **none** parameter added.

## Related Commands

### **show ethoam**

Displays the information of all the Management Domains (MD) configured on the bridge.

### **show ethoam domain**

Displays the information of a specific Management Domain configured on the bridge.

## MIB Objects

```
dotlagCfmMdTable  
  dotlagCfmMdName  
  dotlagCfmMdFormat  
  dotlagCfmMdLevel
```

---



## ethoam domain mhf

Configure the Message Handling Function (MHF) value for MD entry.

**ethoam domain** *name* **mhf** {**none** | **explicit** | **default**}

---

### Syntax Definitions

<i>name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<b>none</b>	No MHFs can be created.
<b>default</b>	MHFs can be created.
<b>explicit</b>	MHFs can be created only if a MEP is created at some lower MD Level.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>none</b>   <b>explicit</b>   <b>default</b>	<b>none</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Domain must be created before it is modified.

### Examples

```
-> ethoam domain MD mhf default
```

### Release History

Release 6.3.1; command was introduced.

Release 6.4.3 *domain\_name* / *mac\_address* parameters replaced with *name* parameters; **none** parameter added.

### Related Commands

[show ethoam](#) Displays the information of all the Management Domains (MD) configured on the bridge.

### MIB Objects

```
dot1agCfmMdTable  
dot1agCfmMdName  
dot1agCfmMdMhfCreation
```

---

## ethoam domain id-permission

Configures the ID-permission value for MD entry.

**ethoam domain** *name* **id-permission** {**none** | **chassisid**}

---

### Syntax Definitions

<i>name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<b>none</b>	Sender ID TLV is not to be sent.
<b>chassisid</b>	Chassis ID Length, Chassis ID Subtype and Chassis ID TLV are to be present. System name shall be filled as Chassis ID.

### Defaults

parameter	default
<b>none</b>   <b>chassisid</b>	<b>none</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Domain must be created before it is modified.

### Examples

```
-> ethoam domain MD id-permission chassisid
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

<a href="#">show ethoam default-domain configuration</a>	Displays the values of scalar Default-MD objects.
<a href="#">show ethoam domain</a>	Displays the information of a specific Management Domain configured on the bridge.

### MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
  dotlagCfmMdIdPermission
```

---

## ethoam association

Creates Maintenance Association (MA) entry.

```
ethoam association ma_name format {vpnid | unsignedint | string | primaryvid | icc-based} domain  
md_name primary-vlan vlan-id
```

```
no ethoam association ma_name domain md_name
```

---

### Syntax Definitions

<i>ma_name</i>	Association name for the created Ethernet OAM Association.
<b>vpnid</b>	As specified in RFC 2685 VPN ID.
<b>unsignedint</b>	2-octet unsigned integer.
<b>string</b>	Character String.
<b>primaryvid</b>	Primary VLAN ID (12 bits represented in a 2-octet integer).
<b>icc-based</b>	This format is supported for inter-op with ITU-T.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<i>vlan-id</i>	Primary VLAN Identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Maximum association name is name 44 minus the length of its domain name.
- Use format as 'icc-based' to inter-op with ITU-T Y.1731.
- Domain must be created before the creation of MA.
- VLAN must be created before the creation of MA.
- VLAN specified must be a primary VID.
- VLAN ID specified must be between 1 and 4094.
- Deletion of MA shall result in the deletion of MIPs and MEPs (on primary and non-primary VLAN) configured in it.

### Examples

```
-> ethoam association MA format string domain MD primary-vlan 100
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **primaryVid** and *mac\_address* parameters added; **level** parameter deleted.

Release 6.4.3; **icc-based** parameter added.

## Related Commands

**show ethoam domain  
association**

Displays the information of a specified MA in a Management Domain configured on the bridge.

## MIB Objects

```
dotlagCfmMaNetTable
  dotlagCfmMaNetFormat
  dotlagCfmMaNetName
  dotlagCfmMaNetRowStatus
dotlagCfmMaCompTable
  dotlagCfmMaComponentId
  dotlagCfmMaCompPrimaryVid
  dotlagCfmMaCompRowStatus
```

---

## ethoam association mhf

Configures the MIP Half Function (MHF) value for MA Entry.

**ethoam association** *ma\_name* **domain** *md\_name* **mhf** {**none** | **default** | **explicit** | **defer**}

---

### Syntax Definitions

<i>ma_name</i>	Association name for the created Ethernet OAM Association.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<b>none</b>	No MHFs can be created.
<b>default</b>	MHFs can be created.
<b>explicit</b>	MHFs can be created only if a MEP is created at some lower MD Level.
<b>defer</b>	The creation of MHFs is determined by the corresponding MD object 'dot1agCfmMdMhfCreation'.

### Defaults

---

parameter	default
<b>none</b>   <b>explicit</b>   <b>default</b>   <b>defer</b>	<b>defer</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- MA must be created before it is modified.
- On modification of 'mhf' for any MA, Automip shall also be invoked for all VLANS associated with this primary VID.

### Examples

```
-> ethoam association MA domain MD mhf-creation defer
```

### Release History

Release 6.2.1; command was introduced.  
Release 6.3.1; *mac\_address* parameter added.  
Release 6.4.3; command was introduced.

## Related Commands

**show ethoam domain association** Displays the information of a specified MA in a Management Domain configured on the bridge.

**show ethoam default-domain** Displays the information of the default MA.

## MIB Objects

dot1agCfmMaNetTable

dot1agCfmMaNetName

dot1agCfmMaCompTable

dot1agCfmMaCompMhfCreation

---

## ethoam association id-permission

Configure id-permission value for MA Entry.

```
ethoam association ma_name domain md_name md_name id-permission {none | chassisid | defer}
```

---

### Syntax Definitions

<i>ma_name</i>	Association name for the created Ethernet OAM Association.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<b>none</b>	Sender ID TLV is not to be sent.
<b>chassisid</b>	Chassis ID Length, Chassis ID Subtype and Chassis ID TLV are to be present.
<b>defer</b>	The contents of the Sender ID TLV are determined by the corresponding MD object 'dot1agCfmMdIdPermission'.

### Defaults

---

parameter	default
none   chassisid   defer	defer

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- MA must be created before it is modified.

### Examples

```
-> ethoam association MA domain MD id-permission defer
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**show ethoam domain  
association**

Displays the information of a specified MA in a Management Domain configured on the bridge.

**show ethoam domain**

Displays the information of a specific Management Domain configured on the bridge.

## MIB Objects

dot1agCfmMaNetTable

dot1agCfmMaNetName

dot1agCfmMaCompTable

dot1agCfmMaCompMidPermission

---



## ethoam association ccm-interval

Modifies the Continuity Check Message (CCM) transmission interval of an Ethernet OAM Maintenance Association.

**ethoam association** *association\_name* **domain** {*domain\_name* | *mac\_address*}  
**ccm-interval** {**interval-invalid** | **interval100ms** | **interval1s** | **interval10s** | **interval1m** | **interval10m**}

---

### Syntax Definitions

<i>ma_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain command on page 45-5</a> .
<b>interval-invalid</b>	Specifies that no CCMs are sent by a MEP
<b>interval100ms</b>	Specifies the CCMs are sent every 100 milli seconds.
<b>interval1s</b>	Specifies that CCMs are sent every 1 second.
<b>interval10s</b>	Specifies that CCMs are sent every 10 seconds.
<b>interval1m</b>	Specifies that CCMs are sent every minute.
<b>interval10m</b>	Specifies that CCMs are sent every 10 minutes.

### Defaults

parameter	default
<b>interval-invalid</b>   <b>interval100ms</b>   <b>interval1s</b>   <b>interval10s</b>   <b>interval1m</b>   <b>interval10m</b>	<b>interval10s</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The *ma\_name* should be unique amid all those used by or available to the service provider within a domain.

### Examples

```
-> ethoam association MA domain MD ccm-interval interval10s
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **intervalnone** parameter replaced with **interval-invalid** parameter; **interval1m**, **interval10m**, and *mac\_address* parameters added; **interval60s** parameter deleted.

Release 6.4.4; **interval100ms** parameter added.

## Related Commands

**show ethoam domain**

Displays the information of a specific Management Domain configured on the bridge.

## MIB Objects

dot1agCfmMaNetTable

dot1agCfmMaNetName

dot1agCfmMaCompTable

dot1agCfmMaCompMIdPermission

---

## ethoam association endpoint-list

Modifies the MEP list of an Ethernet OAM Maintenance Association.

**ethoam association** *ma\_name* **domain** {*md\_name* | *mac\_add*}  
**endpoint-list** *mep\_id*[-*mep\_id2*]

**no ethoam association** *association\_name* **domain** {*domain\_name* | *mac\_add*}  
**endpoint-list** *mep\_id*[-*mep\_id2*]

---

### Syntax Definitions

<i>ma_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus domain name length) characters may be used.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain command on page 45-5</a>
<i>mac_add</i>	Specifies the CFM system MAC address.
<i>mep_id</i>	Specifies the MEP number.
<i>mep_id2</i>	Last MEP number in a range of MEPs you want to configure.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the MEP list.
- Note that only the MEP that is associated with the MEP list of the MA can be configured locally on the bridge or monitored remotely.
- The *ma\_name* should be unique within a domain.

### Examples

```
-> ethoam association MA domain MD endpoint-list 100-200  
-> no ethoam association MA domain MD endpoint-list 100-200
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

**show ethoam domain  
association**

Displays the information of a specified MA in a Management Domain configured on the bridge.

## MIB Objects

```
dotlagCfmMdTable  
    dotlagCfmMdName  
dotlagCfmMaNetTable  
    dotlagCfmMaNetName  
DotlagCfmMaMepList  
    dotlagCfmMaMepListIdentifier  
    dotlagCfmMaMepListRowStatus
```

---

## clear ethoam statistics

Clear statistics for all MEPs or for a particular MEP.

**clear ethoam statistics** [**domain** *domain* **association** *association* **endpoint** *mep-id*]

---

### Syntax Definitions

<i>domain</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<i>association</i>	Association name for the created Ethernet OAM Association.
<i>mep-id</i>	MEP Identifier. Valid Range is 1-8191.

### Defaults

None

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

None

### Examples

```
-> clear ethoam statistics
-> clear ethoam statistics domain MD association MA endpoint 10
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show ethoam statistics](#) Displays the Ethernet OAM of all the Management Domains configured on the bridge. Also, displays the statistics of all the MAs and matching MEPs for all the MDs.

### MIB Objects

```
dotlagCfmMdTable
    dotlagCfmMdName
dotlagCfmMaNetTable
    dotlagCfmMaNetName
dotlagCfmMepTable
    dotlagCfmMepIdentifier
    alaCfmMepClearStats
    alaCfmGlobalClearStats
```

---



## ethoam default-domain mhf

Configure the effective MHF value for all default domain entries with MHF value set to **defer**.

**ethoam default-domain mhf {none | default | explicit}**

**no ethoam default-domain**

---

### Syntax Definitions

<b>none</b>	No MHFs can be created.
<b>default</b>	MHFs can be created.
<b>explicit</b>	MHFs can be created only if a MEP is created at some lower MD Level. Defaults

### Defaults

Default value is none.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ethoam default-domain mhf default
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show ethoam default-domain configuration](#) Displays the values of scalar Default-MD objects.

### MIB Objects

```
dot1agCfmDefaultMdDefMhfCreation
```

---

---

## ethoam default-domain id-permission

Configures the effective ID permission value for all default domain entries with the ID permission value set to **defer**.

**ethoam default-domain id-permission {none | chassisid}**

**no ethoam default-domain**

---

### Syntax Definitions

<b>none</b>	Sender ID TLV is not to be sent.
<b>chassisid</b>	Chassis ID Length, Chassis ID Subtype and Chassis ID TLV are to be present.

### Defaults

Default value is none.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> ethoam default-domain id-permission chassisid
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

**show ethoam default-domain configuration** Displays the default domain configuration.

### MIB Objects

dot1agCfmDefaultMdDefIdPermission

---



## ethoam default-domain primary-vlan

Configures the default domain settings for the specified primary VLAN.

**ethoam default-domain primary-vlan** {*vlan-id*} [level {no-level | *num*}] [mhf {none | default | explicit | defer}] [id-permission {none | chassisid | defer}]

**no ethoam default-domain**

---

### Syntax Definitions

<i>vlan-id</i>	VLAN Identifier.
<b>no-level</b>	MD level is inherited from the default domain level.
<i>num</i>	MD Level. Valid range is 0 to 7.
<b>none</b>	No MHFs can be created.
<b>default</b>	MHFs can be created.
<b>explicit</b>	MHFs can be created only if a MEP is created at some lower MD Level.
<b>defer</b>	MHF defers to the default domain MHF value.
<b>none</b>	Sender ID TLV is not to be sent.
<b>chassisid</b>	Chassis ID Length, Chassis ID Subtype and Chassis ID TLV are to be present.
<b>defer</b>	ID permission defers to the default domain ID permission value.

### Defaults

parameter	default
no-level / <i>num</i>	no-level
none   explicit   default   defer	defer
none   chassisid   defer	defer

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

On modification of MHF for any primary VID, Automip is invoked for all VLANS associated with this primary VID.

## Examples

```
-> ethoam default-domain primary-vlan 10 id-permission chassisid level 3 mhf default.  
-> ethoam default-domain primary-vlan 10 id-permission chassisid  
-> ethoam default-domain primary-vlan 10 level 3  
-> ethoam default-domain primary-vlan 10 mhf default  
-> ethoam default-domain primary-vlan 10 level 3 mhf default
```

## Release History

Release 6.3.1; command was introduced.

Release 6.4.3; command was introduced.

## Related Commands

**show ethoam default-domain** Displays the information of all the default MD.

## MIB Objects

```
dot1agCfmDefaultMdTable  
  dot1agCfmDefaultMdComponentId  
  dot1agCfmDefaultMdPrimaryVid  
  dot1agCfmDefaultMdLevel
```

---

## ethoam endpoint

Creates a Maintenance End Point (MEP) and virtual MEP.

**ethoam endpoint** *mep-id* **domain** *md\_name* **association** *ma\_name* **direction** { **up** | **down** } {**port** {*slot/*  
*port* | **virtual** | **linkagg** *agg\_id*} [**primary-vlan** *vlan\_id*]

**no ethoam endpoint** *mep-id* **domain** *md\_name* **association** *ma\_name*

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<i>ma_name</i>	Association name for the created Ethernet OAM Association.
<b>up</b>	For UP MEP.
<b>down</b>	For DOWN MEP.
<i>slot/port</i>	Physical slot and port number on which MEP needs to be created.
<b>virtual</b>	Keyword for creating virtual MEP.
<i>agg_id</i>	Linkagg Identifier on which MEP needs to be created.
<i>vlan_id</i>	VLAN identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to delete a maintenance endpoint.
- The *mep\_id* must be unique amid all those used by or available to the service provider in the specified MA.
- The direction for virtual MEP must always be up.
- For creating a virtual MEP the value of port must be given the keyword “virtual”.

## Examples

```
-> ethoam endpoint 10 domain MD association MA direction up port 1/1
-> ethoam endpoint 10 domain MD association MA direction down linkagg 1
-> ethoam endpoint 10 domain MD association MA direction down linkagg 1 vlan 10
-> ethoam endpoint 1 domain md1 association ma1 direction up port virtual primary-
vlan 100
-> no ethoam endpoint 10 domain MD association MA
```

## Release History

Release 6.4.3; command was introduced.

Release 6.4.4; **virtual** parameter added.

## Related Commands

[show ethoam domain  
association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
  dotlagCfmMepDirection
  dotlagCfmMepIfIndex
  dotlagCfmMepPrimaryVid
```

---

## ethoam endpoint admin-state

Configures the administrative state of MEP.

**ethoam endpoint** *mep\_id* **domain** {*md\_name* | *mac\_address*} **association** *ma\_name* **admin-state** {**enable** | **disable**}

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Association name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<b>enable</b>	Administratively enables MEP.
<b>disable</b>	Administratively disables MEP.

### Defaults

The default value is **disable**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The *mep\_id* specified must already exist in the switch configuration.

### Examples

```
-> ethoam endpoint 100 domain MD association MA admin-state enable
```

### Release History

Release 6.2.1; command was introduced.  
Release 6.3.1; *mac\_address* parameter added.

---

## Related Commands

### [show ethoam domain association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

### DotlagCfmMep

- dotlagCfmMepIndex
- dotlagCfmMepIdentifier
- dotlagCfmMepDirection
- dotlagCfmMepPortNumber
- dotlagCfmMepMacAddress
- dotlagCfmMepAdminStatus
- dotlagCfmMepFngState
- dotlagCfmMepCcmEnabled
- dotlagCfmMepCcmTransmitting
- dotlagCfmMepCcmLtmPriority
- dotlagCfmMepCcmNotReceived
- dotlagCfmMepCcmStreamError
- dotlagCfmMepCcmStreamOther
- dotlagCfmMepRdiReceived
- dotlagCfmMepLastCcmMaFault
- dotlagCfmMepLastCcmCrossConnFault
- dotlagCfmMepCcmOut
- dotlagCfmMepLbmNextSeqNumber
- dotlagCfmMepLbrIn
- dotlagCfmMepLbrInOutOfOrder
- dotlagCfmMepLbrOut
- dotlagCfmMepLtmNextSeqNumber
- dotlagCfmMepLtmIn
- dotlagCfmMepLtrOut
- dotlagCfmMepDefectsPresent
- dotlagCfmMepDefectsAbsent
- dotlagCfmMepRowStatus

---

## ethoam endpoint rfp

Enables or disables the Remote Fault Propagation (RFP) on MEP.

**ethoam endpoint** *mep\_id* **domain** {*md\_name* | *mac\_address*} **association** *ma\_name* **rfp** {**enable** | **disable**}

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name used while creating the management domain for which this management association is created.
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>ma_name</i>	Association name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<b>enable</b>	Administratively enables RFP on MEP.
<b>disable</b>	Administratively disables RFP on MEP.

### Defaults

The default value of RFP is disable.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The *mep\_id* specified must already exist in the switch configuration.
- The domain and association must be created before RFP can be enabled.
- The MEP must be an UP MEP. If down MEP is specified, CLI returns with an error.
- The admin state of the MEP must be enabled in order to report faults.
- RFP cannot be enabled on virtual UP MEP since it is not associated with a physical interface.
- It is recommended that if RFP is enabled on a port, then any other violation feature (Link Monitoring or Link Fault Propagation) should not be configured.
- It is recommended that if RFP is enabled on a port, then automatic recovery is disabled for that port.
- If Link Monitoring is configured on a RFP enabled port, then the wait-to-restore timer must be less than the CCM interval.

### Examples

```
-> ethoam endpoint 1 domain md1 association ma1 rfp enable
```

## Release History

Release 6.4.4; command was introduced.

## Related Commands

[show ethoam domain association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

```
DotlagCfmMDTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
  dotlagCfmRfpEnabled
```

---



## ethoam endpoint ccm

Configures the MEP to generate Continuity Check Messages (CCM).

```
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name  
ccm {enable | disable}
```

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain</a> .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>ma_name</i>	Name of the Ethernet OAM association. Up to 48 (minus the domain name length) characters may be used.
<b>enable</b>	Enables MEP to generate CCMS.
<b>disable</b>	Disables MEP to generate CCMS.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The *mep\_id* should be unique amid all those used by or available to the service provider in the specified MA.

### Examples

```
-> ethoam endpoint 100 domain MD association MA ccm enable
```

### Release History

Release 6.2.1; command was introduced.  
Release 6.3.1; *mac\_address* parameter added.

### Related Commands

<a href="#">show ethoam domain association end-point</a>	Displays the information of a specific MEP in a Management Domain configured on the bridge.
----------------------------------------------------------	---------------------------------------------------------------------------------------------

## MIB Objects

### DotlagCfmMep

- dotlagCfmMepIndex
- dotlagCfmMepIdentifier
- dotlagCfmMepDirection
- dotlagCfmMepPortNumber
- dotlagCfmMepMacAddress
- dotlagCfmMepAdminStatus
- dotlagCfmMepFngState
- dotlagCfmMepCcmEnabled
- dotlagCfmMepCcmTransmitting
- dotlagCfmMepCcmLtmPriority
- dotlagCfmMepCcmNotReceived
- dotlagCfmMepCcmStreamError
- dotlagCfmMepCcmStreamOther
- dotlagCfmMepRdiReceived
- dotlagCfmMepLastCcmMaFault
- dotlagCfmMepLastCcmCrossConnFault
- dotlagCfmMepCcmOut
- dotlagCfmMepLbmNextSeqNumber
- dotlagCfmMepLbrIn
- dotlagCfmMepLbrInOutOfOrder
- dotlagCfmMepLbrOut
- dotlagCfmMepLtmNextSeqNumber
- dotlagCfmMepLtmIn
- dotlagCfmMepLtrOut
- dotlagCfmMepDefectsPresent
- dotlagCfmMepDefectsAbsent
- dotlagCfmMepRowStatus

---

## ethoam endpoint priority

Configures the priority values for CCMs and Linktrace Messages (LTMs) transmitted by a MEP.

**ethoam endpoint** *mep\_id* **domain** {*md\_name* | *mac\_address*} **association** *ma\_name* **priority**  
*ccm\_ltm\_priority*

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain command on page 45-5</a> .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>ma_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>ccm_ltm_priority</i>	Priority value for CCMs and LTMs transmitted by the MEP. The valid range is 0–7.

### Defaults

---

parameter	default
<i>ccm_ltm_priority</i>	7

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The *mep\_id* should be unique amid all those used by or available to the service provider in the specified MA.

### Examples

```
-> ethoam endpoint 100 domain MD association MA priority 6
```

### Release History

Release 6.2.1; command was introduced.  
Release 6.3.1; *mac\_address* parameter added.

---

## Related Commands

### [show ethoam domain association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

### DotlagCfmMep

- dotlagCfmMepIndex
- dotlagCfmMepIdentifier
- dotlagCfmMepDirection
- dotlagCfmMepPortNumber
- dotlagCfmMepMacAddress
- dotlagCfmMepAdminStatus
- dotlagCfmMepFngState
- dotlagCfmMepCcmEnabled
- dotlagCfmMepCcmTransmitting
- dotlagCfmMepCcmLtmPriority
- dotlagCfmMepCcmNotReceived
- dotlagCfmMepCcmStreamError
- dotlagCfmMepCcmStreamOther
- dotlagCfmMepRdiReceived
- dotlagCfmMepLastCcmMaFault
- dotlagCfmMepLastCcmCrossConnFault
- dotlagCfmMepCcmOut
- dotlagCfmMepLbmNextSeqNumber
- dotlagCfmMepLbrIn
- dotlagCfmMepLbrInOutOfOrder
- dotlagCfmMepLbrOut
- dotlagCfmMepLtmNextSeqNumber
- dotlagCfmMepLtmIn
- dotlagCfmMepLtrOut
- dotlagCfmMepDefectsPresent
- dotlagCfmMepDefectsAbsent
- dotlagCfmMepRowStatus

---

## ethoam endpoint lowest-priority-defect

Configures the lowest priority fault alarm for the lowest priority defect for a MEP.

**ethoam endpoint** *mep\_id* **domain** {*md\_name* | *mac\_address*} **association** *ma\_name* **lowest-priority-defect** *lowest\_priority\_defect*

---

### Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain command on page 45-5</a> .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>ma_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>lowest_priority_defect</i>	The lowest priority defect that can generate a Fault alarm. Possible values are <b>xcon</b> , <b>rem-err-xcon</b> , <b>no-defect</b> , <b>mac-rem-err-xcon</b> , <b>err-xcon</b> , and <b>all-defect</b> .

### Defaults

parameter	default
<i>lowest_priority_defect</i>	mac-rem-err-xcon

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The *mep\_id* should be unique amid all those used by or available to the service provider in the specified MA.

### Examples

```
-> ethoam endpoint 100 domain esd.alcatel-lucent.com association alcatel-sales
lowest-priority-defect all-defect
```

### Release History

Release 6.3.1; command was introduced.

---

## Related Commands

### [show ethoam domain association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

### DotlagCfmMep

- dotlagCfmMepIndex
- dotlagCfmMepIdentifier
- dotlagCfmMepDirection
- dotlagCfmMepPortNumber
- dotlagCfmMepMacAddress
- dotlagCfmMepAdminStatus
- dotlagCfmMepFngState
- dotlagCfmMepCcmEnabled
- dotlagCfmMepCcmTransmitting
- dotlagCfmMepCcmLtmPriority
- dotlagCfmMepCcmNotReceived
- dotlagCfmMepCcmStreamError
- dotlagCfmMepCcmStreamOther
- dotlagCfmMepRdiReceived
- dotlagCfmMepLastCcmMaFault
- dotlagCfmMepLastCcmCrossConnFault
- dotlagCfmMepCcmOut
- dotlagCfmMepLbmNextSeqNumber
- dotlagCfmMepLbrIn
- dotlagCfmMepLbrInOutOfOrder
- dotlagCfmMepLbrOut
- dotlagCfmMepLtmNextSeqNumber
- dotlagCfmMepLtmIn
- dotlagCfmMepLtrOut
- dotlagCfmMepDefectsPresent
- dotlagCfmMepDefectsAbsent
- dotlagCfmMepRowStatus

---

## ethoam linktrace

Enables the maintenance entity to initiate transmitting Link Trace Messages (LTM).

**ethoam linktrace** {**target-macaddress** *mac\_address* | **target-endpoint** *t-mepid*} **source-endpoint** *s-mepid* **domain** {*d-name* | *mac\_add*} **association** *a-name* [**flag** [**fdb-mpdb** | **fdbonly**]] [**hop-count** *hop\_count*]

---

### Syntax Definitions

<i>mac_add</i>	Target MAC address to be transmitted.
<i>t-mepid</i>	Specifies the MEP for which the Loopback message is targeted.
<i>s-mepid</i>	Specifies the MEP that transmits the Loopback message. The valid range is 1–8191.
<i>d-name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain</a> .
<b>domain</b> <i>mac_address</i>	Specifies the CFM system MAC address.
<i>a-name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<b>fdbonly</b>	Specifies that only the MAC addresses learned in a bridge's active data forwarding table will be used to decide the egress port.
<i>hop_count</i>	Indicates the number of hops remaining in this LTM. Each bridge that handles the LTM decreases the value by 1. This decreased value is returned to the LTM. The valid range is 1–2 <sup>32</sup> .

### Defaults

parameter	default
<b>flag</b>	<b>fdbonly</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command allows an operator to generate a LTM for the specified MEP.
- This command signals the MEP that it should transmit a Linktrace message and detect the presence or lack of the corresponding Linktrace messages.

## Examples

```
-> ethoam linktrace target-macaddress 10:aa:ac:12:12:ad source 4 domain MD associa-  
tion flag fdbonly hop-count 32  
Transaction Id: 6943
```

```
-> ethoam linktrace target-endpoint 15 source 4 domain MD association  
Transaction Id: 6934
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **target-macaddress**, **target-endpoint**, **source-endpoint**, and **domain** *mac\_address* parameters added; **end-point** parameter deleted.

## Related Commands

### [show ethoam domain](#)

Displays the information of a specified Management Domain configured on the bridge.

## MIB Objects

DotlagCfmMep

- dotlagCfmMepIdentifier
- dotlagCfmMepTransmitLtmFlags
- dotlagCfmMepTransmitLtmTargetMacAddress
- dotlagCfmMepTransmitLtmTargetMepId
- dotlagCfmMepTransmitLtmTargetLsMepId
- dotlagCfmMepTransmitLtmTtl
- dotlagCfmMepTransmitLtmResult
- dotlagCfmMepTransmitEgressIdentifier

---



## ethoam loopback

Initiates the transmission of loopback messages from the specified source MEP to the specified target MEP or MAC address. Also triggers the source MEP to detect the presence or lack of a corresponding loopback reply from the target.

**ethoam loopback** {**target-endpoint** *t-mepid* | **target-macaddress** *mac\_add*} **source-endpoint** *s-mepid* **domain** *d-name* **association** *a-name* [**number** *num*] [**data** *string*] [**vlan-priority** *vlan-priority*] [**drop-eligible** { **true** | **false** }]

---

### Syntax Definitions

<i>t-mepid</i>	Specifies the MEP for which the Loopback message is targeted. The valid range is 1-8191.
<i>mac_add</i>	Target MAC address to be transmitted.
<i>s-mepid</i>	Specifies the MEP that transmits the Loopback message. The valid range is 1-8191.
<i>d-name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain</a> .
<i>a-name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>num</i>	Number of loopback messages. Valid range is 1-10.
<i>string</i>	Specifies the amount of data to be included in the Data Type Length Value (TLV), if the Data TLV is selected to be sent. The valid range is 1-255.
<i>vlan-priority</i>	VLAN Priority. Valid Range is 0-7.
<b>true</b>	Sets the drop eligibility bit in the VLAN tag to true.
<b>false</b>	Sets the drop eligibility bit in the VLAN tag to false.

### Defaults

parameter	default
<i>num</i>	1
<i>vlan-priority</i>	CCM priority
<b>drop-eligible</b> { <b>true</b>   <b>false</b> }	<b>true</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Source and target MEP-ID, MD and MA must already exist before loopback is initiated.
- If data TLV is not set, then it is not sent in the loopback message.

## Examples

```
-> ethoam loopback target-endpoint 10 source-endpoint 20 domain MD association MA
number 3
Reply from 00:0E:B1:6B:43:89: bytes=64 seq=0 time=100ms
Reply form 00:0E:B1:6B:43:89: bytes=64 seq=0 time=112ms
Request timed out.
----00:E0:B1:6B:43:89 ETH-LB Statistics----
3 packets transmitted, 2 packets received, 33% packet loss
round-trip (ms)  min/avg/max = 100/106/112
```

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **target-macaddress**, **target-endpoint**, **source-endpoint**, and **domain** *mac\_address* parameters added; **end-point** parameter deleted.

## Related Commands

### [show ethoam domain](#)

Displays the information of a specified Management Domain configured on the bridge.

## MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
  dotlagCfmMepTransmitLbmDestMacAddress
  dotlagCfmMepTransmitLbmDestMepId
  dotlagCfmMepTransmitLbmDestIsMepId
  dotlagCfmMepTransmitLbmMessages
  dotlagCfmMepTransmitLbmDataTlv
  dotlagCfmMepTransmitLbmVlanPriority
  dotlagCfmMepTransmitLbmVlanDropEnable
  dotlagCfmMepTransmitLbmStatus
```

## ethoam fault-alarm-time

Configures the timeout value for the Fault Notification Generation Alarm time that specifies the time interval during which one or more defects should be detected before the fault alarm is issued.

**ethoam fault-alarm-time** *centiseconds* **endpoint** *endpoint\_id* **domain** {*md\_name* | *mac\_address*}  
**association** *ma\_name*

**no ethoam fault-alarm-time** **endpoint** *endpoint\_id* **domain** {*md\_name* | *mac\_address*}  
**association** *ma\_name*

---

### Syntax Definitions

<i>centiseconds</i>	The Fault Notification Generation Alarm timeout value, in centiseconds. The valid range is 250–1000.
<i>endpoint_id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.
<i>md_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam domain command on page 45-5</a> .
<i>ma_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.

### Defaults

---

<b>parameter</b>	<b>default</b>
<i>centiseconds</i>	250

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the Fault Notification Generation Alarm timeout value to the default value.
- The Fault Notification Generation Alarm timeout value is configurable per MEP.

### Examples

```
-> ethoam fault-alarm-time 500 endpoint 100 domain esd.alcatel-lucent.com associa-  
tion alcatel_sales  
-> no ethoam fault-alarm-time endpoint 100 domain esd.alcatel-lucent.com associa-  
tion alcatel_sales
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

[show ethoam domain  
association end-point](#)

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

DotlagCfmMep

dotlagCfmMepFngAlarmTime

---

## ethoam fault-reset-time

Configures the timer value for the Fault Notification Generation Reset time that specifies the time interval during which the fault alarm is re-enabled to process faults. The fault alarm will only be re-enabled if no new faults are received during this time interval.

**ethoam fault-reset-time** *centiseconds* **endpoint** *endpoint\_id* **domain** {*mac\_add* | *d-name*} **association** *a-name*

**no ethoam fault-reset-time endpoint** *endpoint\_id* **domain** {*mac\_add* | *d-name*} **association** *a-name*

---

### Syntax Definitions

<i>centiseconds</i>	The Fault Notification Generation Reset timer value, in centi seconds. The valid range is 250–1000.
<i>mep-id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.
<i>d-name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to <a href="#">ethoam vlan command on page 45-3</a> .
<i>a-name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.

### Defaults

parameter	default
<i>centiseconds</i>	1000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to restore the Fault Notification Generation Reset timeout value to the default value.
- The Fault Notification Generation Reset timer value is configurable per MEP.

### Examples

```
-> ethoam fault-reset-time 250 end-point 100 domain esd.alcatel-lucent.com associa-
tion alcatel_sales
-> no ethoam fault-reset-time end-point 100 domain esd.alcatel-lucent.com associa-
tion alcatel_sales
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

### **ethoam fault-alarm-time**

Configures the timeout value for the Fault Notification Generation Alarm time.

### **show ethoam domain association end-point**

Displays the information of a specific MEP in a Management Domain configured on the bridge.

## MIB Objects

Dot1agCfmMep

dot1agCfmMepFngResetTime

---

## ethoam one-way-delay

Initiates a one-way-delay measurement (1DM) to determine the one-way frame delay (latency) and delay variation (jitter) between two MEPs.

**ethoam one-way-delay** {**target-endpoint** *t-mepid* | **target-macaddress** *mac\_add*} **source-endpoint** *s-mepid* **domain** *domain* **association** *association* [**vlan-priority** *vlan-priority*]

---

### Syntax Definitions

<i>t-mepid</i>	Target MEP-ID. Valid Range 1-8191.
<i>mac_add</i>	Target MAC-Address.
<i>s-mepid</i>	Source MEP-ID. Valid Range 1-8191.
<i>domain</i>	The maintenance domain name.
<i>association</i>	The maintenance association name.
<i>vlan-priority</i>	VLAN Priority. Valid Range is 0-7.

### Defaults

parameter	default
<i>vlan-priority</i>	7

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Source MEP-ID, MD and MA must be created before initiating 1DM.
- When **target-endpoint** is specified then entry must be present in the RMEP table, no matter if its status is RMEP\_OK or RMEP\_FAILED, before initiating 1DM. So target-macaddress can be used to bypass such a restriction.
- Although the OmniSwitch implementation of Ethernet frame delay measurement (ETH-DM) is compliant with ITU-T Y.1731, delay measurement can be performed for both ITU-T Y.1731 and IEEE 802.1ag MEPs.
- If the 1DM is initiated with a **target-macaddress** and an egress port is found for this MAC address, then the 1DM frames are transmitted from that port. Otherwise, 1DM frames are flooded in the MEP's VLAN.
- One-way delay measurement requires NTP clock synchronization between the sending and receiving MEPs.

### Examples

```
-> ethoam one-way-delay target-endpoint 10 source-endpoint 12 domain MD association MA vlan-priority 4
```

```
-> ethoam one-way-dealy target-macaddress 00:e0:b1:6a:52:4c source-endpoint 12
domain MD association MA vlan-priority 4
```

## Release History

Release 6.4.3; command was introduced

## Related Commands

**show ethoam one-way-delay** Displays the one-way-delay and jitter parameters for all entries or for the MAC address of a specific MEP.

## MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
alaCfmMepTable
  alaCfmMepOWDTMacAddress
  alaCfmMepOWDTMepIdentifier
  alaCfmMepOWDTPriority
```

---



## ethoam two-way-delay

Initiate a two-way-delay measurement to determine the round-trip latency and jitter between two MEPs. The initiating MEP sends delay measurement message (DMM) frames to the receiving MEP. The receiving MEP responds with delay measurement reply (DMR) frames.

**ethoam two-way-delay** {**target-endpoint** *t-mepid* | **target-macaddress** *mac\_add*} **source-endpoint** *s-mepid* **domain** *domain* **association** *association* [**vlan-priority** *vlan-priority*]

---

### Syntax Definitions

<i>t-mepid</i>	Target MEP-ID. Valid Range 1-8191.
<i>mac_add</i>	Target MAC-Address.
<i>s-mepid</i>	Source MEP-ID. Valid Range 1-8191.
<i>domain</i>	The maintenance domain name.
<i>association</i>	The maintenance association name.
<i>vlan-priority</i>	VLAN Priority. Valid Range is 0-7.

### Defaults

---

parameter	default
<i>vlan-priority</i>	7

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Source MEP-ID, MD and MA must be created before initiating a two-way delay measurement.
- When **target-endpoint** is specified then entry must be present in the RMEP table, no matter if the status is RMEP\_OK or RMEP\_FAILED, before initiating two-way-delay. So **target-macaddress** can be used to bypass such a restriction.
- The CLI console will pause until all DMRs are received or maximum of 3 seconds to ensure that all the DMRs have been returned. If the operation fails, then the appropriate message is displayed. If the operation is successful, no message is displayed.
- If the DMM is initiated by UP MEP with a **target-macaddress** and the egress port is found for this MAC address, then DMM frames are transmitted from that port. Otherwise, DMM frames are flooded in the MEP's VLAN.
- Two-way delay measurement does *not* require NTP clock synchronization on the sending and receiving MEPs.

- Although the OmniSwitch implementation of Ethernet frame delay measurement (ETH-DM) is compliant with ITU-T Y.1731, delay measurement can be performed for both ITU-T Y.1731 and IEEE 802.1ag MEPs.
- This command initiates an on-demand OAM performance measurement. To set up continuous two-way delay measurement, see the “Service Assurance Agent Commands” chapter for information about how to configure a SAA for continuous two-way frame delay measurement.

## Examples

```
-> ethoam two-way-delay target-endpoint 10 source-endpoint 12 domain MD association MA vlan-priority 4
Reply from 00:0E:B1:6B:43:89 delay=2584us jitter=282us
-> ethoam two-way-delay target-macaddress 00:e0:b1:6a:52:4c source-endpoint 12 domain MD association MA vlan-priority 4
Reply from 00:E0:B1:6A:52:4C: delay=2584us jitter=282us
```

## Release History

Release 6.4.3; command was introduced

## Related Commands

[show ethoam two-way-delay](#) Displays the two-way-delay delay and jitter parameters for all entries or for the MAC address of a specific MEP.

## MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
alaCfmMepTable
  alaCfmMepTWDTMacAddress
  alaCfmMepTWDTMepIdentifier
  alaCfmMepTWDTPriority
```

---

## clear ethoam

Delete all the one-way-delay or two-way-delay entries

**clear ethoam {one-way-delay-table | two-way-delay-table}**

---

### Syntax Definitions

None

### Defaults

None

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

None

### Examples

```
-> clear ethoam one-way-delay-table  
-> clear ethoam two-way-delay-table
```

### Release History

Release 6.4.3; command was introduced

### Related Commands

[ethoam one-way-delay](#) Initiates the two one-way-delay messages from a particular MEP to an RMEP.

### MIB Objects

```
alaCfmGlobalOWDClear  
alaCfmGlobalTWDClear
```

---

## show ethoam

Displays the information of all the Management Domains (MD) configured on the bridge.

**show ethoam**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays all the MAs for all the MDs.

### Examples

```
-> show ethoam
System Configuration
  Ethernet OAM system mac address: 00:D0:95:EC:84:B0,
  Number of Maintenance Domains: 1
  Maintenance Domain: esd.alcatel-lucent.com
  Maintenance Association: alcatel-sales
```

#### *output definitions*

---

<b>Ethernet OAM system mac address</b>	The MAC address of the Ethernet OAM system.
<b>Number of Maintenance Domains</b>	The number of maintenance domains configured on the bridge.
<b>Maintenance Domain</b>	The name of the maintenance domain.
<b>Maintenance Association</b>	The name of the maintenance association.

---

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[ethoam domain](#) Creates an Ethernet domain with a specific name.

## **MIB Objects**

Dot1agCfmMd

dot1agCfmMdName

Dot1agCfmMa

dot1agCfmMaName

---

## show ethoam domain

Displays the information of a specific Management Domain configured on the bridge.

**show ethoam domain** *md\_name*

---

### Syntax Definitions

*md\_name* Specifies the domain name used while creating the management domain for which this management association is created.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam domain MD
Total number of MAs configured in this MD = 1
MD Attributes
  MD-Format : string,
  MD-Level : level-3,
  MD-MHFstatus : mhfNone,
  MD-IdPermission : sendIdNone
  Maintenance Association : MA
    MA-Format : string,
    Primary Vlan : 199,
    Associated Vlan-list : none,
    Total Number of Vlans : 1,
    MA-MHFstatus : mhfNone,
    MA-IdPermission : sendIdNone,
    CCM-interval : interval10s,
    MEP-List(MEP-Id) : 10
```

### output definitions

---

<b>MD-level</b>	The level at which the MD was created.
<b>MD-MHFstatus</b>	Indicates whether the maintenance entity can create MHFs for this MD. Options include <b>none</b> , <b>explicit</b> , or <b>default</b> .
<b>Maintenance Association</b>	The name of the maintenance association.
<b>Vlan</b>	The VLAN ID monitored by this MA. If the MA is not attached to any VLAN, 0 will be displayed.

*output definitions (continued)*

---

<b>MA-MHFstatus</b>	Indicates whether the maintenance entity can create MHFs for this MA. Options include <b>none</b> , <b>explicit</b> , or <b>default</b> .
<b>CCM-interval</b>	The interval between the CCM transmissions.
<b>MEP-Id</b>	Indicates the Maintenance End Point.

---

**Release History**

Release 6.2.1; command was introduced.

Release 6.4.3; *mac\_address* parameter deleted.

**Related Commands**

**show ethoam** Displays the information of all the Management Domains (MD) configured on the bridge.

**ethoam domain** Creates an Ethernet domain with a specific name.

**MIB Objects**

DotlagCfmMd

dotlagCfmMdLevel

dotlagCfmMdMhfCreation

DotlagCfmMa

dotlagCfmMaName

dotlagCfmMaVid

dotlagCfmMaMhfCreation

dotlagCfmMaCcmInterval

DotlagCfmMep

dotlagCfmMepIdentifier

---

## show ethoam domain association

Displays the information of a specific MA in a Management Domain configured on the bridge.

**show ethoam domain** *md\_name* **association** *ma\_name*

---

### Syntax Definitions

*md\_name* Specifies the domain name.

*ma\_name* Name of the Ethernet OAM Association.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam domain MD association MA
Total number of MEPs configured in this MA = 1
MA-Format : string,
Primary Vlan : 100,
Associated Vlan-list : none,
Total Number of Vlans : 1,
MA-MHFstatus : mhfDefer,
MA-IdPermission : sendIdDefer,
CCM-interval : interval10s,
MEP-List(MEP-Id) : 1-5,
```

Legend: MEP-Id: \* = Inactive Endpoint

MEP-ID	Admin State	Direction	Mac-Address	Port	Primary Vlan
1	disable	up	00:E0:B1:A0:78:A3	virtual	100

### output definitions

---

<b>Primary Vlan</b>	The VLAN ID monitored by this MA. If the MA is not attached to any VLAN, 0 will be displayed.
<b>MA-MHFstatus</b>	Indicates whether the maintenance entity can create MHFs for this MA. Options include <b>none</b> , <b>explicit</b> , or <b>default</b> .
<b>CCM-interval</b>	The interval between the CCM transmissions.
<b>MEP-ID</b>	Indicates the Maintenance End Point.



*output definitions (continued)*

---

<b>Admin State</b>	Indicates the administrative state ( <b>up</b> or <b>down</b> ) of the MEP.
<b>Direction</b>	The direction of the MEP.
<b>MAC Address</b>	The MAC address of the MEP.
<b>Port</b>	The slot/port number of the Bridge port to which the MEP is attached.

---

**Release History**

Release 6.2.1; command was introduced.

Release 6.3.4; *mac\_address* parameter deleted.

**Related Commands**

[ethoam association](#) Creates an Ethernet OAM Maintenance Association in the specified domain.

**MIB Objects**

DotlagCfmMa

dotlagCfmMaVid

dotlagCfmMaMhfCreation

dotlagCfmMaCcmInterval

DotlagCfmMep

dotlagCfmMepIdentifier

dotlagCfmMepActive

dotlagCfmMepDirection

dotlagCfmMepIfIndex

dotlagCfmMepMacAddress

---

## show ethoam domain association end-point

Displays the information of a specific MEP in a Management Domain configured on the bridge.

**show ethoam domain** *md\_name* **association** *ma\_name* **end-point** *mep-id*

---

### Syntax Definitions

<i>md_name</i>	Specifies the domain name.
<i>ma_name</i>	Name of the Ethernet OAM Association.
<i>mep-id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam domain MD association MA endpoint 10
Admin State : disable,
Direction : up,
Slot/Port: virtual,
MacAddress: 00:E0:B1:A0:78:A3,
Fault Notification : FNG_RESET,
CCM Enabled : disabled,
RFP Status : enabled,
CCM Linktrace Priority : 7,
CCM Not Received : false,
CCM Error defect : false,
CCM Xcon defect : false,
MEP RDI defect : false,
MEP Last CCM Fault : not specified,
MEP Xcon Last CCM Fault : not specified,
MEP Error Mac Status : false,
MEP Lbm NextSeqNumber : 0,
MEP Ltm NextSeqNumber : 32157,
Fault Alarm Time : 250,
Fault Reset Time : 1000,
Lowest PrDefect Allowed : DEF_MAC_REM_ERR_XCON,
Highest PrDefect Present : DEF_NONE
```

*output definitions*

---

<b>Admin State</b>	Indicates the administrative state ( <b>up</b> or <b>down</b> ) of the MEP.
<b>Direction</b>	The direction of the MEP.
<b>Slot/Port</b>	The slot/port number of the Bridge port to which the MEP is attached.If the value is virtual, it indicates a virtual port.
<b>MAC Address</b>	The MAC address of the MEP.
<b>Fault Notification</b>	Indicates the current state of the MEP Fault Notification Generator State Machine, which can be <b>FNG_RESET</b> , <b>FNG_DEFECT</b> , <b>FNG_REPORT_DEFECT</b> , <b>FNG_DEFECT_REPORTED</b> , or <b>FNG_DEFECT_CLEARING</b> .
<b>RFP Status</b>	Indicates the status of the RFP.
<b>CCM Enabled</b>	Indicates whether the MEP generates CCMs ( <b>enabled</b> ) or not ( <b>disabled</b> ).
<b>CCM Linktrace Priority</b>	Indicates the priority value for CCMs and LTM s transmitted by the MEP.
<b>CCM Not Received</b>	Indicates if CCMs are not being received ( <b>true</b> ) or received ( <b>false</b> ) from at least one of the configured remote MEPs.
<b>CCM Error defect</b>	Indicates if a stream of erroneous CCMs is being received ( <b>true</b> ) or not ( <b>false</b> ) from a MEP in this MA.
<b>CCM Xcon defect</b>	Indicates if a stream of CCMs is being received ( <b>true</b> ) or not ( <b>false</b> ) from a MEP that belongs to another MA.
<b>MEP RDI Received</b>	Indicates that any other MEP in this MA is transmitting the RDI bit. Options include <b>true</b> or <b>false</b> .
<b>MEP Last CCM Fault</b>	The last-received CCM that triggered a MA fault.
<b>MEP Xcon Last CCM Fault</b>	The last-received CCM that triggered a cross-connect fault.
<b>MEP Error Mac Status</b>	Indicates a port status TLV. Options include <b>true</b> or <b>false</b> .
<b>MEP Lbm NextSeqNumber</b>	The next Transaction Identifier or Sequence Number to be sent in an LBM.
<b>MEP Ltm NextSeqNumber</b>	The next Transaction Identifier or Sequence Number to be sent in an LTM.
<b>Fault Alarm Time</b>	The time interval during which one or more defects should be detected before the fault alarm is issued
<b>Fault Reset Time</b>	The time interval during which the fault alarm is re-enabled to process faults
<b>Lowest PrDefect Allowed</b>	The lowest priority defect that allowed to generate fault alarm.
<b>Highest PrDefect Present</b>	The highest priority defect since the MEPs Fault Notification Generator in reset state.

---

**Release History**

Release 6.2.1; command was introduced.  
Release 6.3.4; *mac\_address* parameter deleted.  
Release 6.4.4; **RFP Status** added.

## Related Commands

- ethoam endpoint** Creates an Ethernet OAM Maintenance End Point in the specified MA.
- ethoam endpoint admin-state** Configures the administrative state of MEP.

## MIB Objects

### DotlagCfmMep

- dotlagCfmMepActive
- dotlagCfmMepDirection
- dotlagCfmMepPortNumber
- dotlagCfmMepMacAddress
- dotlagCfmMepFngState
- dotlagCfmMepCcmEnabled
- dotlagCfmMepCcmLtmPriority
- dotlagCfmMepSomeRMepCcmDefect
- dotlagCfmMepErrorCcmDefect
- dotlagCfmMepXconCcmDefect
- dotlagCfmMepSomeRdiDefect
- dotlagCfmMepErrorCcmLastFailure
- dotlagCfmMepXconCcmLastFailure
- dotlagCfmMepErrMacStatus
- dotlagCfmMepLtmNextSeqNumber
- dotlagCfmMepFngAlarmTime
- dotlagCfmMepFngAlarmTime
- dotlagCfmMepLowPrDef
- dotlagCfmMepHighestPrDefect

---

## show ethoam default-domain configuration

Displays the level, MHF, and ID permission values for the default domain.

**show ethoam default-domain configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam default-domain configuration
Level : 3,
MHF-Creation : mhfddefault,
ID-Permission : sendIdnone
```

### *output definitions*

---

<b>Level</b>	The level assigned to the default domain. Configured through the <a href="#">ethoam default-domain level</a> command.
<b>MHF-creation</b>	Indicates the MHF value for a VLAN that is part of the default MD. Options include <b>none</b> , <b>explicit</b> , or <b>default</b> . Configured through the <a href="#">ethoam default-domain mhf</a> command.
<b>ID-Permission</b>	The ID permission of the default domain. Configured through the <a href="#">ethoam default-domain id-permission</a> command.

---

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[show ethoam default-domain](#) Displays the primary VLAN configuration for the default domain.

**MIB Objects**

```
dot1agCfmMaDefaultMdDefLevel  
dot1agCfmMaDefaultMdDefMhfCreation  
dot1agCfmMaDefaultMdDefIdPermission
```

---



## Related Commands

**ethoam default-domain  
primary-vlan**

Modifies the default domain for the specified primary VLAN.

## MIB Objects

DotlagCfmDefaultMdLevel

dotlagCfmDefaultMdLevelVid  
dotlagCfmDefaultMdLevelMhfCreation  
dotlagCfmDefaultMdLevelLevel

---



## show ethoam remote-endpoint domain

Displays the information of all remote MEPs learned as a part of the CCM message exchange.

**show ethoam remote-endpoint domain** *d\_name* **association** *a\_name* **end-point** *s-mepid* [**remote-mep** *r-mepid*]

---

### Syntax Definitions

<i>d_name</i>	Specifies the domain name.
<i>a_name</i>	Specifies the name of the Ethernet OAM Association.
<i>s-mepid</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.
<i>r-mepid</i>	The remote MEP. The valid range is 1–8191.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam remote-endpoint domain MD association MA endpoint 10
Legends: PortStatusTlv: 1 = psBlocked, 2 = psUp, 0 = psNoTlv
         InterfaceStatusTlv: 1 = ifUp, 2 = ifDown, 4 = ifUnknown, 0=ifNoTlv
```

RMEP-ID	RMEP Status	OkFailed Time	Mac Address	port Tlv	I/f Tlv	RDI value	Ch-id Subtype	Ch-id
20	RMEP_OK	634600	00:E0:B1:6E:41:65	2	1	false	LCL-ASND	DUT-1
30	RMEP_OK	334600	00:E0:B1:6E:41:64	2	1	false	LCL-ASND	DUT-2

### output definitions

---

<b>MEP-ID</b>	Indicates the Maintenance End Point.
<b>RMEP Status</b>	The operational state of the remote MEP Remote State machines for this MEP, which can be <b>RMEP_IDLE</b> , <b>RMEP_START</b> , <b>RMEP_FAILED</b> , or <b>RMEP_OK</b> .
<b>OkFailed Time</b>	The time (SysUpTime) when the Remote MEP state machine last entered either the <b>RMEP_FAILED</b> or <b>RMEP_OK</b> .
<b>MacAddress</b>	The MAC address of the remote MEP.

*output definitions (continued)*


---

<b>Port Status Tlv</b>	The MAC status TLV last received.
<b>I/f Status Tlv</b>	The interface status TLV last received.

---

**Note:** - Output shown above is not accurate as it is adjusted to display it in the single row. Following are modified:

P/S Tlv - Port Status Tlv  
 I/F Tlv - I/F Status Tlv  
 Ch-id Subtype - Chassis ID Subtype  
 Ch-id - Chassis ID  
 LCL-ASND - LOCALLY\_ASSIGNED

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

**show ethoam domain association end-point** Displays the information of a specific MEP in a Management Domain configured on the bridge.

**MIB Objects**

```
dotlagCfmMepDbTable
  dotlagCfmMepDbRMepIdentifier
  dotlagCfmMepDbRMepState
  dotlagCfmMepDbRMepFailedOkTime
  dotlagCfmMepDbRdi
  dotlagCfmMepDbPortStatusTlv
  dotlagCfmMepDbInterfaceStatusTlv
  dotlagCfmMepDbChassisIdSubtype
  dotlagCfmMepDbChassisId
```

---

## show ethoam cfmstack

Displays the contents of CFM Stack Managed Object, which determines the relationships among MEPs and MIPs on a specific bridge port.

**show ethoam cfmstack** {port *slot/port* | **virtual** | **linkagg** *agg\_num*}

---

### Syntax Definitions

<i>slot/port</i>	Slot and port number for which the contents of the configured MEP or MIP will be displayed.
<i>agg_num</i>	The aggregate ID for which the contents of the configured MEP or MIP will be displayed.
virtual	Virtual port.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam cfmstack port 1/3
Up MHF Configured:
  Vlan-id: 100,
  Direction: up,
  MAC-Address: 00:D0:95:EC:84:B0,
  Maintenance Association: alcatel-sales,
  Maintenance Domain: esd.alcatel-lucent.com,
  MD-level: 3

Down MHF Configured:
  Vlan-id: 100,
  Direction: down,
  MAC-Address: 00:D0:95:F6:33:DA,
  Maintenance Association: alcatel-sales,
  Maintenance Domain: esd.alcatel-lucent.com,
  MD-level: 3

-> show ethoam cfmstack port virtual
MEP-Id 32 - Vlan 30:
  Direction: up,
  MAC-Address: 00:E0:B1:A5:F2:34,
  Maintenance Association: MA4,
  Maintenance Domain: MD4,
  MD-level: 4
```

*output definitions*


---

<b>Vlan-id</b>	The VLAN ID to which the MEP is attached.
<b>Direction</b>	Indicates the direction ( <b>Inward</b> or <b>Outward</b> ) of the Maintenance Point (MP) on the Bridge port.
<b>MAC-Address</b>	The MEP ID configured on this port.
<b>Maintenance Domain</b>	The name of the maintenance domain.
<b>Maintenance Association</b>	The name of the maintenance association.
<b>MD-level</b>	The MD level at which the MD was created.

---

**Release History**

Release 6.2.1; command was introduced.

**Related Commands**

**ethoam endpoint admin-state** Creates an Ethernet OAM Maintenance End Point in the specified MA.

**MIB Objects**

```
DotlagCfmMd
  dotlagCfmMdName
DotlagCfmMa
  dotlagCfmMaName
DotlagCfmStack
  dotlagCfmStackVlanIdOrNone
  dotlagCfmStackDirection
  dotlagCfmStackMacAddress
  dotlagCfmStackMdLevel
```

---

## show ethoam linktrace-reply

Displays the content of the Linktrace reply (LTR) returned by a previously transmitted LTM. This command displays the LTR based on the transaction identifier or sequence number of the LTM for which the LTR is to be displayed.

**show ethoam linktrace-reply domain** *d-name* **association** *a-name* **endpoint** *s-mepid* **tran-id** *num*

---

### Syntax Definitions

<i>d-name</i>	Specifies the domain name.
<i>a-name</i>	Name of the Ethernet OAM Association.
<i>s-mepid</i>	Specifies the MEP for which LTR is to be displayed. The valid range is 1-8191.
<i>num</i>	Specifies the Transaction ID or sequence number returned from a previously transmitted LTM.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- “LTM operation successful. Target is reachable.” – This message suggests that LTM has reached the target and all the expected LTRs have been received.
- “LTM operation unsuccessful. Target not reachable.” – This message suggests that LTM is successfully initiated but the target is not reachable.
- “LTM operation unsuccessful. Target is reachable.” – This message suggest that Target is reachable but at least one of the LTR from intermediate hop is not received.
- “LTM operation in progress.” – This message suggests that LTM operation is in progress. This message will appear if show CLI is fired before LTM Time-out time.
- “LTM Timed out.”- This message suggests that either LTM is not initiated properly or when none of the expected LTRs is received in LTM Time-out duration which is 5 seconds.

### Examples

```
-> show ethoam linktrace-reply domain MD association MA endpoint 10 tran-id 1256
LTM operation successful. Target is reachable.
Ttl : 63,
  LTM Forwarded : yes,
  Terminal MEP : no,
  Last Egress Identifier : 00-00:00:D0:95:EA:79:62,
  Next Egress Identifier : 00-00:00:D0:95:EA:9E:BA,
  Relay Action : RLY_FDB,
```

```

Chassis ID Subtype : LOCALLY_ASSIGNED,
Chassis ID : DUT-2,
Ingress Action : ING_OK,
Ingress Mac : 00:D0:95:EA:9E:D4,
Ingress Port ID Subtype : LOCALLY_ASSIGNED,
Ingress Port ID : 1/1,
Egress Action : EGR_OK,
Egress Mac : 00:D0:95:EA:9E:D5,
Egress Port ID Subtype : LOCALLY_ASSIGNED,
Egress Port ID : 1/2

Ttl : 62,
LTM Forwarded : no,
Terminal MEP : yes,
Last Egress Identifier : 00-00:00:D0:95:EA:9E:BA,
Next Egress Identifier : 00-00:00:00:00:00:00:00,
Relay Action : RLY_HIT,
Chassis ID Subtype : LOCALLY_ASSIGNED,
Chassis ID : DUT-3,
Ingress Action : ING_OK,
Ingress Mac : 00:D0:95:EA:AB:D2,
Ingress Port ID Subtype : LOCALLY_ASSIGNED,
Ingress Port ID : 1/1,
Egress Action : EGR_NONE,
Egress Mac : 00:00:00:00:00:00,
Egress Port ID Subtype : NONE,
Egress Port ID : none

```

### *output definitions*

---

<b>Ttl</b>	Time to live field for the returned LTR.
<b>LTM Forwarded</b>	Indicates whether the LTM was forwarded or not.
<b>Terminal MEP</b>	Indicates whether the MP reported in the reply Ingress/Egress TLV is a MEP.
<b>Last Egress Identifier</b>	Identifies the MEP linktrace initiator that originated, or the responder that forwarded, the LTM to which this LTR is the response.
<b>Next Egress Identifier</b>	Identifies the linktrace responder that transmitted this LTR, and can forward the LTM to the next hop.
<b>Relay Action</b>	Indicates how the dataframe targeted by the LTM would be passed to Egress bridge port. Options include <b>RLY_HIT</b> , <b>RLY_FDB</b> , or <b>RLY_MPDB</b> .
<b>Ingress Action</b>	Indicates how the dataframe targeted by the LTM would be received on the receiving MP. Options include <b>ING_NONE</b> , <b>ING_OK</b> , <b>ING_DOWN</b> , <b>ING_BLOCKED</b> , or <b>ING_VID</b> .
<b>Ingress Mac</b>	The MAC address returned in the ingress MAC address field.
<b>Egress Action</b>	Indicates how the dataframe targeted by the LTM would be passed through Egress bridge port. Options include <b>ING_NONE</b> , <b>ING_OK</b> , <b>ING_DOWN</b> , <b>ING_BLOCKED</b> , or <b>ING_VID</b> .
<b>Egress Mac</b>	The MAC address returned in the egress MAC address field.

---

## Release History

Release 6.2.1; command was introduced.

Release 6.3.4; *mac\_address* parameter deleted.

## Related Commands

[ethoam linktrace](#)

Enables the maintenance entity to initiate transmitting of Link Trace Messages (LTM).

## MIB Objects

DotlagCfmLtr

- dotlagCfmLtrTtl
- dotlagCfmLtrForwarded
- dotlagCfmLtrTerminalMep
- dotlagCfmLtrLastEgressIdentifier
- dotlagCfmLtrNextEgressIdentifier
- dotlagCfmLtrRelay
- dotlagCfmLtrIngress
- dotlagCfmLtrIngressMac
- dotlagCfmLtrEgress
- dotlagCfmLtrEgressMac

---

## show ethoam linktrace-tran-id

Displays the transaction identifiers returned by previously generated LTMs from a specified MEP.

**show ethoam linktrace-tran-id domain** {*domain\_name* | *mac\_address*} **association** *association\_name*  
**endpoint** *mep\_id*

---

### Syntax Definitions

<i>domain_name</i>	Specifies the domain name.
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Name of the Ethernet OAM Association.
<i>mep_id</i>	Specifies the MEP for which LTR is to be displayed. The valid range is 1-8191.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam linktrace-tran-id domain esd.alcatel-lucent.com association alcatel-
sales endpoint 3
S.No   Transaction Id
-----+-----
      1    13357,
      2    13358,
      3    13359,
```

#### output definitions

---

<b>S.No</b>	Indicates the sequence number.
<b>Transaction Id</b>	Indicates the Transaction Identifier returned from a previously transmitted LTM.

---

### Release History

Release 6.3.1; command was introduced.



## Related Commands

[ethoam linktrace](#)

Enables the maintenance entity to initiate transmitting of Link Trace Messages (LTM).

## MIB Objects

DotlagCfmLtr

dotlagCfmLtrSeqNumber

---

---

## show ethoam vlan

Displays the Ethernet OAM statistics of all the Management Domains configured on the bridge. Also, displays the statistics of all the MAs and matching MEPs for all the MDs.

**show ethoam vlan** *vlan-id*

---

### Syntax Definitions

*vlan-id* VLAN ID, primary or non-primary VID (e.g. '10')

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam vlan 10
Primary Vlan : 10,
Associated Vlan-list : 15-20 25 50-80
```

```
-> show ethoam vlan 15
Primary Vlan : 10,
Associated Vlan-list : 15-20 25 50-80
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[ethoam endpoint](#) Enables the maintenance entity to initiate transmitting loopback messages (LBMs) and obtaining loopback replies.

### MIB Objects

```
dotlagCfmMaVlanTable
  dotlagCfmVlanVid
  dotlagCfmVlanPrimaryVid
```

---

## show ethoam statistics

Displays the Ethernet OAM of all the Management Domains configured on the bridge. Also, displays the statistics of all the MAs and matching MEPs for all the MDs.

**show ethoam statistics domain** {*domain\_name* / *mac\_address*} [**association** *association\_name*] [**end-point** *endpoint\_id*]

---

### Syntax Definitions

<i>domain_name</i>	Specifies the domain name.
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Specifies the name of Ethernet OAM Association.
<i>endpoint_id</i>	Specifies a MEP for a specific MA.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ethoam statistics domain MD
MEP-ID  CCM   CCM Seq  LBR   LBR Out  LBR   LBR Bad  Unexpected  MA
        Out   Error    In   of order Out   MSDU    LTR In
-----+-----+-----+-----+-----+-----+-----+-----+-----
          3    105      0      0        0      0        0          0  MA
```

```
-> show ethoam statistics domain MD association MA
MEP-ID  CCM   CCM Seq  LBR   LBR Out  LBR   LBR Bad  Unexpected
        Out   Error    In   of order Out   MSDU    LTR In
-----+-----+-----+-----+-----+-----+-----+-----+-----
          3    105      0      0        0      0        0          0
```

```
-> show ethoam statistics domain MD association MA endpoint 3
MEP-ID  CCM   CCM Seq  LBR   LBR Out  LBR   LBR Bad  Unexpected
        Out   Error    In   of order Out   MSDU    LTR In
-----+-----+-----+-----+-----+-----+-----+-----+-----
          3    105      0      0        0      0        0          0
```

### output definitions

---

<b>MEP-Id</b>	The MEP ID configured in the specified MA.
<b>CCM Out</b>	The total number of CCMs transmitted.

*output definitions*


---

<b>CCM Seq Error</b>	The total number of out-of-sequence CCMs received from all remote MEPs.
<b>LBR In</b>	The total number of valid, in-order LBRs received.
<b>LBR Out of order</b>	The total number of valid, out-of-order LBRs received.
<b>LBR Out</b>	The total number of LBRs transmitted.
<b>LBR Bad MSDU</b>	The total number of LBRs received whose mac_service_data_unit did not match.
<b>Unexpected LTR In</b>	The total number of unexpected LTRs received.

---

**Release History**

Release 6.2.1; command was introduced.  
 Release 6.3.1; *mac\_address* parameter added.

**Related Commands**

**ethoam endpoint** Enables the maintenance entity to initiate transmitting loopback messages (LBMs) and obtaining loopback replies.

**MIB Objects**

Dot1agCfmMep  
 dot1agCfmMepIdentifier  
 dot1agCfmMepCcmOut  
 dot1agCfmMepRCcmSequenceErrors  
 dot1agCfmMepLbrIn  
 dot1agCfmMepLbrInOutOfOrder  
 dot1agCfmMepLbrOut  
 dot1agCfmMepLbrBadMsdu  
 dot1agCfmMepUnexpltrIn

---

## show ethoam config-error

Displays the configuration error for a specified VLAN and port or linkagg.

**show ethoam config-error** [**vlan** *vlan\_id*] [{**port** *slot/port* | **linkagg** *agg\_id*}]

---

### Syntax Definitions

*vlan\_id* VLAN Identifier.  
*slot/port* Physical slot and port.  
*agg\_id* Logical Linkagg Identifier.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
cli> show ethoam config-error
```

```
Vlan    Port    Error-type
-----+-----+-----
10      1/2     CFMleak
10      1/10    CFMleak
30      1/2     CFMleak
```

```
cli> show ethoam config-error vlan 10
```

```
vlan    port    error-type
-----+-----+-----
10      1/2     CFMleak
10      1/10    CFMleak
```

```
cli> show ethoam config-error port 1/2
```

```
vlan    port    error-type
-----+-----+-----
10      1/2     CFMleak
30      1/2     CFMleak
```

```
cli> show ethoam config-error vlan 10 port 1/2
```

```
vlan    port    error-type
-----+-----+-----
10      1/2     CFMleak
```

*output definitions*

---

<b>vlan</b>	VLAN identifier number.
<b>port</b>	Physical slot and port number.
<b>error-type</b>	Type of an error.

---

**Release History**

Release 6.3.4; command was introduced.

**Related Commands**

[ethoam linktrace](#) Enables the maintenance entity to initiate transmitting of Link Trace Messages (LTM).

**MIB Objects**

dotlagCfmConfigErrorListTable  
dotlagCfmConfigErrorListVid  
dotlagCfmConfigErrorListIfIndex  
dotlagCfmConfigErrorListErrorType

---

## show ethoam one-way-delay

Displays the one-way ETH-DM delay (latency) and jitter parameters either for all entries or for a specified MAC address for a particular source MEP-ID.

**show ethoam one-way-delay domain** *domain* **association** *association* **endpoint** *s-mepid* [**mac-address** *mac-add*]

---

### Syntax Definitions

<i>domain</i>	Specifies the domain name used while creating the management domain for which this management association is created.associationPhysical slot and port.
<i>association</i>	Association name for the created Ethernet OAM Association.
<i>s-mepid</i>	Source MEP-ID. Vaild Range 1-8191.
<i>mac-add</i>	MAC-Address of the remote MEP.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Dash ('-') in the output in Jitter column signifies that the value can not be calculated as the previous delay value is unknown. This will happen only when 1DM is received for the first time.
- Maximum entries that Delay Result table can store are 1024. After that, the oldest entry is deleted from the table whenever a new entry is required.

### Examples

```
cli> show ethoam one-way-delay domain MD association MA endpoint 10
Legend: Jitter: - = undefined value
```

Remote Mac address	Delay (us)	Jitter (us)
00:d0:95:ef:44:44	2369	1258
00:d0:95:ef:66:88	5896	282
00:d0:95:ef:88:88	2584	-
00:d0:95:ef:66:55	2698	4782

```
cli> show ethoam one-way-delay domain MD association MA endpoint 10 mac-address
00:d0:95:ef:44:44
Legend: Jitter: - = undefined value
```

Remote Mac address	Delay (us)	Jitter (us)
00:d0:95:ef:44:44	2369	1258

*output definitions*


---

<b>Remote Mac address</b>	Remote MAC address.
<b>Delay</b>	Physical slot and port number.
<b>eJitter</b>	Type of an error.

---

**Release History**

Release 6.4.3; command was introduced.

**Related Commands**

**ethoam one-way-delay** Initiates one-way-delay messages from a particular MEP to an RMEP.

**MIB Objects**

```

dotlagCfmMdTable
    dotlagCfmMdName
dotlagCfmMaNetTable
    dotlagCfmMaNetName
dotlagCfmMepTable
    dotlagCfmMepIdentifier
alaDotlagCfmMepDelayRsltTable
    alaDotlagCfmMepDelayRMepMacAddress
    alaCfmMepDelayTestType
    alaCfmMepDelayTestDelay
    alaCfmMepDelayVariation

```

---



## show ethoam two-way-delay

Displays the two-way ETH-DM delay and jitter parameters for a specific remote MAC-Address or for all the MAC-Addresses for which two-way-delay was initiated for a particular source MEP-ID.

**show ethoam two-way-delay domain** *domain* **association** *association* **endpoint** *s-mepid* [**mac-address** *mac-add*]

---

### Syntax Definitions

<i>domain</i>	Specifies the domain name used while creating the management domain for which this management association is created.associationPhysical slot and port.
<i>association</i>	Association name for the created Ethernet OAM Association.
<i>s-mepid</i>	Source MEP-ID. Vaild Range 1-8191.
<i>mac-add</i>	MAC-Address of the remote MEP.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If '0' appears in the output in RMEP-ID column signifies that the DMM was initiated with target-macaddress. As multiple RMEPs can have same mac-address.
- If a dash ('-') appears in the output in Jitter column signifies that the value can not be calculated as the previous delay value is unknown, i.e. if only one reply for DMM (DMR) is received and this was the first time DMM was initiated from the MEP, then jitter will not be calculated.
- Maximum entries that Delay Result table can store are 1024. After that, the DMM request shall be rejected if a new entry needs to be created for the MEP. If entry for the MEP already exists in the table, that entry shall be updated with the new one.

### Examples

```
cli> show ethoam two-way-delay domain MD association MA endpoint 10 mac-address
00:d0:95:ef:44:44
```

Legend: Jitter: - = undefined value

: RMEP-ID: 0 = two-way-delay was initiated with target mac-address

Remote Mac address	RMEP-ID	Delay (us)	Jitter (us)
00:d0:95:ef:44:44	12	2369	1258

```
cli> show ethoam two-way-delay domain MD association MA endpoint 10 remote-mep 0
Legend: Jitter: - = undefined value
       : RMEP-ID: 0 = two-way-delay was initiated with target mac-address
```

Remote Mac address	RMEP-ID	Delay (us)	Jitter (us)
00:d0:95:ef:66:88	0	5896	282
00:d0:95:ef:88:88	0	2584	1856

```
cli> show ethoam two-way-delay domain MD association MA endpoint 10 remote-mep 15
Legend: Jitter: - = undefined value
       : RMEP-ID: 0 = two-way-delay was initiated with target mac-address
```

Remote Mac address	RMEP-ID	Delay (us)	Jitter (us)
00:d0:95:ef:66:55	15	2736	-

```
cli> show ethoam two-way-delay domain MD association MA endpoint 10
Legend: Jitter: - = undefined value
       : RMEP-ID: 0 = two-way-delay was initiated with target mac-address
```

Remote Mac address	RMEP-ID	Delay (us)	Jitter (us)
00:d0:95:ef:44:44	12	2369	1258
00:d0:95:ef:66:88	0	5896	282
00:d0:95:ef:88:88	0	2584	1856
00:d0:95:ef:66:55	15	2736	-

### output definitions

<b>Remote Mac address</b>	Remote MAC address.
<b>RMEP-ID</b>	Value of RMEP-ID
<b>Delay</b>	Physical slot and port number.
<b>Jitter</b>	Type of an error.

## Release History

Release 6.4.3; command was introduced.

## Related Commands

**ethoam two-way-delay** Initiate two-way-delay messages from a particular MEP to an RMEP using target-endpoint or target-MAC address.

## MIB Objects

```
dotlagCfmMdTable
  dotlagCfmMdName
dotlagCfmMaNetTable
  dotlagCfmMaNetName
dotlagCfmMepTable
  dotlagCfmMepIdentifier
```

```
alaDotlagCfmMepDelayRsltTable  
  alaCfmMepDelayRMepMacAddress  
  alaCfmMepDelayTestType  
  alaCfmMepDelayTestDelay  
alaDotlagCfmMepDelayVariation
```

---



# 46 LINK OAM Commands

Ethernet in the First Mile (EFM), also known as LINK OAM, is a collection of protocols specified in IEEE 802.3ah, defining Ethernet in the access networks that connects subscribers to their immediate service provider. EFM, EFM-OAM and LINKOAM refers to IEEE 802.3ah standard.

LINK OAM (operation, administration, and maintenance) is a tool which monitors Layer-2 link status on the network by sending OAM protocol data units (OAMPDUs) between the network devices. OAMPDUs contain control and status information used to monitor, test and troubleshoot OAM-enabled links. By enabling LINK OAM on switch ports, network administrators can monitor the link-related issues on the first mile. LINK OAM provides network administrators the ability to monitor link performance, remote fault detection and remote loopback control.

---

**Note.** EFM (LINK OAM) does not include functions such as station management, bandwidth allocation or provisioning functions.

---

MIB information for the EFM (LINK OAM) commands is as

*Filename:* alcatel-ind1-dot3-oam-mib.mib  
*Module:* ALCATEL-IND1-DOT3-OAM-MIB

*Filename:* dot3-oam-mib.mib  
*Module:* DOT3-OAM-MIB

A summary of the available commands is listed here:

---

<b>Global Configuration Commands</b>	<a href="#">efm-oam</a> <a href="#">efm-oam multiple-pdu-count</a> <a href="#">efm-oam errored-frame-seconds-summary</a> <a href="#">efm-oam errored-frame-period</a> <a href="#">efm-oam errored-frame</a>
<b>Port Status Commands</b>	<a href="#">efm-oam port status</a> <a href="#">efm-oam port mode</a> <a href="#">efm-oam port propagate-events</a>
<b>Port Event Notification Commands</b>	<a href="#">efm-oam errored-frame</a> <a href="#">efm-oam errored-frame-period</a> <a href="#">efm-oam errored-frame-seconds-summary</a>
<b>Timer Interval Commands</b>	<a href="#">efm-oam port keepalive-interval</a> <a href="#">efm-oam port hello-interval</a>

---

---

<b>Remote Loopback Commands</b>	<code>efm-oam port remote-loopback</code> <code>efm-oam port remote-loopback start</code> <code>efm-oam port l1-ping</code>
---------------------------------	-----------------------------------------------------------------------------------------------------------------------------------

---

<b>Show Commands</b>	<code>show efm-oam port</code> <code>show efm-oam port detail</code> <code>show efm-oam port remote detail</code> <code>show efm-oam port history</code> <code>show efm-oam port l1-ping detail</code> <code>show efm-oam port statistics</code> <code>show efm-oam configuration</code>
----------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

<b>Clear Commands</b>	<code>clear efm-oam statistics</code> <code>clear efm-oam log-history</code>
-----------------------	---------------------------------------------------------------------------------

---

## efm-oam

Enables or disables the LINK OAM protocol on the switch.

**efm-oam {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables the LINK OAM protocol.
<b>disable</b>	Disables the LINK OAM protocol.

### Defaults

By default, the LINK OAM protocol is disabled for the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- LINK OAM must be enabled globally for the OAM to be functional on all the ports.
- When LINK OAM is disabled globally, all dynamically learned information on the port, including peer information, is deleted. However, the LINK OAM configuration for the port is retained.

### Examples

```
-> efm-oam enable
-> efm-oam disable
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">efm-oam port status</a>	Enables or disables LINK OAM protocol on the specified port or on a range of ports.
<a href="#">efm-oam port mode</a>	Configures the LINK OAM mode on the port or on the range of ports to active or passive.
<a href="#">show efm-oam configuration</a>	Displays the global LINK OAM configuration.

### MIB Objects

alaDot3OamStatus

---

## efm-oam port status

Enables or disables LINK OAM protocol on the specified port or on a range of ports.

**efm-oam port** *slot/port* [-*port2*] **status** {**enable** | **disable**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number of the module and the physical port number on that module.
<i>-port2</i>	Specifies the last port in the range of ports.
<b>enable</b>	Enables LINK OAM protocol on the specified port.
<b>disable</b>	Disables LINK OAM protocol on the specified port.

### Defaults

By default, the LINK OAM protocol is disabled on all ports for the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- LINK OAM must be enabled globally for the OAM to be functional on all the ports.
- If LINK OAM is disabled for the port or globally disabled for the switch, any OAMPDUs received are discarded.
- When LINK OAM is disabled for the port, all dynamically learned information on the port, including peer information, is deleted. However, the LINK OAM configuration for the port is retained.
- LINK OAM is not supported on the mirroring ports.
- In link aggregates, LINK OAM is supported on an individual aggregable port only.

### Examples

```
-> efm-oam port 1/1 status enable
-> efm-oam port 1/1 status disable
-> efm-oam port 2/1-10 status enable
-> efm-oam port 2/1-4 status disable
```

### Release History

Release 6.4.2; command was introduced.



**Related Commands**

<b>efm-oam port mode</b>	Configure a LINK OAM mode on the port or on the range of ports to active or passive.
<b>show efm-oam configuration</b>	Displays the global LINK OAM configuration.
<b>show efm-oam port</b>	Displays the status of LINK OAM on all the ports in the system, along with other relevant information such as OAM mode, operational status and loopback status of the port.
<b>show efm-oam port detail</b>	Displays the configuration and other related parameters for a port.

**MIB Objects**

dot3OamTable  
dot3OamAdminState

---

## efm-oam port mode

Configures the LINK OAM mode on the port or on the range of ports to active or passive.

**efm-oam port *slot/port*[-*port2*] mode {active | passive}**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	Specifies the last port in the range of ports.
<b>active</b>	Configures the LINK OAM mode to active.
<b>passive</b>	Configures the LINK OAM mode to passive.

### Defaults

By default, LINK OAM mode is set to active on all ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- LINK OAM discovery process is never initiated from a port when it is in passive mode. At least one of the two peer ports should be in active mode.
- An active port will respond to Loopback-control OAMPDUs only if the peer EFM-OAM client is also in active mode.

### Examples

```
-> efm-oam port 1/1 mode active
-> efm-oam port 1/1 mode passive
-> efm-oam port 2/1-10 mode active
-> efm-oam port 2/1-4 mode passive
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                            |                                                                                                                                                                             |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">efm-oam port status</a>        | Enables or disables LINK OAM protocol on the specified port or on a range of ports.                                                                                         |
| <a href="#">show efm-oam port</a>          | Displays the status of LINK OAM on all the ports in the system, along with other relevant information such as OAM mode, operational status and loopback status of the port. |
| <a href="#">show efm-oam configuration</a> | Displays the global LINK OAM configuration.                                                                                                                                 |

## MIB Objects

dot3OamTable  
dot3OamMode

---

## efm-oam port keepalive-interval

Configures the timeout interval for the dynamically learned neighboring devices on a port or on a range of ports. Keepalive-interval is the maximum time period for which a LINK OAM port shall wait for a hello message from its peer before resetting a discovery session.

**efm-oam port** *slot/port[-port2]* **keepalive-interval** *seconds*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	Specifies the last port in the range of ports.
<i>seconds</i>	Specifies the keep-alive interval value in seconds. The range for this interval is 5 to 120 seconds.

### Defaults

By default, the keep-alive interval value is 5 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Even if unsupported OAMPDU is received on the port, keep-alive timer is reset on the port.
- To set the timer to its default value, set 5 seconds as the keepalive-interval.

### Examples

```
-> efm-oam port 1/1 keepalive-interval 10
-> efm-oam port 2/1-10 keepalive-interval 10
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">efm-oam port hello-interval</a>	Configures the time interval (in seconds) by which the information OAMPDUs are transmitted out of a LINK OAM enabled port.
<a href="#">show efm-oam port detail</a>	Displays the configuration and other related parameters for a port.

### MIB Objects

```
alaDot3OamTable
  alaDot3OamKeepAliveInterval
```

---

## efm-oam port hello-interval

Configures the time interval (in seconds) by which the information OAMPDUs are transmitted out of an LINK OAM enabled port.

**efm-oam port** *slot/port*[-*port2*] **hello-interval** *seconds*

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	Specifies the last port in the range of ports.
<i>seconds</i>	Specifies the time interval (in seconds) this port waits before sending out the next hello packet. The range for this timer is 1 to 60 seconds.

### Defaults

By default, the hello-interval value is set to 1 second.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- Use the hello-interval value of 1 second to reset the timer to its default value.
- On a given port, hello interval time period should not be more than half of keep alive timer on the peer port.

### Examples

```
-> efm-oam port 1/1 hello-interval 5
-> efm-oam port 2/1-10 hello-interval 10
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                        |                                                                                                                                                                                                                                                                              |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>efm-oam port hello-interval</b>     | Configures the time interval (in seconds) by which the information OAMPDUs are transmitted out of a LINK OAM enabled port.                                                                                                                                                   |
| <b>efm-oam port keepalive-interval</b> | Configures the timeout interval for the dynamically learned neighboring devices on a port or on a range of ports. Keepalive-interval is the maximum time period for which a LINK OAM port shall wait for a hello message from its peer before resetting a discovery session. |
| <b>show efm-oam port detail</b>        | Displays the configuration and other related parameters for a port.                                                                                                                                                                                                          |

## MIB Objects

```
alaDot3OamTable  
  alaDot3OamHelloInterval
```

---

## efm-oam port remote-loopback

Specifies whether loopback requests from peers are processed or ignored on the specified port.

**efm-oam port** *slot/port*[-*port2*] **remote-loopback** {**process** | **ignore**}

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	Specifies the last port in the range of ports.
<b>process</b>	Processes incoming loopback request from peer LINK OAM port.
<b>ignore</b>	Ignore (discard) incoming loopback requests.

### Defaults

By default, the incoming loopback requests are ignored.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- When the remote-loopback is in **process** mode, the session started by peer LINK OAM client will be processed by local LINK OAM port. As a result, remote port will be in remote-loopback state and the local port will be local-loopback state.
- When the remote-loopback is in **ignore** mode, the session started by peer LINK OAM will not be processed by the local port.

### Examples

```
-> efm-oam port 1/1 remote-loopback process
-> efm-oam port 1/1 remote-loopback ignore
-> efm-oam port 2/1-10 remote-loopback process
-> efm-oam port 2/1-4 remote-loopback ignore
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- efm-oam port remote-loopback start** Initiates the loopback control PDU towards the peer port to start or stop the loopback session on the specified port.
- show efm-oam port detail** Displays the LINK OAM configuration and other related parameters for a port.
- show efm-oam port remote detail** Displays the configuration and details of the related parameters of the remote port.

## MIB Objects

dot3OamLoopbackTable  
dot3OamLoopbackIgnoreRx

---



## efm-oam port remote-loopback start

Initiates the loopback control PDU towards the peer port to start or stop the loopback session on the specified port.

**efm-oam port *slot/port* remote-loopback {start | stop}**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<b>start</b>	Specifies whether to start the loopback request.
<b>stop</b>	Specifies whether to stop the loopback request.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- Before issuing this command, the LINK OAM port has to be in active mode and discovery of peer ports has to be completed.
- When loopback is started from a port towards a peer port which is configured to ignore the loopback request, the loopback response timer will timeout and no error is displayed. In such case, verify the loopback-state of two ports by using the command [show efm-oam port remote detail](#).
- The maximum number of simultaneous loopback sessions supported per network interface is 2. If a third loopback is started through CLI, an error will be displayed at the CLI prompt.

### Examples

```
-> efm-oam port 1/1 remote-loopback start
-> efm-oam port 1/1 remote-loopback stop
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- efm-oam port remote-loopback** Specifies an action that should perform when a loopback request is received from the peer on a port or on a range of ports.
- show efm-oam port remote detail** Displays the configuration and details of the related parameters of the remote port.
- show efm-oam configuration** Displays the global LINK OAM configuration.

## MIB Objects

dot3OamLoopbackTable  
dot3OamLoopbackStatus

---

## efm-oam port propagate-events

Configures whether or not the specified port or range of ports will propagate local event notifications to the remote peer.

**efm-oam port *slot/port*[-*port2*] propagate-events {critical-event | dying-gasp} {enable | disable}**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	Specifies the last port in the range of ports.
<b>critical-event</b>	Configures the notification status for critical events.
<b>dying-gasp</b>	Configures the notification status for dying gasp events.
<b>enable</b>	Enables the notification of critical-event or dying-gasp events to the peer.
<b>disable</b>	Disables the notification of critical-event or dying-gasp events to the peer.

### Defaults

By default, the notification status for both critical-event and dying-gasp events is set to enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- When the system is set for critical event or a dying-gasp event, the local OAM entity indicates the event through the OAMPDU flags to its peer OAM entity.
- In case of port admin down, the OAM IFU-PDU with dying-gasp bit set will be sent to peer as soon as a failure is detected and transmission will continue till the specific port actually goes down.
- In case of takeover or reload of the switch, the OAM IFU-PDU with dying-gasp bit set will be sent to peer as soon as a failure is detected and transmission will continue till the specific device actually goes down.
- The information PDUs with dying gasp bit set is transmitted towards peer as soon as link-down is detected at NI. However, if there is a link flap (i.e link comes again) before the expiry of link-flap timer, then normal information PDU transmission with dying-gasp bit reset shall resume. This will cause clearing of alarms or trap on the peer port.

### Examples

```
-> efm-oam port 1/1 propagate-events critical-event enable
-> efm-oam port 1/1 propagate-events critical-event disable
-> efm-oam port 2/1-10 propagate-events dying-gasp enable
-> efm-oam port 2/1-4 propagate-events dying-gasp disable
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**show efm-oam port remote detail**

Displays the configuration and details of the related parameters of the remote port.

**show efm-oam port statistics**

Displays the LINK OAM statistics on a port, or a range of ports or on all ports.

## MIB Objects

dot3OamEventConfigTable

dot3OamDyingGaspEnable

dot3OamCriticalEventEnable

---

## efm-oam errored-frame-period

Configures the threshold, window frame values and the status for notification when the number of frame-errors exceed the threshold in a given period of time (specified) by window. When the number of frame errors exceeds a threshold within a given window defined by a number of frames (for example, 10 frames out of 1000 had errors), an Errored Frame Period event is generated.

**efm-oam port** *slot/port*[-*port2*] **errored-frame-period** [**threshold** *threshold\_symbols*] [**window** *window\_frames*] [**notify** {**enable** | **disable**}]

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot. (e.g. 3/1-4 specifies ports 1,2,3 and 4 on slot 3).
<i>threshold_symbols</i>	Specifies the frame error threshold number. The range supported is 1 to maximum 4 byte integer value (4294967295).
<i>window_frames</i>	Specifies the number of frames used to define a window within which the frame period errors are measured.
<b>enable</b>	Enables notification of the Errored Frame Period event.
<b>disable</b>	Disables notification of the Errored Frame Period event.

### Defaults

parameter	default
<i>threshold_symbols</i>	1 frame error
<b>enable</b>   <b>disable</b>	enable

The default for *window\_frames* depends on the port-types. The default, minimum and maximum supported values for various port-types are:

port-type	default value	minimum value	maximum value
100 mbps	200000	20000	12000000
1000 X	2000000	200000	120000000
1000 T	2000000	200000	120000000
10 Gig	20000000	2000000	1200000000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

## Usage Guidelines

- The command can be issued in any order like window, threshold, and notify. However, at least one option needs to be entered.
- To enter many ports in a single command, use a hyphen to specify a range of ports (e.g. 3/1-16).

## Examples

```
-> efm-oam port 1/1 errored-frame-period threshold 1 window 3000000 notify enable
-> efm-oam port 1/1 errored-frame-period notify disable
-> efm-oam port 2/1-4 errored-frame-period threshold 1 window 3000000 notify enable
-> efm-oam port 2/1-2 errored-frame-period notify disable
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

### [efm-oam errored-frame](#)

Configures the threshold, window and notify-status for errored-frame on a port. The frame-period measures the frame-errors, within a specified window of time.

### [efm-oam errored-frame-seconds-summary](#)

Configures the threshold, window and notify-status for errored-frame-seconds-summary on a port. The Errored Seconds are the time in seconds in which at least one frame error has occurred.

### [show efm-oam port detail](#)

Displays the Errored Frame Period Event threshold, window, and notification parameter values for a port.

## MIB Objects

```
dot3OamEventConfigTable
  dot3OamErrFramePeriodWindow
  dot3OamErrFramePeriodThreshold
  dot3OamErrFramePeriodEvNotifEnable
```

---

## efm-oam errored-frame

Configures an error frame threshold or window on a LINK OAM port and set notification status for errored frame events. When the number of frame errors exceeds a threshold within a given window defined by a period of time (for example, 10 frames in 1 second had errors), an Errored Frame Event is generated.

**efm-oam port** *slot/port[-port2]* **errored-frame** [**threshold** *threshold\_symbols*] [**window** *window\_seconds*] [**notify** {**enable** | **disable**}]

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g. 3/1-4 specifies ports 1,2,3, and 4 on slot 3).
<i>threshold_symbols</i>	Specifies the frame error threshold number.
<i>window_seconds</i>	Specifies the window of time, in which the frame errors will be measured. The duration should be in units of 100ms.
<b>enable</b>	Enables notification of the Errored Frame event.
<b>disable</b>	Disables notification of the Errored Frame event.

### Defaults

<b>parameter</b>	<b>default</b>
<i>threshold_symbols</i>	1 frame error
<i>window_seconds</i>	1 second (10 dsec)
<b>enable</b>   <b>disable</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- The various options, threshold, window and notify can be issued in any order. However, at least one option has to be entered.
- To enter many ports in a single command, use a hyphen to specify a range of ports (e.g. 3/1-16).

### Examples

```
-> efm-oam port 1/1 errored-frame threshold 10 window 32 notify enable
-> efm-oam port 1/1 errored-frame notify disable
-> efm-oam port 2/1-4 errored-frame threshold 10 window 32 notify enable
-> efm-oam port 2/1-2 errored-frame notify disable
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                                       |                                                                                                                                                                                        |
|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">efm-oam errored-frame-seconds-summary</a> | Configures the threshold, window and notify-status for errored-frame-seconds-summary on a port.                                                                                        |
| <a href="#">efm-oam errored-frame-period</a>          | Configures the threshold, window and notify-status for errored-frame-period errors on a port. The errored-frame-period measures the frame-errors, within a specified window of frames. |
| <a href="#">show efm-oam port statistics</a>          | Displays the LINK OAM statistics on a port, or a range of ports or on all ports.                                                                                                       |

## MIB Objects

```
dot3OamEventConfigTable  
dot3OamErrFrameWindow  
dot3OamErrFrameThreshold  
dot3OamErrFrameEvNotifEnable
```

---



## efm-oam errored-frame-seconds-summary

Configures the threshold, window and notify-status for errored-frame-seconds-summary on a port. The Errored Seconds are the time in seconds in which at least one frame error has occurred.

**efm-oam port *slot/port*[-*port2*] errored-frame-seconds-summary [threshold *threshold\_seconds*] [window *window\_seconds*] [notify {enable | disable}]**

---

### Syntax Definitions

<i>slot/port</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>-port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g 3/1-4 specifies ports 1,2,3, and 4 on slot 3).
<i>threshold_symbols</i>	Specifies the frame error threshold number.
<i>window_seconds</i>	Specifies the window of time in which the frame errors will be measured.
<b>enable</b>	Enables notification of the Errored Frame Seconds Summary event.
<b>disable</b>	Disables notification of the Errored Frame Seconds Summary event.

### Defaults

parameter	default
<i>threshold_symbols</i>	1 errored frame second
<i>window_seconds</i>	60 seconds. (600 dsec).
<b>enable   disable</b>	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- The various options, threshold, window and notify can be issued in any order. However, at least one option has to be entered.
- To enter many ports in a single command, use a hyphen to specify a range of ports (e.g. 3/1-16).

### Examples

```
-> efm-oam port 1/1 errored-frame-seconds-summary threshold 1 window 700 notify
enable
-> efm-oam port 1/1 errored-frame-seconds-summary notify disable
-> efm-oam port 2/1-4 errored-frame-seconds-summary threshold 1 window 700 notify
enable
-> efm-oam port 2/1-2 errored-frame-seconds-summary notify disable
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                     |                                                                                                                                                                                        |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>efm-oam errored-frame</b>        | Configures the threshold, window and notify-status for errored-frame on a port. The frame-period measures the frame-errors, within a specified window of time.                         |
| <b>efm-oam errored-frame-period</b> | Configures the threshold, window and notify-status for errored-frame-period errors on a port. The errored-frame-period measures the frame-errors, within a specified window of frames. |
| <b>show efm-oam port statistics</b> | Displays the LINK OAM statistics on a port, or a range of ports or on all ports.                                                                                                       |

## MIB Objects

```
dot3OamEventConfigTable
  dot3OamErrFrameSecsSummaryWindow
  dot3OamErrFrameSecsSummaryThreshold
  dot3OamErrFrameSecsEvNotifEnable
```

---

## efm-oam multiple-pdu-count

Configures the value of multiple PDU count. When multiple PDU count is set to a specific number in case of any of the threshold cross events, the same event notification PDU will be transmitted that many times towards the peer.

**efm-oam multiple-pdu-count** *count*

---

### Syntax Definitions

*count* Specifies the number of PDUs that have to be sent in case of event-notification TLVs. The range is 1 to 10 PDUs.

### Defaults

By default, the PDU-count value is set to 3.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

N/A

### Examples

```
-> efm-oam multiple-pdu-count 5
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show efm-oam configuration](#) Displays the global LINK OAM configuration.

[show efm-oam port remote detail](#) Displays the configuration and details of the related parameters of the remote port.

### MIB Objects

alaDot3OamMultiplePduCount

---

## efm-oam port l1-ping

Configures the number of frames to be sent by the current LINK OAM port to the remote port's MAC address (l1 ping) and the delay between each consecutive sent frames and to start the ping operation.

**efm-oam port *slot/port* l1-ping [num-frames *number*] [delay *milliseconds*] [start]**

---

### Syntax Definitions

<i>slot/port</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<i>number</i>	Specifies the number of frames that needs to be sent during ping operation. The allowed range of numbers is between 1 to 20.
<i>milliseconds</i>	Specifies time interval between two consecutive PDUs. The allowed range of delay is between 100 to 1000 milliseconds.
<b>start</b>	Specifies to start the ping operation.

### Defaults

parameter	default
<i>number</i>	5 frames
<i>milliseconds</i>	1000 milliseconds

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- The command is valid only when the LINK OAM is enabled globally, port is in active mode, discovery is done, and the port is in remote loopback mode.
- L1 ping can be started only when the port is in remote loopback mode.

### Examples

```
-> efm-oam port 1/12 l1-ping num-frames 6 delay 300 start
-> efm-oam port 1/20 l1-ping num-frames 12 delay 500 start
-> efm-oam port 1/15 l1-ping num-frames 5 delay 100 start
-> efm-oam port 1/15 l1-ping num-frames 4 delay 200 start
-> efm-oam port 1/5 l1-ping num-frames 100 delay 300 start
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

**show efm-oam port l1-ping detail**

Displays the frames lost during a loopback session.

**show efm-oam port statistics**

Displays the LINK OAM statistics on a port, or a range of ports or on all ports.

## MIB Objects

```
alaDot3OamLoopbackTable  
  alaDot3OamPortL1PingFramesConf  
  alaDot3OamPortL1PingFramesDelay  
  alaDot3OamPortL1PingStatus  
  alaDot3OamPortL1PingFramesSent  
  alaDot3OamPortL1PingFramesReceived  
  alaDot3OamPortL1PingAverageRoundTripDelay
```

---

## show efm-oam configuration

Displays the global LINK OAM configuration.

**show efm-oam configuration**

---

### Syntax Definitions

N/A

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

- Use this command to display the global configuration of LINK OAM.

### Examples

```
-> show efm-oam configuration
EFM OAM Status           : enabled,
Multiple PDU Count       : 5
```

Output fields are described here:

#### *output definitions*

---

<b>EFM OAM status</b>	The current administrative status of LINK OAM on this switch ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Multiple PDU Count</b>	The number of PDUs sent when LINK OAM needs to send multiple Event Notification.

---

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">efm-oam</a>	Enables or disables the LINK OAM protocol on the switch.
<a href="#">show efm-oam port detail</a>	Displays the LINK OAM configuration and other related parameters for a port.

### MIB Objects

```
alaDot3OamStatus
  alaDot3OamMultiplePduCount
```

---

## show efm-oam port

Displays the status of LINK OAM on all the ports in the system, along with other relevant information such as OAM mode, operational status and loopback status of the port.

**show efm-oam port** [*slot/port1-port2*] [**enable** | **disable**] [**active** | **passive**]

---

### Syntax Definitions

<i>slot/port1</i>	The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
-port2	The last port number in a range of ports that you want to configure on the same slot (e.g. 3/1-4 specifies ports 1,2,3, and 4 on slot 3).
<b>enable</b>	Specifies whether to display the LINK OAM enabled ports.
<b>disable</b>	Specifies whether to display the LINK OAM disabled ports.
<b>active</b>	Specifies whether to display the LINK OAM active ports.
<b>passive</b>	Specifies whether to display the LINK OAM passive ports.

### Defaults

By default, displays the LINK OAM status on all ports.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Use this command to display the state of LINK OAM on the basis of enabled or disabled port and on the basis of active or passive port.

### Examples

```
-> show efm-oam port
```

Port	EFM-OAM Status	Mode	Operational Status	Loopback Status
1/1	enabled	active	operational	remoteLoopback
1/2	disabled	active	activeSendLocal	noLoopback
1/3	enabled	passive	activeSendLocal	noLoopback
1/4	disabled	active	activeSendLocal	noLoopback
1/5	disabled	active	activeSendLocal	noLoopback
1/6	disabled	active	activeSendLocal	noLoopback
1/7	disabled	active	activeSendLocal	noLoopback

```
-> show efm-oam port 1/1-5
```

Port	EFM-OAM Status	Mode	Operational Status	Loopback Status
1/1	enabled	active	operational	remoteLoopback
1/2	disabled	active	activeSendLocal	noLoopback
1/3	enabled	passive	activeSendLocal	noLoopback

```

1/4      disabled  active  activeSendLocal  noLoopback
1/5      disabled  active  activeSendLocal  noLoopback

```

-> show efm-oam port 1/1-3 enabled

```

Port  Mode      Operational Status  Loopback Status
-----+-----+-----+-----
1/1   active    operational          remoteLoopback
1/3   passive   activeSendLocal     noLoopback

```

-> show efm-oam port enabled

```

Port      Mode  Operational Status  Loopback Status
-----+-----+-----+-----
1/1       active  activeSendLocal  remoteLoopback
1/3       passive activeSendLocal   noLoopback
1/7       passive activeSendLocal   noLoopback

```

-> show efm-oam port disabled

```

Port      Mode  Operational Status  Loopback Status
-----+-----+-----+-----
1/2       active  activeSendLocal  noLoopback
1/4       passive activeSendLocal   noLoopback
1/5       active  activeSendLocal   noLoopback

```

-> show efm-oam port enabled passive

```

Port  Operational Status  Loopback Status
-----+-----+-----
1/3   activeSendLocal     noLoopback
1/7   activeSendLocal     noLoopback

```

-> show efm-oam port active

```

Port  EFM-OAM Status  Operational Status  Loopback Status
-----+-----+-----+-----
1/1   enabled         activeSendLocal     remoteLoopback
1/2   disabled        activeSendLocal     noLoopback
1/3   enabled         activeSendLocal     noLoopback
1/4   disabled        activeSendLocal     noLoopback
1/5   disabled        activeSendLocal     noLoopback
1/6   disabled        activeSendLocal     noLoopback
1/7   disabled        activeSendLocal     noLoopback

```

Output fields are described here:

#### *output definitions*

<b>Port</b>	Displays the slot/port number.
<b>EFM-OAM Status</b>	The state of the EFM-OAM. LINK OAM instance can have any of the following status. <ul style="list-style-type: none"> <li>• <b>Enabled</b> : Specifies that the LINK OAM is disabled on the interface.</li> <li>• <b>Disabled</b> : Specifies that the LINK OAM is disabled on the interface.</li> </ul>



*output definitions (continued)***Operational Status**

The status of the port in discovering whether the peer has LINK OAM capability or not. It has the following states:

- **activeSendLocal**: Specifies that the LINK OAM port is actively trying to discover whether the peer has LINK OAM capability but has not yet made that determination.
- **sendLocalAndRemote**: Specifies that the local LINK OAM port has discovered the peer but has not yet accepted or rejected the configuration of the peer. The local device will then decide that the peer device is acceptable or unacceptable and then accept or decline LINK OAM peering.
- **sendLocalAndRemoteOk**: Specifies the state when LINK OAM peering is allowed by the local port.
- **oamPeeringLocallyRejected**: Specifies the state when the local OAM entity rejects the peer OAM entity.
- **oamPeeringRemotelyRejected**: Specifies the state when the remote LINK OAM port rejects the peering.
- **operational**: Specifies the state when the local LINK OAM port learns that both the local LINK OAM entity and the remote LINK OAM entity have accepted the peering.
- **nonOperHalfDuplex**: Specifies the value nonOperHalfDuplex is returned whenever LINK OAM is enabled. Since LINK OAM functions are not designed to work completely over half-duplex interfaces, the value nonOperHalfDuplex is returned whenever LINK OAM is enabled but the interface is in half-duplex operation.
- **linkFault**: Specifies that the link between the host and the peer has detected a fault.
- **passiveWait**: Specifies that the LINK OAM ports are in passive mode.

**Loopback Status**

The state of remote loopback. It can be **initiatingLoopback**, **terminatingLoopback**, **localLoopback**, **remoteLoopback**, **noLoopback**, or **unknown**.

**Mode**

The state of LINK OAM mode, **active** or **passive**.

---

**Release History**

Release 6.4.2; command was introduced.

## Related Commands

**efm-oam multiple-pdu-count** Configures the value of multiple PDU count. When multiple PDU count is set to a specific number in case of any of the threshold cross events, the same event notification PDU will be transmitted that many times towards the peer.

## MIB Objects

```
dot3OamTable
  dot3OamAdminState
  dot3OamMode
  dot3OamOperStatus
  dot3OamLoopbackTable
  dot3OamLoopbackStatus
```

---

## show efm-oam port detail

Displays the LINK OAM configuration and other related parameters for a port.

**show efm-oam port *slot/port* detail**

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Use this command when you want to get LINK OAM configuration details for a specific port.

### Examples

```
-> show efm-oam port 1/1 detail
OAM Status           : enable,
Operational Status   : activeSendLocal,
Mode                 : active,
Max OamPDU size      : 1518,
Config Revision      : 0,
Functions Supported   : loopback,event notification,
Loopback Status      : noLoopback,
Loopback Rx Status   : ignore,
Max OamPDUs          : 10,
KeepAlive Interval(seconds) : 10,
Hello Interval(seconds) : 5,
Dying Gasp Notify Status : enable,
Critical Event Notify Status : enable
```

Link Monitoring	Window	Threshold (errors)	Notify Status
errored-frame	10 dsec	10 frames	enable
errored-frame-period	2000000 frames	10 frames	enable
errored-frame-seconds-summary	600 dsec	1 framesec	enable

Output fields are described here:

#### *output definitions*

---

<b>OAM Status</b>	The state of LINK OAM on the port.
<b>Operational Status</b>	The state of the port in discovering whether the peer has LINK OAM capability or not.

*output definitions (continued)*


---

<b>Mode</b>	The state of LINK OAM mode on the port, <b>active</b> or <b>passive</b> .
<b>Max OamPDU size</b>	Displays the maximum OAMPDU that the LINK OAM port can support.
<b>Config Revision</b>	Displays the configuration revision of the LINK OAM port as reflected in the latest OAMPDU sent by the peer port.
<b>Functions Supported</b>	Displays the LINK OAM functions supported by the specified port.
<b>Loopback Status</b>	Displays the loopback status of the specified LINK OAM port.
<b>Loopback Rx Status</b>	The action that should be performed by the LINK OAM port when a loopback request is received from the peer port.
<b>Max OamPDUs</b>	Specifies the maximum OAMPDUs that can be exchanged between two peers.
<b>KeepAlive Interval</b>	Displays the timeout interval of the specified LINK OAM port for the dynamically learned peer port.
<b>Hello Interval</b>	Displays the time interval between two OAMPDUs in seconds.
<b>Dying Gasp Notify Status</b>	The state of notification for dying gasp events, <b>enable</b> or <b>disable</b> .
<b>Critical Event Notify Status</b>	The state of notification for critical events, <b>enable</b> or <b>disable</b> .
<b>Link Monitoring</b>	Displays the errors detected on the remote link.
<b>Window</b>	The frame error event window in the received OAMPDU.
<b>Threshold</b>	The number of errored frames in the period required for the event to be generated.
<b>Notify Status</b>	The state of notification for LINK OAM errors on the port, <b>enable</b> or <b>disable</b> .

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<a href="#">show efm-oam port</a>	Displays the status of LINK OAM on all the ports in the system, along with other relevant information like OAM mode, operational status and loopback status of the port.
-----------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**MIB Objects**

```
dot3OamTable
  dot3OamAdminState
  dot3OamOperStatus
  dot3OamMode
  dot3OamMaxOamPduSize
  dot3OamConfigRevision
  dot3OamFunctionsSupported
alaDot3OamTable
  alaDot3OamKeepAliveInterval
  alaDot3OamHelloInterval
dot3OamLoopbackTable
  dot3OamLoopbackStatus
```

```
dot3OamLoopbackIgnoreRx
dot3OamEventConfigTable
dot3OamDyingGaspEnable
dot3OamCriticalEventEnable
dot3OamErrFramePeriodWindow
dot3OamErrFramePeriodThreshold
dot3OamErrFramePeriodEvNotifEnable
dot3OamErrFrameWindow
dot3OamErrFrameThreshold
dot3OamErrFrameEvNotifEnable
dot3OamErrFrameSecsSummaryWindow
dot3OamErrFrameSecsSummaryThreshold
dot3OamErrFrameSecsEvNotifEnable
```

---

## show efm-oam port statistics

Displays the LINK OAM statistics on a port, or a range of ports or on all ports.

**show efm-oam port *slot/port*[-*port2*] statistics**

**show efm-oam port statistics**

---

### Syntax Definitions

<i>slot/port</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
- <i>port2</i>	The last port number in a range of ports that you want to configure on the same slot (e.g. 3/1-4 specifies ports 1,2,3, and 4 on slot 3).

### Defaults

By default, the statistics of all ports are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Use the **port** parameter to display the statistics of a specific port.

### Examples

```
-> show efm-oam port 1/1 statistics
Port 1/1:
Information OAMPDU Tx           : 1035,
Information OAMPDU Rx           : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx      : 1,
Loopback Control OAMPDU Rx      : 0,
Unsupported OAMPDU Tx           : 0,
Unsupported OAMPDU Rx           : 0,
Frames Lost due to OAM          : 0
```

```
-> show efm-oam port 1/1-4 statistics
Port 1/1:
Information OAMPDU Tx           : 1035,
Information OAMPDU Rx           : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx      : 1,
Loopback Control OAMPDU Rx      : 0,
Unsupported OAMPDU Tx           : 0,
```

```
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM        : 0

Port 1/2:
Information OAMPDU Tx          : 1035,
Information OAMPDU Rx          : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU Tx : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM        : 0

Port 1/3:
Information OAMPDU Tx          : 1035,
Information OAMPDU Rx          : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM        : 0

Port 1/4:
Information OAMPDU Tx          : 1035,
Information OAMPDU Rx          : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM        : 0
```

-> show efm-oam statistics

```
Port 1/1:
Information OAMPDU Tx          : 1035,
Information OAMPDU Rx          : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM        : 0
```

Port 1/2:

```

Information OAMPDU Tx           : 1035,
Information OAMPDU Rx           : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM         : 0

```

Port 1/3:

```

Information OAMPDU Tx           : 1035,
Information OAMPDU Rx           : 988,
Unique Event Notification OAMPDU Tx : 0,
Unique Event Notification OAMPDU Rx : 0,
Duplicate Event Notification OAMPDU TX : 0,
Duplicate Event Notification OAMPDU Rx : 0,
Loopback Control OAMPDU Tx     : 1,
Loopback Control OAMPDU Rx     : 0,
Unsupported OAMPDU Tx          : 0,
Unsupported OAMPDU Rx          : 0,
Frames Lost due to OAM         : 0

```

Output fields are described here:

#### *output definitions*

<b>Information OAMPDU Tx</b>	The number of OAM PDUx transmitted by the port.
<b>Information OAMPDU Rx</b>	The number of OAM PDUx received by the port.
<b>Unique Event Notification OAMPDU Tx</b>	The number of unique event notification OAM PDUs transmitted by the port.
<b>Unique Event Notification OAMPDU Rx</b>	The number of unique event notification OAM PDUs received by the port.
<b>Duplicate Event Notification OAMPDU TX</b>	The number of duplicate event notification OAM PDUs transmitted by the port.
<b>Duplicate Event Notification OAMPDU Rx</b>	The number of duplicate event notification OAM PDUs received by the port.
<b>Unsupported OAMPDU Tx</b>	The number of unsupported OAM PDUs transmitted by the port.
<b>Unsupported OAMPDU Rx</b>	The number of unsupported OAM PDUs received by the port.
<b>Frames Lost due to OAM</b>	The number of frames discarded by the OAM port.

### **Release History**

Release 6.4.2; command was introduced.



## Related Commands

### **show efm-oam port history**

Displays the log of events that have occurred on a port. This command can also be used to display specific event logs on a port.

## MIB Objects

```
dot3OamStatsTable  
  dot3OamInformationTx  
  dot3OamInformationRx  
  dot3OamUniqueEventNotificationTx  
  dot3OamUniqueEventNotificationRx  
  dot3OamDuplicateEventNotificationTx  
  dot3OamDuplicateEventNotificationRx  
  dot3OamLoopbackControlTx  
  dot3OamLoopbackControlRx  
  dot3OamUnsupportedCodesTx  
  dot3OamUnsupportedCodesRx  
  dot3OamFramesLostDueToOam
```

---

## show efm-oam port remote detail

Displays the LINK OAM configuration and details of the related parameters of the remote port.

**show efm-oam port *slot/port* remote detail**

---

### Syntax Definitions

*slot/port* Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

N/A.

### Examples

```
-> show efm-oam port 1/1 remote detail
Remote MAC address : 00:30:96:fd:6b:fa,
Remote Vendor (info): 0x15a1
Remote Vendor (oui) : XYZ
Mode                : active,
Max OAMPDU size    : 1518,
Config Revision    : 0,
Functions Supported : loopbackSupportEventSupport
```

Output fields are described here:

#### *output definitions*

---

<b>Remote MAC address</b>	Displays the MAC address of the remote peer.
<b>Remote Vendor (info)</b>	Displays the vendor number in hexadecimal of the remote peer.
<b>Remote Vendor (oui)</b>	Displays the Organizationally Unique Identifier (OUI) number of the remote peer.
<b>Mode</b>	The state of LINK OAM mode on the remote port, <b>active</b> or <b>passive</b> .
<b>Max OAMPDU size</b>	Displays the maximum OAMPDU size that the remote LINK OAM port can support.
<b>Config Revision</b>	Displays the configuration revision of the remote LINK OAM port.
<b>Functions Supported</b>	Displays the LINK OAM functions supported by the remote port.

---

### Release History

Release 6.4.2; command was introduced.

## Related Commands

**show efm-oam port history** Displays the log of events that have occurred on a port. This command can also be used to display specific event logs on a port.

**clear efm-oam statistics** Clears the LINK OAM statistics on a port.

## MIB Objects

```
dot3OamPeerTable  
  dot3OamPeerMacAddress  
  dot3OamPeerVendorOui  
  dot3OamPeerVendorInfo  
  dot3OamPeerMode  
  dot3OamPeerMaxOamPduSize  
  dot3OamPeerConfigRevision  
  dot3OamPeerFunctionsSupported
```

---

## show efm-oam port history

Displays the log of events that have occurred on a port. Use this command to display specific event logs on a port.

**show efm-oam port *slot/port* history [log-type { link-fault | errored-frame | errored-frame-period | errored-frame-seconds | dying-gasp | critical } ]**

---

### Syntax Definitions

<i>slot/port</i>	Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).
<b>link-fault</b>	Displays link fault event logs. Specifies the loss of signal is detected by the receiver. This is sent once per second in the Information OAMPDU
<b>errored-frame</b>	Displays errored-frame event log. an errored frame event occurs when the number of detected error frames over a specific interval exceeds the predefined threshold.
<b>errored-frame-period</b>	Displays an errored-frame-period event logs. An errored frame period event occurs if the number of frame errors in specific number of received frames exceeds the predefined threshold.
<b>errored-frame-seconds</b>	Displays errored-frame-seconds event logs. When the number of error frame seconds detected on a port over a detection interval reaches the error threshold, an errored frame seconds event occurs.
<b>dying-gasp</b>	Specifies an unrecoverable condition (e.g., a power failure).
<b>critical</b>	Specifies a crucial event that has occurred on the port.

### Defaults

By default, all log types are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Timestamp will be in following format:

*DAY MON Date hh:mm:ss yyyy*

### Examples

```
-> show efm-oam port 1/1 history
Legend: Location: * - Remote, # - Local
LogID   TimeStamp                Log Type                Event
-----+-----+-----+-----+-----+-----+-----+
*      1      TUE JAN 06 19:44:51 2009  linkFault                1
#      2      TUE JAN 06 19:45:51 2009  erroredFrame             1
```

```
-> show efm-oam port 1/1 history log-type link-fault
Legend: Location: * - Remote, # - Local
LogID   TimeStamp                               Event
                                               Total
-----+-----+-----+-----+-----+
*   1      TUE JAN 06 19:46:51 2009         1
#   2      TUE JAN 06 19:46:51 2009         1
```

Output fields are described here:

#### *output definitions*

---

<b>LogID</b>	Specifies individual events within the event log.
<b>Timestamp</b>	The value of actual time at the time of the logged event.
<b>Log Type</b>	Specifies the type of event log.
<b>Event Total</b>	Specifies the total number of times one or more of these occurrences have resulted in an Event Notification.

---

### **Release History**

Release 6.4.2; command was introduced.

### **Related Commands**

- show efm-oam port statistics** Displays the LINK OAM statistics on a port, or a range of ports or on all ports.
- clear efm-oam log-history** Clears the LINK OAM event logs history on a port.

### **MIB Objects**

```
dot3OamEventLogTable
  dot3OamEventLogIndex
  dot3OamEventLogTimestamp
  dot3OamEventLogOui
  dot3OamEventLogType
  dot3OamEventLogLocation
  dot3OamEventLogWindowHi
  dot3OamEventLogWindowLo
  dot3OamEventLogThresholdHi
  dot3OamEventLogThresholdLo
  dot3OamEventLogValue
  dot3OamEventLogRunningTotal
  dot3OamEventLogEventTotal
```

---

## show efm-oam port l1-ping detail

Displays the frames lost during a loopback session.

**show efm-oam port *slot/port* l1-ping detail**

---

### Syntax Definitions

*slot/port* Specifies the slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).

### Defaults

N/A.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

The command can also be used even on a port on which LINK OAM is not enabled.

### Examples

```
-> show efm-oam port 1/1 l1-ping detail
frames configured          = 5,
frames delay(msec)        = 100,
L1 ping status             = Successful,
frames sent                = 4,
frames received            = 4,
avg delay (msec)           = 5

-> show efm-oam port 1/4 l1-ping detail
frames configured          = 5,
frames delay(msec)        = 200,
L1 ping status             = Successful,
frames sent                = 4,
frames received            = 2,
avg delay (msec)           = 15
```

Output fields are described here:

#### *output definitions*

---

<b>frames configured</b>	Specifies the number of frames that are sent during l1-ping.
<b>delay configured</b>	Specifies the delay between transmission of two consecutive frames during L1 ping.
<b>L1 ping status</b>	The status of the L1 ping operation. The status can be <b>Successful</b> , <b>Unsuccessful</b> or <b>default</b> .
<b>frames sent</b>	Specifies the frames sent during last L1 ping.
<b>frames received</b>	Specifies the frames received during last L1 ping.
<b>average delay</b>	Specifies the average delay taken by frames during last L1 ping.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

### [efm-oam port l1-ping](#)

Configures the number of frames that needs to be sent during L1-ping, the delay between each consecutive sent frames and to start the L1-ping operation.

## MIB Objects

```
alaDot3OamLoopbackTable
  alaDot3OamPortL1PingFramesConf
  alaDot3OamPortL1PingFramesDelay
  alaDot3OamPortL1PingStatus
  alaDot3OamPortL1PingFramesSent
  alaDot3OamPortL1PingFramesReceived
  alaDot3OamPortL1PingAverageRoundTripDelay
```

---

## clear efm-oam statistics

Clears the LINK OAM statistics on a port, range of ports or all ports.

**clear efm-oam statistics** *port slot/port[-port2]*

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).

*-port2* Specifies the last port in the range of ports.

### Defaults

By default, the statistics are cleared for all the ports if no port is specified in the command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Use the port parameter with this command to clear the statistics for a specific port or range of ports.

### Examples

```
-> clear efm-oam statistics
-> clear efm-oam statistics port 1/1
-> clear efm-oam statistics port 2/1-3
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show efm-oam port statistics** Displays the LINK OAM statistics on a port, or a range of ports or on all ports.

**clear efm-oam log-history** Clears the LINK OAM event logs history on a port.

### MIB Objects

```
alaDot3OamGlobalClearStats
alaDot3OamStatsTable
alaDot3OamPortClearStats
```

---



## clear efm-oam log-history

Clears the LINK OAM event logs history a port, range of ports or all ports.

**clear efm-oam log-history** *port slot/port[-port2]*

---

### Syntax Definitions

*slot/port* The slot number for the module and the physical port number on that module (e.g. 3/1 specifies port 1 on slot 3).

*-port2* Specifies the last port in the range of ports.

### Defaults

By default, the event logs are cleared for all the ports if no port is specified in the command.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855.

### Usage Guidelines

Use the port parameter with this command to clear the statistics for a specific port or range of ports.

### Examples

```
-> clear efm-oam log-history
-> clear efm-oam log-history port 1/1
-> clear efm-oam log-history port 2/1-3
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show efm-oam port statistics** Displays the LINK OAM statistics on a port, or a range of ports or on all ports.

**show efm-oam port history** Displays the log of events that have occurred on a port. Use this command to display specific event logs on a port.

### MIB Objects

```
alaDot3OamGlobalClearEventLogs
alaDot3OamEventLogTable
alaDot3OamPortClearEventLogs
```

---



# 47 Service Assurance Agent Commands

Service Assurance Agent (SAA) enables customers to assure new business-critical applications, as well as services that utilize data, voice, and video.

With Service Assurance Agents, users can verify service guarantees, increase network reliability by validating network performance, proactively identify network issues, and increase return on investment (ROI) by easing the deployment of new services. Service Assurance Agent uses active monitoring to generate traffic in a continuous, reliable, and predictable manner, thus enabling the measurement of network performance and health.

IP SAAs enhance the service level monitoring to become IP application-aware by measuring both end-to-end and at the IP layer. IP SAA would allow performance measurement against any IP addresses in the network (switch, server, pc). ETH-LB/DMM can be used to measure delay and jitter by sending out frames with DM information to the peer MEP and receiving frames with DM information from the peer MEP.

MIB information for the SAA commands is as follows:

*Filename:* AlcatelIND1Eoam.MIB  
*Module:* Alcatel-IND1-ETHERNET-OAM-MIB

*Filename:* IETF\_802\_1ag.MIB  
*Module:* IEEE8021-CFM-MIB

*Filename:* Alcatel-IND1-SAA-MIB.MIB  
*Module:* ALCATEL-IND1-SAA-MIB

A summary of the available commands is listed here:

---

<b>EthOAM SAA Configuration Commands</b>	<b>saa</b> <b>saa type ethoam-loopback</b> <b>saa type ethoam-two-way-delay</b> <b>saa start</b> <b>saa stop</b>
<b>IP SAA Configuration Command</b>	<b>saa type ip-ping</b>
<b>EthOAM SAA Show Commands</b>	<b>show saa</b> <b>show saa type config</b> <b>show saa statistics</b>

---

## saa

Configures a Service Assurance Agent (SAA).

**saa** *string* [**descr** *description*] [**interval** *interval*]

**no** *saa string*

---

### Syntax Definitions

<i>string</i>	SAA ID string up to 32 characters. Use quotes around string if SAA ID contains multiple words with spaces between them (e.g. "SAA 10").
<i>description</i>	Text string up to 32 characters. Use quotes around string if description contains multiple words with spaces between them (e.g. "Alcatel-Lucent Marketing SAA").
<i>interval</i>	The amount of time, in minutes, between two iterations of the SAA test. Valid range is from 10 to 1500.

### Defaults

parameter	default
<i>description</i>	DEFAULT
<i>interval</i>	150

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove an SAA from the switch configuration. Note that the SAA must be stopped before it can be deleted.
- The **descr** and **interval** parameters are optional. If these values are specified, the SAA is created with those values. If these values are not specified, the SAA is created with the default values.
- If the **descr** and/or **interval** parameters are specified for an existing SAA, then the values of the existing parameters are updated with those specified.
- If the session time interval is changed for an SAA that is already running and active, the interval value is immediately updated in the database but is not applied to the SAA until after the next iteration.
- If none of the optional parameters are specified and the given SAA already exists, the CLI will return an error message, as duplicate entries are not allowed.
- A maximum of 50 SAAs is recommended if the same interval value is configured (for example, the default of 10 minutes) for all the SAAs. If more than 50 are configured with the same interval value and all of them are started together, then the SAAs may not be scheduled exactly after the specified time interval. In this scenario, each SAA is scheduled only after all the other SAAs that are ahead of it in the scheduler. If the SAAs are configured with random interval values (values that are not multiples of other SAA values), then configuring more than 50 is allowed.

## Examples

```
-> saa saal descr "saa for ip-ping"  
-> saa saa2 descr "Monitoring Default VRF-interface" interval 160  
-> saa saa2 interval 120  
-> no saa saal
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<a href="#">show saa</a>	Displays SAA configuration information.
<a href="#">show saa statistics</a>	Displays SAA statistics.

## MIB Objects

```
alaSaaCtrlTable  
  alaSaaCtrlTestIndex  
  alaSaaCtrlRowStatus  
  alaSaaCtrlDescr  
  alaSaaCtrlInterval
```

---

## saa type ip-ping

Configure SAA for IP including the number of packets and inter-packet delay parameters.

```
saa string type ip-ping destination-ip ipv4 addr source-ip ipv4 addr type-of-service tos [num-pkts count] [inter-pkt-delay delay] [payload-size size]
```

---

### Syntax Definitions

<i>string</i>	SAA ID string up to 32 characters. Use quotes around string if SAA ID contains multiple words with spaces between them (e.g. "SAA 10").
<i>ipv4 addr</i>	The IPv4 address of the destination to ping.
<i>ipv4 addr</i>	The IPv4 address of the source.
<i>tos</i>	The type of service. Valid range is 0 – 255.
<i>count</i>	The number of packets to send in one ping iteration. Valid range is 1–10.
<i>delay</i>	The delay between packets sent during a ping iteration, in milliseconds. Valid range is from 100ms to 1000ms in multiples of 100ms.
<i>size</i>	The size of the ICMP payload to be used for the ping iteration. Valid range is 24–1472 bytes.

### Defaults

parameter	default
<i>count</i>	5
<i>delay</i>	1000ms
<i>size</i>	24 bytes

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **num-pkts**, **inter-pkt-delay** and **payload-size** are optional parameters. If these values are specified, the SAA is created with the values entered. If none of them are specified, the SAA is created with the default values. The **num-pkts** and **inter-pkt-delay** can be modified, but **payload-size** cannot be modified later.
- The SAA must not be in a 'started' state at the time the **num-pkts** or **inter-pkt-delay** parameters are modified. Make sure the SAA is stopped before attempting to modify these parameters.
- The SAA must exist before issuing the CLI. If the SAA does not exist, the CLI will return an error.
- Do not specify a broadcast or multicast address for the source or destination IP. In addition, do not use 0.0.0.0 as the destination IP address.

- The timeout for each ping request packet is one second. This value is not configurable.

## Examples

```
-> saa saa1 type ip-ping destination-ip 123.32.45.76 source-ip 123.35.42.124 type-  
of-service 4  
-> saa saa2 type ip-ping destination-ip 123.32.45.77 source-ip 123.35.42.124 type-  
of-service 5  
-> saa saa3 type ip-ping destination-ip 123.32.55.27 source-ip 123.35.42.125 type-  
of-service 8 inter-pkt-delay 1000  
-> saa saa4 type ip-ping destination-ip 123.46.45.77 source-ip 123.35.42.125 type-  
of-service 2 num-pkts 5  
-> saa saa5 type ip-ping destination-ip 12.53.45.77 source-ip 123.35.42.125 type-  
of-service 35 payload-size 1518  
-> saa saa6 type ip-ping destination-ip 123.22.45.66 source-ip 123.35.42.125 type-  
of-service 5 inter-pkt-delay 1500 num-pkts 8 pkt-size 1000
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

<a href="#">show saa</a>	Displays SAA configuration information.
<a href="#">show saa statistics</a>	Displays SAA statistics.

## MIB Objects

```
alaSaaIpCtrlTable  
  alaSaaIpCtrlTestIndex  
  alaSaaIpCtrlRowStatus  
  alaSaaIpCtrlTestMode  
  alaSaaIpCtrlTgtAddress  
  alaSaaIpCtrlSrcAddress  
  alaSaaIpCtrlTypeOfService  
  alaSaaIpCtrlInterPktDelay  
  alaSaaIpCtrlPayloadSize  
  alaSaaIpCtrlNumPkts
```

---

## saa type ethoam-loopback

Configures the SAA for ETH-LB, including the number of packets and inter-packet delay parameters.

```
saa string type ethoam-loopback {target-endpoint tmep_id | target-mac address mac} source-endpoint
smep_id domain domain association assoc vlan-priority priority [drop-eligible {true | false}] [data
data] [num-pkts num] [inter-pkt-delay delay]
```

---

### Syntax Definitions

<i>string</i>	SAA ID string up to 32 characters. Use quotes around string if SAA ID contains multiple words with spaces between them (e.g. "SAA 10").
<i>tmep-id</i>	The ID of the destination MEP
<i>mac</i>	The MAC address of the destination.
<i>smep-id</i>	The ID of the source MEP.
<i>domain</i>	The domain to which the source MEP belongs.
<i>assoc</i>	The association to which the source MEP belongs.
<i>priority</i>	The VLAN priority to be used for the outgoing packet. Valid range is 0 – 7.
<b>drop-eligible true</b>	Sets the drop enable bit in the VLAN tag of the outgoing packet to true.
<b>drop-eligible false</b>	Sets the drop enable bit in the VLAN tag of the outgoing packet to false.
<i>data</i>	User specified string that is included in the packet.
<i>delay</i>	The delay between packets sent during a ping iteration in milliseconds. Valid range is 100ms - 1000ms in multiples of 100ms.
<i>num</i>	The number of packets to be sent during loopback. Valid range is 1 - 10.

### Defaults

parameter	default
<b>drop-eligible true   false</b>	false
<i>num-pkts</i>	5
<i>delay</i>	1000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The SAA must exist before issuing the CLI. If the SAA does not exist, the CLI will return error.
- Source MEP-ID, MD and MA must be created before initiating loopback.



- If the source MEP-Id/MA/MD does not exist, the configuration will be accepted and no error will be returned.
- When **target-endpoint** is specified then it must be learned before initiating loopback.
- When **target-endpoint** is specified and learned, Ethernet Loopback will be transmitted irrespective of whether the RMEP state is OK or failed.
- The **drop-eligible**, **data**, **num-pkts** and **inter-pkt-delay** are optional parameters. If these values are specified, the entry will be created with these values. If none of them are specified, the SAA will be created with default values. The **num-pkts** and **inter-pkt-delay** can be modified later.
- The SAA must not be in a 'started' state at the time the **num-pkts** or **inter-pkt-delay** parameters are modified. Make sure the SAA is stopped before attempting to modify these parameters.
- The Target MEP/MAC, source MEP, domain, association and priority parameters are mandatory. If they are not specified, the CLI will return an error.
- The **data** parameter is optional. If this parameter is not specified, then it is not sent in the loopback message.
- The timeout value for each LB packet is one second. This value is not configurable.

## Examples

```
-> saa saa1 type ethoam-loopback target-endpoint 10 source endpoint 1 domain md1
association mal vlan-priority 5 drop-eligible false
-> saa saa2 type ethoam-loopback target-endpoint 10 source endpoint 2 domain md1
association mal vlan-priority 5 drop-eligible true data « monitor association mal »
num-pkts 6 inter-pkt-delay 500
-> saa saa3 type ethoam-loopback target-endpoint 15 source endpoint 1 domain md1
association mal vlan-priority 5 drop-eligible false data « monitor association mal
» num-pkts 6
-> saa saa4 type ethoam-loopback target-endpoint 10 source endpoint 2 domain md1
association mal vlan-priority 5 drop-eligible true inter-pkt-delay 500
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

- |                                     |                                         |
|-------------------------------------|-----------------------------------------|
| <a href="#">show saa</a>            | Displays SAA configuration information. |
| <a href="#">show saa statistics</a> | Displays SAA statistics.                |

## MIB Objects

```
alaSaaEthoamCtrlTable
  alaSaaEthoamCtrlTestIndex
  alaSaaEthoamCtrlRowStatus
  alaSaaEthoamCtrlTestMode
  alaSaaEthoamCtrlTgtMAC
  alaSaaEthoamCtrlSrcMepId
  alaSaaEthoamCtrlDomainName
  alaSaaEthoamCtrlAssociationName
  alaSaaEthoamCtrlNumPkts
  alaSaaEthoamCtrlInterPktDelay
```

alaSaaEthoamCtrlPktData  
alaSaaEthoamCtrlVlanPriority

---

## saa type ethoam-two-way-delay

Configures SAA for two-way Ethernet frame delay measurement (ETH-DM).

```
saa string type {ethoam-two-way-delay} {target-endpoint tmep_id | target-mac address mac} source-
endpoint smep_id domain domain association assoc vlan-priority priority [num-pkts num] [inter-pkt-
delay delay]
```

---

### Syntax Definitions

<i>string</i>	SAA ID string up to 32 characters. Use quotes around string if SAA ID contains multiple words with spaces between them (e.g. "SAA 10").
<i>tmep-id</i>	The ID of the destination MEP.
<i>mac</i>	The MAC address of the destination.
<i>smep-id</i>	The ID of the source MEP.
<i>domain</i>	The domain to which the source MEP belongs.
<i>assoc</i>	The association to which the source MEP belongs.
<i>priority</i>	The VLAN priority to be used for the outgoing packet. Valid range is 0–7.
<i>delay</i>	The delay between packets sent during a ping iteration, in milliseconds. Valid range is 100ms - 1000ms in multiples of 100ms.
<i>num</i>	The number of packets to be sent during loopback. Valid range is 1–10.

### Defaults

parameter	default
<i>num</i>	5
<i>delay</i>	1000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The SAA must exist before issuing the CLI. If the SAA does not exist, the CLI will return an error.
- The source MEP-ID, MD and MA must be created before initiating two-way ETH-DM.
- If the source MEP-ID/MA/MD does not exist, the configuration is still accepted and no error is returned.
- When the **target-endpoint** parameter is specified, then it must be learned before initiating two-way ETH-DM.

- When the **target-endpoint** parameter is specified and learned, two-way ETH-DM will transmit delay measurement message (DMM) frames and delay measurement reply (DMR) frames whether or not the RMEP state is OK.
- The **num-pkts** and **inter-pkt-delay** parameters are optional. If these values are specified, the entry will be created with those values. If none of them are specified, the SAA will be created with default values. The **num-pkts** and **inter-pkt-delay** values can be modified, but the **pkt-size** value cannot be modified later.
- The SAA must not be in a 'started' state at the time the **num-pkts** or **inter-pkt-delay** parameters are modified. Make sure the SAA is stopped before attempting to modify these parameters.
- Target MEP/MAC, source MEP, domain, association and priority parameters are mandatory. If they are not specified, the CLI will return an error.
- The timeout for each DMM packet is one second. This value is not configurable.

## Examples

```
-> saa saa1 type ethoam-two-way-delay target-endpoint 10 source endpoint 1 domain
md1 association mal vlan-priority 5
-> saa saa2 type ethoam-two-way-delay target-endpoint 10 source endpoint 2 domain
md1 association mal vlan-priority 5 num-pkts 6 inter-pkt-delay 500
-> saa saa3 type ethoam-two-way-delay target-endpoint 15 source endpoint 1 domain
md1 association mal vlan-priority 5 num-pkts 6
-> saa saa4 type ethoam-two-way-delay target-endpoint 10 source endpoint 2 domain
md1 association mal vlan-priority 5 inter-pkt-delay 500
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

**show saa** Displays SAA configuration information.

**show saa statistics** Displays SAA statistics.

## MIB Objects

```
alaSaaEthoamCtrlTable
  alaSaaEthoamCtrlTestIndex
  alaSaaEthoamCtrlRowStatus
  alaSaaEthoamCtrlTestMode
  alaSaaEthoamCtrlTgtMAC
  alaSaaEthoamCtrlSrcMepId
  alaSaaEthoamCtrlDomainName
  alaSaaEthoamCtrlAssociationName
  alaSaaEthoamCtrlNumPkts
  alaSaaEthoamCtrlInterPktDelay
  alaSaaEthoamCtrlVlanPriority
```

## saa start

Starts the SAA test.

**saa string start** [**at** *yyyy-mm-dd,hh:mm:ss.ds*]

---

### Syntax Definitions

<i>string</i>	An existing SAA ID string.
<i>yyyy-mm-dd,hh:mm:ss.ds</i>	The date and time to start the SAA.

### Defaults

By default, the SAA test is started immediately.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- An existing SAA with the SAA type configured must be specified with this command.
- Use the **saa stop** command to stop an SAA test that is already running.
- Use the **at** option to specify a date and time for the test to start.
- If an SAA is scheduled to start at a specified time and another **saa start** command with a different value is given before the specified time, the subsequent command will over-ride the previous command.
- If the **saa start** command is given after an SAA is started, then the CLI will return an error.
- If the IP Ping SAA is configured with a source IP that does not exist or is not active, then the packet is not transmitted and no error is returned. Swlogs are updated.
- ICMP must be enabled on the switch. If ICMP is disabled and an IP Ping SAA is started, then the iteration will timeout and will be treated as failed iteration.
- Immediately after a CMM restart (reboot or takeover), the command to start SAA will be accepted, but the actual execution of the iteration will start 5 minutes after the CMM restart.
- If the ETH-DM or ETH-LB SAA type was configured with a source MEP that does not exist or is not active (admin down), then the packet is not transmitted and no error is returned on the CLI console. Swlogs are updated.
- It is recommended that all the SAAs be rescheduled if the system time is changed.

### Examples

```
-> saa saa2 start at 2009-09-12,09:00:00
-> saa saa4 start
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

[show saa](#) Displays SAA configuration information.  
[show saa statistics](#) Displays SAA statistics.

## MIB Objects

alaSaaCtrlTable  
  alaSaaCtrlTestIndex  
  alaSaaCtrlStartAt

---

## saa stop

Stops the SAA test.

**saa string stop** [**never** | **at** yyyy-mm-dd,hh:mm:ss.ds]

---

### Syntax Definitions

<i>string</i>	An existing SAA ID string.
<b>never</b>	Specifies that the SAA test will not be stopped unless the <b>saa stop</b> command is used with the <b>at</b> option.
<i>yyyy-mm-dd,hh:mm:ss.ds</i>	The date and time to stop the SAA test.

### Defaults

By default, the test is stopped immediately.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- An existing SAA with the SAA type configured must be specified with this command.
- The SAA must be in a 'started' state before giving the command unless the start and stop times are scheduled. If the SAA is not in a 'started' state, the CLI will return an error.
- Use the **at** option to specify a date and time for the test to stop.
- If the **never** option is specified, the SAA test will keep on running until the **saa stop** command is entered again with the **at** option.
- If SAA test is stopped while it is running an iteration, the current iteration is pre-empted. The statistics and history are updated for the partial iteration run.
- If an SAA is scheduled to stop at a specified time and another **saa stop** command with a different value is given before the specified time, the subsequent command will over-ride the previous command.

### Examples

```
-> saa saa1 stop
-> saa saa2 stop never
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

- show saa** Displays SAA configuration information.
- show saa statistics** Displays SAA statistics.

## MIB Objects

alaSaaCtrlTable  
  alaSaaCtrlTestIndex  
  alaSaaCtrlStopAt

---



## show saa

Displays SAA configuration information.

```
show saa [string / {descr description}]
```

---

### Syntax Definitions

*string* An existing SAA ID string.

*description* An existing SAA description string.

### Defaults

By default, information is displayed for all configured SAAs.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the *string* or *description* parameter to display information for a specific SAA.

### Examples

```
-> show saa saa31
```

```
Legend: eth-lb = ethoam-loopback
```

```
       : eth-dmm = ethoam-two-way-delay
```

SAA	Type	Status	Interval(Min.)	Time of Last-Run	Last-Run Result	Description
Saa31	ip-ping	started	180	2010-01-12,21:30:05.0	failed	Datacenter1

```
-> show saa
```

```
Legend: eth-lb = ethoam-loopback
```

```
       : eth-dmm = ethoam-two-way-delay
```

SAA	Type	Status	Interval(Min.)	Time of Last-Run	Last-Run Result	Description
Saa20	ip-ping	started	130	2010-01-15,09:31:53.0	success	DEFAULT
Saa31	ip-ping	started	180	2010-01-12,21:30:05.0	failed	Datacenter1
Saa89	ip-ping	stopped	180	2010-01-12,09:45:00.0	success	Datacenter5
Saa90	eth-lb	stopped	150	NOT RUN	undetermined	Ethernet LB
Saa95	eth-lb	stopped	300	2010-01-16,11:31:53.0	success	Ethernet LB1
Saa98	eth-dmm	stopped	120	NOT RUN	failed	DEFAULT
Saa99	eth-dmm	started	200	2010-01-16,15:20:05.0	success	Two way test

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**saa** Configures an SAA.

## MIB Objects

```
alaSaaCtrlTable  
  alaSaaCtrlTestIndex  
  alaSaaCtrlDescr  
  alaSaaCtrlInterval  
  alaSaaCtrlTestMode  
  alaSaaCtrlLastRunTime  
  alaSaaCtrlLastRunResult  
  alaSaaCtrlAdminStatus
```

---

## show saa type config

Displays the SAA configuration for the specified SAA type.

```
show saa [string] type {ip-ping | ethoam-loopback | ethoam-two-way-delay} config
```

---

### Syntax Definitions

<i>string</i>	An existing SAA ID string.
<b>ip-ping</b>	Displays IP Ping SAAs.
<b>ethoam-loopback</b>	Displays ETH-LB SAAs.
<b>ethoam-two-way-delay</b>	Displays ETH-DMM SAAs.

### Defaults

By default, all SAAs with the specified type are displayed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the *string* parameter to display information for a specific SAA
- If the SAA ID string specified does not match the specified SAA type, the CLI will return an error.

### Examples

```
-> show saa type ip-ping config
SAA : saa20
  SAA-type      : ip-ping,
  Status        : started,
  Start At      : -
  Stop At       : 2010-02-08,12:00:00.0
  Description   : datacenter1,
  Interval(minutes) : 130,
  Source-IP     : 0.0.0.0,           Destination-IP      : 172.21.161.65,
  Payload-Size (bytes): 24,           Type-of-Service    : 0,
  Num-pkts      : 5,                 Inter-pkt-delay    : 1000
SAA : saa31
  SAA-type      : ip-ping,
  Status        : started,
  Start At      : -
  Stop At       : -
  Description   : datacenter8,
  Interval(minutes) : 180,
  Source-IP     : 0.0.0.0,           Destination-IP      : 172.21.161.65,
  Payload-Size (bytes): 24,           Type-of-Service    : 0,
  Num-pkts      : 5,                 Inter-pkt-delay    : 1000
SAA-ID : 81
  SAA-type      : ip-ping,
  Status        : stopped,
```

```

Start At          : -
Stop At           : -
Description       : abcdsdfsdfsfs,
Interval(minutes) : 300,
Source-IP         : 0.0.0.0,           Destination-IP      : 172.21.161.65,
Payload-Size (bytes) : 24,           Type-of-Service    : 0,
Num-pkts         : 5,             Inter-pkt-delay    : 1000
SAA : saa82
SAA-type         : ip-ping,
Status          : stopped,
Start At        : 2010-02-09,11:00:00.0,
Stop At         : -,
Description     : abcdsdfsdfsfs,
Interval(minutes) : 300,
Source-IP       : 0.0.0.0,           Destination-IP      : 172.21.161.65,
Payload-Size (bytes) : 24,           Type-of-Service    : 0,
Num-pkts       : 5,             Inter-pkt-delay    : 1000

-> show saa "saa20" type ip-ping config
SAA : saa20
SAA-type         : ip-ping,
Status          : started,
Start At        : -
Stop At         : -
Description     : datacenter1,
Interval(minutes) : 130,
Source-IP       : 0.0.0.0,           Destination-IP      : 172.21.161.65,
Payload-Size (bytes) : 24,           Type-of-Service    : 0,
Num-pkts       : 5,             Inter-pkt-delay    : 1000

-> show saa type ethoam-loopback config
Legend: Destination Mep: - = SAA configured with target mac-address
       Destination MAC: - = SAA configured with target mep-id
SAA : saa90
SAA-type         : ethoam-loopback,
Status          : started,
Description     : SAA for ethernet-loopback,
Interval(minutes) : 300,
Destination MAC : -,
Destination Mep : 5,           Source Mep         : 1,
Domain         : alcatel,     Association        : ma1,
Num-pkts       : 7,           Inter-pkt-delay   : 1000,
Vlan-priority  : 2
SAA : saa99
SAA-type         : ethoam-loopback,
Status          : started,
Description     : SAA for ethernet-loopback,
Interval(minutes) : 300,
Destination MAC : 00:d0:b2:12:3c:a5,
Destination Mep : -,           Source Mep         : 5,
Domain         : alcatel,     Association        : ma2,
Num-pkts       : 5,           Inter-pkt-delay   : 500,
Vlan-priority  : 7

-> show saa type ethoam-two-way-delay config
Legend: Destination Mep: - = SAA configured with target mac-address
       Destination MAC: - = SAA configured with target mep-id
SAA : saa100
SAA-type         : ethoam-two-way-delay,

```

```
Status                : stopped,
Description            : SAA for ethernet-two-way-test,
Interval(minutes)     : 200,
Destination MAC       : 00:d0:b2:12:3c:a5,
Destination Mep       : -,                Source Mep       : 4,
Domain                : aricent           Association      : ma1,
Num-pkts              : 5,                Inter-pkt-delay : 500,
Vlan-priority         : 4
SAA : saall0
SAA-type              : ethoam-two-way-delay,
Status                : started,
Description            : SAA for ethernet-two-way-delay,
Interval(minutes)     : 300,
Destination MAC       : -,
Destination Mep       : 5,                Source Mep       : 1,
Domain                : aricent           Association      : ma2,
Num-pkts              : 7,                Inter-pkt-delay : 800,
Vlan-priority         : 5
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

[saa type ip-ping](#) Configures an IP ping SAA.  
[saa type ethoam-loopback](#) Configures an ETH-LB SAA.  
[saa type ethoam-two-way-delay](#) Configures an ETH-DMM SAA.

## MIB Objects

```
alaSaaCtrlTable
  alaSaaCtrlTestIndex
  alaSaaCtrlDescr
  alaSaaCtrlInterval
  alaSaaCtrlTestMode
alaSaaIpCtrlTable
  alaSaaIpCtrlTgtAddress
  alaSaaIpCtrlSrcAddress
  alaSaaIpCtrlPayloadSize
  alaSaaIpCtrlTypeOfService
  alaSaaIpCtrlInterPktDelay
  alaSaaIpCtrlNumPkts
alaSaaEthoamCtrlTable
  alaSaaEthoamCtrlTestMode
  alaSaaEthoamCtrlAdminStatus
  alaSaaEthoamCtrlTgtMepId
  alaSaaEthoamCtrlTgtMAC
  alaSaaEthoamCtrlSrcMepId
  alaSaaEthoamCtrlNumPkts
  alaSaaEthoamCtrlInterPktDelay
```

---

## show saa statistics

Display SAA statistics.

**show saa** [*string*] **statistics** [**aggregate** | **history**]

---

### Syntax Definitions

<i>string</i>	An existing SAA ID string.
<b>aggregate</b>	Displays aggregate results for the specified SAA.
<b>history</b>	Displays a results history for the specified SAA.

### Defaults

By default, statistics are displayed for all SAAs and only for the most recent SAA test run.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the **aggregate** parameter is specified, then only the aggregate results are displayed.
- If the **history** parameter is specified, then only the history results are displayed.
- Since results are only kept for the last five iterations, using the **history** option displays only the last five iterations.
- Use the *string* parameter to display statistics for a specific SAA.
- Statistics and history do not persist across a switch reboot or takeover.

### Examples

```
-> show saa statistics
Legend: eth-lb = ethoam-loopback
       : eth-dmm = ethoam-two-way-delay
Legend: - = Delay or jitter value not available
Latest Record:
SAA   Type      Time of Last-Run      RTT   RTT   RTT   Jitter Jitter Jitter Pack-
ets   Description                                     Min   Avg   Max   Min   Avg   Max
Sent Rcvd
-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+
saa1 ip-ping  2009-09-05,20:18:34.0  970   1067  1432   1     99   455
7     7     DEFAULT
saa2 ip-pin   2009-09-05,20:18:48.0  1022  1180  1914   0     349  892
7     7     DEFAULT
saa3 ip-ping  2009-09-05,20:19:15.0  1016  1583  3794   8     703  2767
5     5     DEFAULT
saa4 eth-lb   2009-09-05,22:15:30.0  -     -     -     -     -     -
8     0     DEFAULT
```

```

saa5 eth-lb 2009-09-05,22:30:40.0 1243 1537 2166 23 42 96
6 6 DEFAULT
saa6 eth-dmm 2009-09-05,22:45:15.0 1563 2654 3574 15 27 173
5 5 DEFAULT

```

```

SAA Type Time of Last-Run RTT RTT RTT Jitter Jitter Jitter
Packets Description Min Avg Max Min Avg Max
Sent Rcvd

```

```

-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+
saa1 ip-ping 2009-09-05,20:18:34.0 970 1067 1432 1 99 455
7 7 DEFAULT

```

```

-> show saa statistics aggregate
Legend: eth-lb = ethoam-loopback
       : eth-dmm = ethoam-two-way-delay
Legend: - = Delay or jitter value not available
Aggregate Record:

```

```

Type Time of Last-Run RTT RTT RTT Jitter Jitter
Jitter Packets Description Min Avg Max Min Avg
Max Sent Rcvd

```

```

-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+
ip-ping 2009-09-05,20:28:34.0 970 1067 1432 1 99
455 7 7 DEFAULT
ip-ping 2009-09-05,20:28:24.0 1007 1846 4737 0 917
3730 7 7 DEFAULT
ip-ping 2009-09-05,20:28:16.0 989 1121 1546 16 164
533 6 6 DEFAULT
ip-ping 2009-09-05,22:28:09.0 1006 1136 1696 10 284
690 6 6 DEFAULT
ip-ping 2009-09-05,22:18:34.0 970 1067 1432 1 99
455 7 7 DEFAULT

```

```

-> show saa statistics history
Legend: eth-lb = ethoam-loopback
       : eth-dmm = ethoam-two-way-delay
Legend: - = Delay or jitter value not available
History records SAA : saa1

```

```

Type Time of Last-Run RTT RTT RTT Jitter Jitter
Jitter Packets Description Min Avg Max Min Avg
Max Sent Rcvd

```

```

-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+
ip-ping 2009-09-05,20:18:34.0 970 1067 1432 1 99
455 7 7 DEFAULT
ip-ping 2009-09-05,20:28:24.0 1007 1846 4737 0 917
3730 7 7 DEFAULT
ip-ping 2009-09-05,20:28:16.0 989 1121 1546 16 164
533 6 6 DEFAULT
ip-ping 2009-09-05,20:28:09.0 1006 1136 1696 10 284
690 6 6 DEFAULT
ip-ping 2009-09-05,20:18:34.0 970 1067 1432 1 99
455 7 7 DEFAULT

```

History records SAA : saa2

```

Type      Time of Last-Run      RTT  RTT  RTT  Jitter Jitter Jitter  Pack-
ets      Description
          Min   Avg   Max   Min   Avg   Max
Sent Rcvd
-----+-----+-----+-----+-----+
-----+-----+-----+-----+
ip-ping  TUE 2010-09-05,20:18:48.0 1022 1180 1914    0   349   892
 7    7   DEFAULT

```

History records SAA : saa3

```

Type      Time of Last-Run      RTT  RTT  RTT  Jitter Jitter Jitter  Pack-
ets      Description
          Min   Avg   Max   Min   Avg   Max
Sent Rcvd
-----+-----+-----+-----+-----+
-----+-----+-----+-----+
ip-ping  TUE 2010-09-05,20:19:15.0 1016 1583 3794    8   703  2767
 5    5   DEFAULT

```

History records SAA : saa4

```

Type      Time of Last-Run      RTT  RTT  RTT  Jitter Jitter Jitter
Packets  Description
          Min   Avg   Max   Min   Avg   Max
Sent Rcvd
-----+-----+-----+-----+-----+
-----+-----+-----+-----+
eth-lb   2010-09-05,22:15:30.0   986  1023 1145   40   56   132
 8    8   DEFAULT
eth-lb   2010-09-05,22:30:40.0  1243 1537 2166   23   42   96
 8    8   DEFAULT

```

History records SAA : saa5

```

Type      Time of Last-Run      RTT  RTT  RTT  Jitter Jitter Jitter
Packets  Description
          Min   Avg   Max   Min   Avg   Max
Sent Rcvd
-----+-----+-----+-----+-----+
-----+-----+-----+-----+
eth-dmm  2009-09-05,22:45:15.0  1563 2654 3574   15   27   173
 5    5   DEFAULT

```

-> show saa saal statistics aggregate

```

SAA: saal
  Total numbers of iterations      : 5
  Aggregated Record:
    Total Packets Sent              : 33,
    Total Packets Recieved          : 33,
    Avg RTT-Min/Avg/Max (micro sec) : 970/1252/4737,
    Avg Jitter-Min/Avg/Max (micro sec) : 0/309/3730,
  Timestamp-Min RTT                 : 2009-10-05,10:15:30.0,
  Timestamp-Max RTT                 : 2009-10-05,08:15:30.0,
  Timestamp-Min Jitter              : 2009-10-05,13:15:30.0,
  Timestamp-Max Jitter              : 2009-10-05,20:28:39.0

```

-> show saa saal0 statistics

```

SAA: saal0
  Total numbers of iterations      : 5
  Latest Record:
    Time of Run                    : 2009-09-05,20:28:39.0,

```



```
Total Packets Sent           : 5,  
Total Packets Recieved       : 5,  
RTT-Min/Avg/Max (micro sec) : 995/1059/1310,  
Jitter-Min/Avg/Max (micro sec) : 5/56/267
```

```
-> show saa saa4 statistics aggregate
```

```
SAA: saa4
```

```
Total numbers of iterations   : 2
```

```
Aggregated Record:
```

```
Total Packets Sent           : 16,  
Total Packets Recieved       : 16,  
Avg RTT-Min/Avg/Max (micro sec) : 790/1185/2654,  
Avg Jitter-Min/Avg/Max (micro sec) : 37/583/1257,  
Timestamp-Min RTT           : 2009-10-05,10:15:30.0,  
Timestamp-Max RTT           : 2009-10-05,08:15:30.0,  
Timestamp-Min Jitter         : 2009-10-05,13:15:30.0,  
Timestamp-Max Jitter         : 2009-10-05,09:30:39.0
```

```
-> show saa saa14 statistics
```

```
SAA: saa14
```

```
Total numbers of iterations   : 5
```

```
Latest Record:
```

```
Time of Run                   : 2009-10-15,09:30:39.0,  
Total Packets Sent           : 10,  
Total Packets Received       : 8,  
RTT-Min/Avg/Max (micro sec) : 882/1547/2175,  
Jitter-Min/Avg/Max (micro sec) : 15/87/165
```

## Release History

Release 6.4.3; command was introduced.

## Related Commands

[saa](#) Configures a SAA.

## MIB Objects

alaSaaIpResultsTable

```
alaSaaIpResultsPktsSent  
alaSaaIpResultsPktsRcvd  
alaSaaIpResultsRunResultReason  
alaSaaIpResultsRunTime  
alaSaaIpResultsMinRTT  
alaSaaIpResultsAvgRTT  
alaSaaIpResultsMaxRTT  
alaSaaIpResultsMinJitter  
alaSaaIpResultsAvgJitter  
alaSaaIpResultsMaxJitter
```

alaSaaEthoamResultsTable

```
alaSaaEthoamResultsPktsSent  
alaSaaEthoamResultsPktsRcvd  
alaSaaEthoamResultsRunResultReason  
alaSaaEthoamResultsRunTime  
alaSaaEthoamResultsMinRTT  
alaSaaEthoamResultsAvgRTT
```

```
alaSaaEthoamResultsMaxRTT
alaSaaEthoamResultsMinJitter
alaSaaEthoamResultsAvgJitter
alaSaaEthoamResultsMaxJitter
alaSaaIpCtrlTable
  alaSaaIpCtrlTotalPktsSent
  alaSaaIpCtrlTotalPktsRcvd
  alaSaaIpCtrlMinRTT
  alaSaaIpCtrlAvgRTT
  alaSaaIpCtrlMaxRTT
  alaSaaIpCtrlMinJitter
  alaSaaIpCtrlAvgJitter
  alaSaaIpCtrlMaxJitter
alaSaaEthoamCtrlTable
  alaSaaEthoamCtrlTotalPktsRcvd
  alaSaaEthoamCtrlTotalPktsSent
  alaSaaEthoamCtrlMinRTT
  alaSaaEthoamCtrlAvgRTT
  alaSaaEthoamCtrlMaxRTT
  alaSaaEthoamCtrlMinJitter
  alaSaaEthoamCtrlAvgJitter
  alaSaaEthoamCtrlMaxJitter
```

---

# 48 MPLS LDP Commands

The LDP (Label Distribution Protocol) is used to set up Label Switched Paths (LSPs), also referred to as Multiprotocol Label Switching (MPLS) tunnels. These tunnels are used to connect customer sites over a service provider network and form the basis of any multipoint service, such as a Virtual Private LAN Service (VPLS).

In addition to using LDP, configuring static LSPs is also supported. Both LDP and static LSPs provide the label switching mechanism required by MPLS. For more information about static LSPs, see the “Static LSP and FRR Commands” chapter in this guide.

MIB information for the LDP commands is as follows:

*Filename:* TIMETRA-LDP-MIB.mib

*Module:* TIMETRA-LDP-MIB

*Filename:* AlcatelIND1ServiceMgr.MIB

*Module:* Alcatel-IND1-SERVICE-MGR-MIB

A summary of the available commands is listed here:

<b>Global Commands</b>	<code>configure router ldp shutdown</code> <code>show router ldp parameters</code> <code>show router ldp peer</code> <code>show router ldp session</code> <code>show router ldp status</code>
<b>Interface Commands</b>	<code>configure router ldp interface-parameters interface</code> <code>configure router ldp interface-parameters interface shutdown</code> <code>configure router ldp interface-parameters hello</code> <code>configure router ldp interface-parameters keepalive</code> <code>configure router ldp interface-parameters transport-address</code> <code>show router ldp interface</code>
<b>Targeted Session Commands</b>	<code>configure router ldp targeted-session hello</code> <code>configure router ldp targeted-session keepalive</code>
<b>Graceful Restart Commands</b>	<code>configure router ldp graceful-restart-helper</code> <code>configure router ldp reconnect-time</code> <code>configure router ldp fwd-state-holding-time</code> <code>configure router ldp maximum-recovery-time</code> <code>configure router ldp neighbor-liveness-time</code>
<b>LSP Ping and Traceroute Commands</b>	<code>oam lsp-ping</code> <code>oam lsp-trace</code>

---

<b>Show LDP Bindings Commands</b>	<b>show router ldp bindings</b> <b>show router ldp bindings fec-type</b> <b>show router ldp bindings ingress-label</b> <b>show router ldp bindings egress-label</b> <b>show router ldp bindings prefix</b> <b>show router ldp bindings active</b> <b>show router ldp bindings vc-type</b> <b>show router ldp bindings service-id</b>
---------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

<b>Show LDP Discovery Commands</b>	<b>show router ldp discovery</b> <b>show router ldp discovery peer</b> <b>show router ldp discovery interface</b>
----------------------------------------	-------------------------------------------------------------------------------------------------------------------------

---

## configure router ldp shutdown

Configures the administrative status of the Label Distribution Protocol (LDP) instance on the router.

**configure router ldp {no shutdown | shutdown}**

---

### Syntax Definitions

<b>no shutdown</b>	Enables the LDP administrative status on the router.
<b>shutdown</b>	Disables the LDP administrative status on the router.

### Defaults

By default, LDP is enabled for the switch.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Disabling the LDP administrative status also disables any associated Label Switch Paths (LSPs) and any Service Distribution Points (SDPs) that were attached to the LSPs.
- When LDP is disabled on the switch, attaching SDPs to any of the associated LSRs is not allowed.

### Examples

```
-> configure router ldp shutdown  
-> configure router ldp no shutdown
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show router ldp status** Displays status information and statistics for the LDP instance on the local router.

### MIB Objects

```
vRtrLdpGeneralTable  
vRtrLdpGenAdminState
```

---

## configure router ldp interface-parameters interface

Configures LDP support on the specified IP interface.

**configure router ldp interface-parameters interface** *ip-intf-name*

**configure router ldp interface-parameters no interface** *ip-intf-name*

---

### Syntax Definitions

*ip-intf-name*                      The name of an existing IP interface.

### Defaults

By default, the LDP interface is administratively enabled when the interface is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the LDP configuration from the IP interface. Disable the administrative status of the interface before attempting to remove it.
- The IP interface name specified with this command must already exist in the router configuration.
- Until LDP support is configured on an IP interface, no other LDP configuration tasks are allowed on that interface.

### Examples

```
-> configure router ldp interface-parameters interface vlan-14  
-> configure router ldp interface-parameters no interface vlan-14
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**configure router ldp interface-parameters interface shutdown** Configures the administrative status for the specified LDP interface.

**show router ldp interface** Displays the LDP interface configuration for the router.

**show router ldp parameters** Displays global LDP parameter values for the router.

## **MIB Objects**

vRtrLdpIfTable

    vRtrID

    vRtrLdpIfIndex

    vRtrLdpPeerAddress

    vRtrLdpIfRowStatus

---

## configure router ldp interface-parameters interface shutdown

Configures the administrative status for the specified LDP interface.

**configure router ldp interface-parameters interface *ip-intf-name* {no shutdown | shutdown}**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<b>no shutdown</b>	Enables the LDP administrative status for the interface.
<b>shutdown</b>	Disables the LDP administrative status for the interface.

### Defaults

By default, the administrative status of an LDP interface is enabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Disabling the administrative status for an LDP interface does not remove the LDP configuration from that interface.
- The LDP interface name specified with this command must already exist in the router configuration.

### Examples

```
-> configure router ldp interface-parameters interface vlan-14 shutdown
-> configure router ldp interface-parameters interface vlan-14 no shutdown
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

- configure router ldp interface-parameters interface** Configures LDP support on an IP interface.
- show router ldp interface** Displays the LDP interface configuration for the router.

### MIB Objects

```
vRtrLdpIfTable
  vRtrID
  vRtrLdpIfIndex
  vRtrLdpPeerAddress
  vRtrLdpIfRowStatus
```

---



## configure router ldp interface-parameters hello

Configures the hello timeout (also referred to as the hold time) and the hello interval on a global (all LDP interfaces) basis or on a per-interface basis. The hello timeout determines how long LDP waits to receive hello messages from a peer before declaring that the peer is down. The hello interval determines how often LDP sends out hello messages, which advertise the hello timeout.

**configure router ldp interface-parameters** [**interface** *ip-intf-name*] **hello** *timeout factor*

**configure router ldp interface-parameters** [**interface** *ip-intf-name*] **no hello**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<i>timeout</i>	The hello timeout, in seconds. The valid range is 1–65535 seconds.
<i>factor</i>	The number of hello messages to send during the hello timeout. The valid range is 1–255. The factor number is divided into the hello timeout to determine the hello interval value.

### Defaults

By default, the hello time is set to 15 seconds and the factor number is set to 3, which results in a default hello interval time of 5 seconds.

parameter	default
<i>ip-intf-name</i>	All LDP interfaces.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the hello timeout and factor parameters to the default values for these parameters. Note that if an interface name is specified with the **no** form of this command, the default values applied are the values defined globally for all interfaces.
- Use the optional **interface** *ip-intf-name* parameter to configure the hello time and hello interval for a specific LDP interface. Note that the hello parameter values configured for an interface override the global configuration of these values for the router.
- LDP uses hello messages to establish adjacencies with LDP peers. If no hello messages are received from a peer during the hello time that is advertised by that peer, the local LDP router will consider the peer as down and will not retain the adjacency with that peer.
- When LDP is establishing an adjacency between two peers, the hold time is negotiated to the lower time value of the two peers. Once an operational value is agreed upon, the hold time is divided by the factor number to determine the interval at which the peers will send each other hello messages.

## Examples

```
-> configure router ldp interface-parameters hello 40 2
-> configure router ldp interface-parameters interface vlan-14 hello 50 10
-> configure router ldp interface-parameters no hello
-> configure router ldp interface-parameters interface vlan-14 no hello
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**configure router ldp interface-parameters interface** Configures LDP support on an IP interface.

**show router ldp parameters** Displays global LDP parameter values for the switch.

**show router ldp interface** Displays the LDP interface configuration for the switch.

## MIB Objects

```
vRtrLdpGeneralTable
  vRtrLdpGenHelloFactor
  vRtrLdpGenHelloTimeout
vRtrLdpIfTable
  vRtrID
  vRtrLdpIfIndex
  vRtrLdpPeerAddress
  vRtrLdpIfHelloFactor
  vRtrLdpIfHelloTimeout
```

---

## configure router ldp interface-parameters keepalive

Configures the keepalive timeout and the keepalive interval on a global (all LDP interfaces) basis or on a per-interface basis. The keepalive timeout determines how long LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer. The keepalive interval determines how often LDP sends out keepalive messages, which advertise the keepalive time.

**configure router ldp interface-parameters** [**interface** *ip-intf-name*] **keepalive** *timeout factor*

**configure router ldp interface-parameters** [**interface** *ip-intf-name*] **no keepalive**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<i>timeout</i>	The keepalive timeout, in seconds. The valid range is 1–65535 seconds.
<i>factor</i>	The number of keepalive messages to send during the keepalive timeout. The valid range is 1–255. The factor number is divided into the keepalive timeout to calculate the keepalive interval value.

### Defaults

By default, the keepalive time is set to 30 seconds and the factor number is set to 3, which results in a default keepalive interval of 10 seconds.

parameter	default
<i>ip-intf-name</i>	All LDP interfaces.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the keepalive time and factor parameters to the default values for these parameters. Note that if an interface name is specified with the **no** form of this command, the default values applied are the values defined globally for all interfaces.
- Use the optional **interface** *ip-intf-name* parameter to configure the keepalive time and interval for a specific LDP interface. Note that the keepalive parameter values configured for an interface override the global configuration of these values for the router.
- When LDP is establishing a session between two peers, the keepalive time is negotiated to the lower time value of the two peers. Once an operational value is agreed upon, the keepalive time is divided by the factor number to determine the interval at which the peers will send each other keepalive messages.
- If no keepalive messages are received from a peer during the keepalive time that is advertised by that peer, the local LDP router will tear down the session.

### Examples

```
-> configure router ldp interface-parameters keepalive 40 2
```

```
-> configure router ldp interface-parameters interface vlan-14 keepalive 50 10
-> configure router ldp interface-parameters no keepalive
-> configure router ldp interface-parameters interface vlan-14 no keepalive
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**configure router ldp interface-parameters interface** Configures LDP support on an IP interface.

**show router ldp parameters** Displays global LDP parameter values for the switch.

**show router ldp interface** Displays the LDP interface configuration for the switch.

## MIB Objects

```
vRtrLdpGeneralTable
  vRtrLdpGenKeepAliveFactor
  vRtrLdpGenKeepAliveTimeout
vRtrLdpIfTable
  vRtrID
  vRtrLdpIfIndex
  vRtrLdpPeerAddress
  vRtrLdpIfKeepAliveFactor
  vRtrLdpIfKeepAliveTimeout
```

---

## configure router ldp interface-parameters transport-address

Configures the transport address for the specified LDP interface. This address is used to set up LDP TCP sessions.

```
configure router ldp interface-parameters interface ip-intf-name transport-address {system / interface}
```

```
configure router ldp interface-parameters interface ip-intf-name no transport-address
```

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<b>system</b>	Sets the transport address to the system IP address, which is the Loopback0 IP address configured for the OmniSwitch.
<b>interface</b>	Sets the transport address to the IP address of the specified LDP interface.

### Defaults

By default, the transport address for the LDP session is set to the system IP (Loopback0) address.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the transport address to the default value (system IP).
- Do not use the interface IP address as the transport address if multiple interfaces exist between two LDP neighbors.

### Examples

```
-> configure router ldp interface-parameters transport-address interface  
-> configure router ldp interface-parameters interface vlan-14 transport-address  
system  
-> configure router ldp interface-parameters no transport-address  
-> configure router ldp interface-parameters interface vlan-14 no transport-address
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router ldp interface-parameters interface** Configures LDP support on an IP interface.
- show router ldp parameters** Displays global LDP parameter values for the switch.
- show router ldp interface** Displays the LDP interface configuration for the switch.

## MIB Objects

```
vRtrLdpGeneralTable
  vRtrLdpGenKeepAliveFactor
  vRtrLdpGenKeepAliveTimeout
vRtrLdpIfTable
  vRtrID
  vRtrLdpIfIndex
  vRtrLdpPeerAddress
  vRtrLdpIfKeepAliveFactor
  vRtrLdpIfKeepAliveTimeout
```

---

## configure router ldp targeted-session hello

Configures the hello time (also referred to as the hold time) and the hello interval for targeted LDP sessions. A targeted session is an LDP session that exists between two peers that are not directly connected to each other. The hello time determines how long LDP waits to receive hello messages from a peer before declaring that the peer is down. The hello interval determines how often LDP sends out hello messages, which advertise the hello time.

**configure router ldp targeted-session hello** *time factor*

**configure router ldp targeted-session no hello**

---

### Syntax Definitions

<i>time</i>	The hello time, in seconds. The valid range is 1–65535 seconds.
<i>factor</i>	The number of hello messages to send during the hello time. The valid range is 1–255. The factor number is divided into the hello time to determine the hello interval value.

### Defaults

By default, the hello time is set to 45 seconds and the factor number is set to 3, which results in a default hello interval time of 15 seconds.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the hello timeout and factor parameters to the default values for these parameters.
- Specify a hello time value that is more than three times the value of the hello interval (hello time divided by factor).
- LDP uses hello messages to establish adjacencies with LDP peers. These messages contain a locally-configured hello time. The hello hold time is the amount of time a peer retains hello adjacencies without receiving another hello message from the adjacent peer.
- When LDP is establishing a session between two peers, the hold time is negotiated to the lower time value of the two peers. Once an operational value is agreed upon, the hold time is divided by the factor number to determine the interval at which the peers will send each other hello messages.

### Examples

```
-> configure router ldp targeted-session hello 20 2  
-> configure router ldp interface-parameters no hello
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router ldp interface-parameters hello** Configures the hello time (also referred to as the hold time) and the hello interval on a global (all LDP interfaces) basis or on a per-interface basis.
- configure router ldp targeted-session keepalive** Configures the keepalive time and the keepalive interval for targeted LDP sessions.
- show router ldp parameters** Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.

## MIB Objects

```
vRtrLdpGeneralTable  
  vRtrLdpGenTargHelloFactor  
  vRtrLdpGenTargHelloTimeout
```

---



## configure router ldp targeted-session keepalive

Configures the keepalive time and the keepalive interval for targeted LDP sessions. The keepalive time determines how long LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer. The keepalive interval determines how often LDP sends out keepalive messages, which advertise the keepalive time.

**configure router ldp targeted-session keepalive** *timeout factor*

**configure router ldp targeted-session no keepalive**

---

### Syntax Definitions

<i>timeout</i>	The keepalive time, in seconds. The valid range is 1–65535 seconds.
<i>factor</i>	The number of keepalive messages to send during the keepalive time. The valid range is 1–255. The factor number is divided into the keepalive time to determine the keepalive interval value.

### Defaults

By default, the keepalive time is set to 40 seconds and the factor number is set to 4, which results in a default keepalive interval of 10 seconds.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the keepalive time and factor parameters to the default values for these parameters.
- Specify a keepalive time value that is more than three times the value of the keepalive interval (keepalive time divided by factor).
- When LDP is establishing a session between two peers, the keepalive time is negotiated to the lower time value of the two peers. Once an operational value is agreed upon, the keepalive time is divided by the factor number to determine the interval at which the peers will send each other keepalive messages.
- If no keepalive messages are received from a peer during the keepalive time that is advertised by that peer, the local LDP router will tear down the session.

### Examples

```
-> configure router ldp targeted-session keepalive 40 2  
-> configure router ldp interface-parameters no keepalive
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router ldp interface-parameters keepalive** Configures the keepalive time and the keepalive interval on a global (all LDP interfaces) basis or on a per-interface basis.
- configure router ldp targeted-session hello** Configures the hello time and the hello interval for targeted LDP sessions.
- show router ldp parameters** Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.

## MIB Objects

```
vRtrLdpGeneralTable  
  vRtrLdpGenTargKeepAliveFactor  
  vRtrLdpGenTargKeepAliveTimeout
```

---

## configure router ldp graceful-restart-helper

Configures the graceful restart helper status for the LDP router. When enabled, the router includes a fault tolerant (FT) TLV in LDP initialization messages. This signals to other LDP routers that this router is able to help with the graceful restart process.

**configure router ldp graceful-restart-helper**

**configure router ldp no graceful-restart-helper**

---

### Syntax Definitions

N/A.

### Defaults

By default, the graceful restart helper status is disabled for the LSR.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to disable graceful restart helper for the switch.
- Graceful Restart support for LDP is always enabled on the router, so it is not necessary to enable restart support before enabling the helper status.
- Only takeover

### Examples

```
-> configure router ldp graceful-restart-helper enable  
-> configure router ldp no graceful-restart-helper disable
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router ldp reconnect-time** Configures the Reconnect Timeout value in the fault tolerant (FT) Session TLV that is advertised in LDP messages.
- configure router ldp fwd-state-holding-time** Configures the amount of time that the LDP router retains its MPLS forwarding state after a graceful restart.
- configure router ldp maximum-recovery-time** Configures the amount of time the router retains stale MPLS label-FEC bindings received from a neighboring LDP router as the result of a graceful restart process.
- configure router ldp neighbor-liveness-time** The amount of time the router will wait for a neighboring router to re-establish an LDP session.

## MIB Objects

vRtrLdpGeneralTable  
vRtrLdpGenGracefulRestart

---



## Related Commands

- configure router ldp graceful-restart-helper** Configures the graceful restart helper status for the LDP router.
- configure router ldp fwd-state-holding-time** Configures the amount of time that the LDP router retains its MPLS forwarding state after a graceful restart.
- configure router ldp maximum-recovery-time** Configures the amount of time the router retains stale MPLS label-FEC bindings received from a neighboring LDP router as the result of a graceful restart process.
- configure router ldp neighbor-liveness-time** The amount of time the router will wait for a neighboring router to re-establish an LDP session.

## MIB Objects

alaVRtrExtendedLdpGeneralTable  
vRtrLdpGenGRReconnectTime

---

## configure router ldp fwd-state-holding-time

Configures the MPLS Forwarding State Holding timer value for the local LDP router. This time value specifies the amount of time, in seconds, that the LDP router retains its MPLS forwarding state after a graceful restart.

**configure router ldp fwd-state-holding-time** *seconds*

**configure router ldp no fwd-state-holding-time**

---

### Syntax Definitions

*seconds*

The Forwarding State Holding timer value, in seconds. The valid range is from 5–300.

### Defaults

By default, the MPLS Forwarding State Holding time is set to 120 seconds.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to set the Forwarding State Holding timer to the default value.
- This timer is started if the MPLS forwarding state of the restarting router was preserved after a graceful restart. The router then marks the forwarding entries as “stale” for the length of this time value. When the timer expires, any entries that are still marked as stale are deleted.
- An LDP router is considered in the process of restarting if the Forwarding State Holding timer is still active. When the end of this holding time is reached, the restart process is considered complete for the router.
- The Recovery Time advertised in the FT Session TLV of the LDP message is set to the current value of the Forwarding State Holding timer at the time the message is sent. If the router did not retain its MPLS forwarding state after a restart, then the Recovery Time is set to zero.

### Examples

```
-> configure router ldp fwd-state-holding-time 300
-> configure router ldp no fwd-state-holding-time
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router ldp graceful-restart-helper** Configures the graceful restart helper status for the LDP router.
- configure router ldp reconnect-time** Configures the Reconnect Timeout value in the fault tolerant (FT) Session TLV that is advertised in LDP messages.
- configure router ldp maximum-recovery-time** Configures the amount of time the router retains stale MPLS label-FEC bindings received from a neighboring LDP router as the result of a graceful restart process.
- configure router ldp neighbor-liveness-time** The amount of time the router will wait for a neighboring router to re-establish an LDP session.

## MIB Objects

alaVRtrExtendedLdpGeneralTable  
vRtrLdpGenGRFwdStateHoldTime

---





## Related Commands

- configure router ldp graceful-restart-helper** Configures the graceful restart helper status for the LDP router.
- configure router ldp fwd-state-holding-time** Configures the amount of time that the LDP router retains its MPLS forwarding state after a graceful restart.
- configure router ldp reconnect-time** Configures the Reconnect Timeout value in the fault tolerant (FT) Session TLV that is advertised in LDP messages.
- configure router ldp neighbor-liveness-time** The amount of time the router will wait for a neighboring router to re-establish an LDP session.

## MIB Objects

vRtrLdpGeneralTable  
vRtrLdpGenGRMaxRecoveryTime

---



## Related Commands

- configure router ldp graceful-restart-helper** Configures the graceful restart helper status for the LDP router.
- configure router ldp reconnect-time** Configures the Reconnect Timeout value in the fault tolerant (FT) Session TLV that is advertised in LDP messages.
- configure router ldp fwd-state-holding-time** Configures the amount of time that the LDP router retains its MPLS forwarding state after a graceful restart.
- configure router ldp maximum-recovery-time** Configures the amount of time the router retains stale MPLS label-FEC bindings received from a neighboring LDP router as the result of a graceful restart process.

## MIB Objects

```
vRtrLdpGeneralTable  
  vRtrLdpGenGRNbrLiveTime
```

---

## oam lsp-ping

Performs an Operation Administration and Maintenance (OAM) in-band connectivity test for an MPLS Label Switched Path (LSP).

**[configure] oam lsp-ping prefix *ip\_prefix/mask* [size *octets*] [ttl *label-ttl*] [timeout *timeout*] [interval *interval*] [send-count *send-count*]**

---

### Syntax Definitions

<i>ip_prefix</i>	The IP address of the destination node for the LSP.
<i>mask</i>	The subnet mask of the specified destination IP prefix. The value ranges from 1 to 32.
<i>octets</i>	The MPLS Echo request packet size in octets, expressed as a decimal integer. The value ranges from 84 to 9194.
<i>label-ttl</i>	The TTL value for the MPLS label, expressed as a decimal integer. The value ranges from 1 to 255.
<i>timeout</i>	The amount of time, in seconds, that the router will wait for a message reply after sending the MPLS Echo request message. The value ranges from 1 to 10.
<i>interval</i>	The minimum amount of time that must expire before the next MPLS Echo request message is sent. The value ranges from 1 to 10.
<i>send-count</i>	The number of Echo request messages to send, expressed as a decimal integer. The value ranges from 1 to 100.

### Defaults

Parameter	Default
<i>octets</i>	84
<i>label-ttl</i>	255
<i>timeout</i>	5
<i>interval</i>	1
<i>send-count</i>	1

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- This command is used to test the path for an existing MPLS Label Distribution Protocol (LDP) signaled LSP. If the IP address specified is not the destination address for an existing LSP, the ping will fail.
- The in-band LSP connectivity test is performed as described in the *IETF RFC 4379*.

- This command does *not* support OAM ping for static LSPs.

## Examples

```
-> oam lsp-ping prefix 5.5.5.5/32 send-count 5
LSP-PING 5.5.5.5/32: 80 bytes MPLS payload Seq=1, send from intf ip500, reply from
70.0.0.5
    udp-data-len=32 ttl=255 rtt=16ms rc=3 (EgressRtr) Seq=2, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr) Seq=3, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr) Seq=4, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr) Seq=5, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr)
```

```
---- LSP 5.5.5.5/32 PING Statistics ----
5 packets sent, 5 packets received, 0.00% packet loss round-trip min < 10ms, avg <
10ms, max = 16.0ms, stddev = 6.50ms
```

```
-> oam lsp-ping prefix 5.5.5.5/32 send-count 5 size 9000 interval 2
LSP-PING 5.5.5.5/32: 9000 bytes MPLS payload Seq=1, send from intf ip500, reply
from 70.0.0.5
    udp-data-len=32 ttl=255 rtt=866ms rc=3 (EgressRtr) Seq=2, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr) Seq=3, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt=966ms rc=3 (EgressRtr) Seq=4, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt<10ms rc=3 (EgressRtr) Seq=5, send from intf
ip500, reply from 70.0.0.5
    udp-data-len=32 ttl=255 rtt=966ms rc=3 (EgressRtr)
```

```
---- LSP 5.5.5.5/32 PING Statistics ----
5 packets sent, 5 packets received, 0.00% packet loss round-trip min < 10ms, avg =
559ms, max = 966ms, stddev = 459ms
```

### output definitions

<b>LSP-PING prefix or name</b>	IP Prefix of the destination node for the LDP-signaled LSP.
<b>MPLS payload</b>	Size of the ping message in octets.
<b>Seq</b>	Sequence number of response.
<b>Send from intf</b>	Name of the interface on which the probe was sent.
<b>reply from</b>	The IPv4 address of the node that generated this reply.
<b>udp-data-len</b>	UDP data length of the echo reply.
<b>ttl</b>	TTL specified in ping.
<b>rtt</b>	Number of milliseconds from when a probe was sent to when its response was received.
<b>rc</b>	Number and type of return code in response.
<b>packets sent</b>	Number of probes sent for this entry.
<b>packets received</b>	Number of probes received for this entry.

---

<b>packet loss</b>	Percentage of probes sent that were not returned.
<b>round-trip min</b>	The minimum round-trip time received.
<b>avg</b>	The average round-trip time received.
<b>max</b>	The maximum round-trip time received.
<b>stddev</b>	The sum of the squares for all ping responses received. This value is used to enable standard deviation calculation.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[oam lsp-trace](#) Performs OAM traceroute for an MPLS LDP LSP.

## MIB Objects

```
tmnxOamPingCtlTable
  tmnxOamLspPingCtlLspName
  tmnxOamLspPingCtlLdpPrefixType
  tmnxOamLspPingCtlLdpPrefix
  tmnxOamLspPingCtlLdpPrefixLen
  tmnxOamPingCtlSize
  tmnxOamLspPingCtlTtl
  tmnxOamPingCtlTimeOut
  tmnxOamPingCtlInterval
  tmnxOamPingCtlProbeCount

tmnxOamLspPingCtlTable
  tmnxOamLspPingCtlLspName
  tmnxOamLspPingCtlLdpPrefixType
  tmnxOamLspPingCtlLdpPrefix
  tmnxOamLspPingCtlLdpPrefixLen
  tmnxOamPingCtlSize
  tmnxOamLspPingCtlTtl
  tmnxOamPingCtlTimeOut
  tmnxOamPingCtlInterval
  tmnxOamPingCtlProbeCount
```

---

## oam lsp-trace

Performs an Operation Administration and Maintenance (OAM) traceroute for an existing MPLS Label Switched Path (LSP).

**[configure] oam lsp-trace prefix** *ip\_prefix/mask* **[size** *octets* **]** **[min-ttl** *min-label-ttl* **]** **[max-ttl** *max-label-ttl* **]** **[max-fail** *no-response-count* **]** **[probe-count** *probes-per-hop* **]** **[timeout** *timeout* **]** **[interval** *interval* **]**

---

### Syntax Definitions

<i>ip_prefix</i>	The IP address of the destination node.
<i>mask</i>	The subnet mask of the specified destination IP prefix. The value ranges from 1 to 32.
<i>octets</i>	The MPLS Echo request packet size in octets, expressed as a decimal integer. The value ranges from 104 to 9194.
<i>min-label-ttl</i>	The minimum TTL value for the MPLS label for the LSP trace test, expressed as a decimal integer. The value ranges from 0 to 255.
<i>max-label-ttl</i>	The maximum TTL value for the MPLS label for the LSP trace test, expressed as a decimal integer. The value ranges from 1 to 255.
<i>no-responce-count</i>	The permissible maximum number of consecutive MPLS Echo requests that do not receive a reply before the trace operation fails for a given TTL, expressed as a decimal integer. The value ranges from 1 to 255.
<i>probes-per-hop</i>	The number of Echo request messages to send, expressed as a decimal integer. The value ranges from 1 to 10.
<i>timeout</i>	The amount of time, in seconds, that the router will wait for a message reply after sending the MPLS Echo request message. The value ranges from 1 to 60.
<i>interval</i>	The minimum amount of time that must expire before the next MPLS Echo request message is sent. A value of 0 implies the test will not be repeated. The value ranges from 0 to 10.



## Defaults

Parameter	Default
<i>octets</i>	104
<i>min-label-ttl</i>	1
<i>max-label-ttl</i>	30
<i>no-responce-count</i>	5
<i>probes-per-hop</i>	1
<i>timeout</i>	3
<i>interval</i>	1

## Platforms Supported

OmniSwitch 9000E

## Usage Guidelines

- This command is used to perform a traceroute for an existing MPLS Label Distribution Protocol (LDP) signaled LSP. If the IP address specified is not the destination address for an existing LDP LSP, the traceroute will fail.
- The LSP traceroute is performed as described in the *IETF RFC 4379*.
- This command does *not* support OAM traceroute for static LSPs.

## Examples

```
-> oam lsp-trace prefix 5.5.5.5/32
lsp-trace to 5.5.5.5/32: 1 hops min, 30 hops max, 104 byte packets
1 50.0.0.4 rtt<10ms rc=8(DSRtrMatchLabel)
   DS 1: IfAddr 80.0.0.5 MRU=1500 label=131070 proto=3(LDP)
2 70.0.0.5 rtt<10ms rc=3(EgressRtr)
```

```
-> oam lsp-trace prefix 5.5.5.5/32 size 9000
lsp-trace to 5.5.5.5/32: 1 hops min, 30 hops max, 9000 byte packets
1 50.0.0.4 rtt=966ms rc=8(DSRtrMatchLabel)
   DS 1: IfAddr 80.0.0.5 MRU=1500 label=131070 proto=3(LDP)
2 70.0.0.5 rtt=16ms rc=3(EgressRtr)
```

### output definitions

<b>lsp-trace to</b>	IP Prefix of the destination node for the LDP-signaled LSP.
<b>hops min</b>	The initial TTL.
<b>hops max</b>	The max TTL.
<b>byte packets</b>	Size, in octets, of the probe request packet.
<b>rtt</b>	The round trip time, in milliseconds, of the trace request and response.
<b>rc=# (EgressRtr)</b>	Number and type of the last reply code received.

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**oam lsp-ping**                      Performs an OAM in-band connectivity test for an MPLS LDP LSP.

## MIB Objects

```
tmnxOamTrCtlTable
  tmnxOamLspTrCtlLspName
  tmnxOamLspTrCtlLdpPrefixType
  tmnxOamLspTrCtlLdpPrefix
  tmnxOamLspTrCtlPrefixLen
  tmnxOamTrCtlDataSize
  tmnxOamTrCtlInitialTtl
  tmnxOamTrCtlMaxTtl
  tmnxOamTrCtlMaxFailures
  tmnxOamTrCtlProbesPerHop
  tmnxOamTrCtlTimeOut
  tmnxOamTrCtlInterval

tmnxOamLspTrCtlTable
  tmnxOamLspTrCtlLspName
  tmnxOamLspTrCtlLdpPrefixType
  tmnxOamLspTrCtlLdpPrefix
  tmnxOamLspTrCtlPrefixLen
  tmnxOamTrCtlDataSize
  tmnxOamTrCtlInitialTtl
  tmnxOamTrCtlMaxTtl
  tmnxOamTrCtlMaxFailures
  tmnxOamTrCtlProbesPerHop
  tmnxOamTrCtlTimeOut
  tmnxOamTrCtlInterval
```

---

## show router ldp bindings

Displays the contents of the MPLS Label Information Base (LIB).

This section describes the base command (**show router ldp bindings**). Optional keywords are listed below and described as separate commands later in this chapter.

### show router ldp bindings

```
[fec-type {services | prefixes | fec-num} [session ip-address[:label-space]]]
[ingress-label start-label [end-label]]
[egress-label start-label [end-label]]
[prefix ip-prefix/mask [session ip-address[:label-space]]]
[active [prefix ip-prefix/mask]]
[vc-type vc-type [vc-id vc-id [session ip-address[:label-space]]]]
[service-id service-id]
```

---

### Syntax Definitions

N/A.

### Defaults

By default, the entire contents of the LIB is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the optional parameters provided with this command to display specific information for LDP label-FEC (Forwarding Equivalence Class) bindings.

### Examples

```
-> show router ldp bindings
LDP LSR ID: 10.10.10.5
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 E = Epipe Service, V = VPLS Service, M = Mirror Service,  
 A = Apipe Service, F = Fpipe Service, I = IES Service, R = VPRN service,  
 P - Ipipe Service  
 TLV = (Type, Length: Value)

```
LDP Prefix Bindings
Prefix          Peer          IngLbl  EgrLbl  EgrIntf/LspId  EgrNextHop
-----+-----+-----+-----+-----+-----
10.10.10.5/32   10.11.0.6     131071U  --      --              --
10.11.0.6/32   10.11.0.6     --      131068  --              --
```

```
No. of Prefix Bindings: 2
```

```

LDP Service FEC 128 Bindings
Type  VCId      SvcId      SDPIId Peer          IngLbl  EgrLbl  LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----+-----
V-Eth 100        100        10         10.11.0.6      131069U 131070 1514 1500

```

No. of VC Labels: 1

```

LDP Service FEC 129 Bindings
AGI
Type          SvcId      SDPIId Peer          IngLbl  EgrLbl  LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found

```

### *output definitions*

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>Type</b>	The type of service ( <b>V-Eth</b> ) exchanging labels through the Service Distribution Point (SDP).
<b>VCId</b>	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPIId</b>	The SDP ID number associated with the service.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

### **Release History**

Release 6.4.2; command was introduced.

## Related Commands

<b>show router ldp bindings fec-type</b>	Displays the LDP bindings for a specific type of FEC or for a specific service FEC number.
<b>show router ldp bindings ingress-label</b>	Displays ingress LDP bindings for a specific label number or for a range of label numbers.
<b>show router ldp bindings egress-label</b>	Displays egress LDP bindings for a specific label number or for a range of label numbers.
<b>show router ldp bindings prefix</b>	Displays the LDP bindings for a specific IP prefix.
<b>show router ldp bindings active</b>	Displays the LDP bindings for active IP prefixes.
<b>show router ldp bindings vc-type</b>	Displays the LDP bindings for the specified virtual circuit (VC) type.
<b>show router ldp bindings service-id</b>	Displays the LDP bindings for the specified service.

## MIB Objects

```
alaEServiceInfo  
  alaEServiceMode
```

---

## show router ldp bindings fec-type

Displays the LDP bindings for a specific type of Forwarding Equivalence Class (FEC) or for a specific service FEC number.

```
show router ldp bindings fec-type {fec-number | services | prefixes} [session ip-address[:label-space]]
```

---

### Syntax Definitions

<b>services</b>	Displays bindings for service FECs.
<b>prefixes</b>	Displays bindings for address FECs.
<i>fec-number</i>	The service FEC number. Valid numbers are 128 and 129.
<i>ip-address</i>	The LDP router ID (Loopback0 IP address configured for the switch) for a specific LDP session.
<i>:label-space</i>	The label space ID number that the router advertises on the LDP interface. This value is appended to the LDP router ID address. The valid range is 0–65535.

### Defaults

By default, LDP bindings are displayed for all LDP sessions associated with the specified FEC type.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Specify an FEC number to display label binding information for a specific FEC.
- Use the **services** parameter to display label binding information for service FECs. Note that only VPLS is supported.
- Use the **prefixes** parameter to display label binding information for address FECs. These are FECs that are associated with an IP address, instead of a service.
- Use the **session** parameter to display label binding information for a specific LDP router session. Note that entering a label-space value is optional with this parameter.

### Examples

```
->show router ldp bindings fec-type 128
LDP LSR ID: 10.10.10.5
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 E = Epipe Service, V = VPLS Service, M = Mirror Service,  
 A = Apipe Service, F = Fpipe Service, I = IES Service, R = VPRN service,  
 P - Ipipe Service  
 TLV = (Type, Length: Value)

## LDP Service FEC 128 Bindings

Type	VCId	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU
V-Eth	100	100	10	10.11.0.6	131069U	131070	1500	1500

No. of VC Labels: 1

-&gt;show router ldp bindings fec-type services

LDP LSR ID: 10.11.0.6

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

## LDP Service FEC 128 Bindings

Type	VCId	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU
V-Eth	100	100	10	10.11.0.66	131068U	131068	1500	1500

No. of VC Labels: 1

## LDP Service FEC 129 Bindings

AGI	Type	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU	SAII	TAII
No Matching Entries Found										

-&gt;show router ldp bindings fec-type prefixes

LDP LSR ID: 10.11.0.6

Legend: U - Label In Use, N - Label Not In Use

## LDP Prefix Bindings

Prefix	Peer	IngLbl	EgrLbl	EgrIntf/LspId	EgrNextHop
10.10.0.7/32	10.10.0.7	--	131071	--	--
10.11.0.6/32	10.10.0.7	131071U	--	--	--
10.11.0.66/32	10.10.0.7	131069N	131070	--	--

No. of Prefix Bindings: 3

-&gt;show router ldp bindings fec-type prefixes session 10.10.0.7

LDP LSR ID: 10.11.0.6

Legend: U - Label In Use, N - Label Not In Use

## LDP Prefix Bindings

Prefix	Peer	IngLbl	EgrLbl	EgrIntf	EgrNextHop
10.10.0.7/32	10.10.0.7	--	131071	--	--
10.11.0.6/32	10.10.0.7	131071U	--	--	--
10.11.0.66/32	10.10.0.7	131069N	131070	--	--

No. of Prefix Bindings: 3

*output definitions*


---

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>Type</b>	The type of service ( <b>V-Eth</b> ) exchanging labels through the Service Distribution Point (SDP).
<b>VCId</b>	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPId</b>	The SDP ID number associated with the service.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

**show router ldp bindings** The base command used to display the entire contents of the LIB for the LDP router.

**MIB Objects**



## show router ldp bindings ingress-label

Displays ingress LDP bindings for a specific label number or for a range of label numbers.

**show router ldp bindings ingress-label** *start-label* [*end-label*]

---

### Syntax Definitions

<i>start-label</i>	The ingress label number to display. The valid range is 16–1048575.
<i>end-label</i>	The last ingress label number in a range of labels to display. The valid range is 17–1048575.

### Defaults

By default, all ingress LDP bindings starting with the specified label number are displayed

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the optional *end-label* parameter along with the *start-label* parameter to specify a range of ingress label bindings to display.
- If an ending label number is not specified, then all ingress label bindings beginning with the starting label number forward are displayed. No range is specified.

### Examples

```
->show router ldp bindings ingress-label 131068
LDP LSR ID: 10.11.0.6
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

```
LDP Prefix Bindings
Prefix          Peer          IngLbl  EgrLbl  EgrIntf          EgrNextHop
-----+-----+-----+-----+-----+-----
No Matching Entries Found
```

```
LDP Service FEC 128 Bindings
Type  VCId      SvcId      SDPIId  Peer          IngLbl  EgrLbl  LMTU  RMTU
-----+-----+-----+-----+-----+-----+-----+-----
V-Eth  100       100       10      10.11.0.66   131068U 131068  1500  1500
```

No. of VC Labels: 1

```
LDP Service FEC 129 Bindings
AGI
Type          SvcId      SDPIId  Peer          IngLbl  EgrLbl  LMTU  RMTU
-----+-----+-----+-----+-----+-----+-----+-----
```

```
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found
```

```
->show router ldp bindings ingress-label 131068 139999
LDP LSR ID: 10.11.0.6
```

```
Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,
        S = Status Signaled Up, D = Status Signaled Down,
        R = VPRN Service, V = VPLS Service, W = VPWS Service
        TLV = (Type, Length: Value)
```

## LDP Prefix Bindings

Prefix	Peer	IngLbl	EgrLbl	EgrIntf	EgrNextHop
10.11.0.6/32	10.10.0.7	131071U	--	--	--
10.11.0.66/32	10.10.0.7	131069N	131070	--	--

```
No. of Prefix Bindings: 2
```

## LDP Service FEC 128 Bindings

Type	VCId	SvcId	SDPIId	Peer	IngLbl	EgrLbl	LMTU	RMTU
V-Eth	100	100	10	10.11.0.66	131068U	131068	1500	1500

```
No. of VC Labels: 1
```

## LDP Service FEC 129 Bindings

AGI	Type	SvcId	SDPIId	SAII	Peer	IngLbl	EgrLbl	TAII	LMTU	RMTU
No Matching Entries Found										

*output definitions*

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>Type</b>	The type of service ( <b>V-Eth</b> ) exchanging labels through the Service Distribution Point (SDP).
<b>VCId</b>	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPIId</b>	The SDP ID number associated with the service.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[show router ldp bindings](#)

The base command used to display the entire contents of the LIB for the LDP router.

## MIB Objects

---

## show router ldp bindings egress-label

Displays egress LDP bindings for a specific label number or for a range of label numbers.

**show router ldp bindings egress-label** *start-label* [*end-label*]

---

### Syntax Definitions

<i>start-label</i>	The egress label number to display. The valid range is 16–1048575.
<i>end-label</i>	The last egress label number in a range of labels to display. The valid range is 17–1048575.

### Defaults

By default, all egress LDP bindings starting with the specified label number are displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the optional *end-label* parameter along with the *start-label* parameter to specify a range of egress label bindings to display.
- If an ending label number is not specified, then all egress label bindings beginning with the starting label number forward are displayed. No range is specified.

### Examples

```
->show router ldp bindings egress-label 131071
LDP LSR ID: 10.11.0.6
```

```
Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,
        S = Status Signaled Up, D = Status Signaled Down,
        R = VPRN Service, V = VPLS Service, W = VPWS Service
        TLV = (Type, Length: Value)
```

```
LDP Prefix Bindings
```

Prefix	Peer	IngLbl	EgrLbl	EgrIntf	EgrNextHop
10.10.0.7/32	10.10.0.7	--	131071	--	--

```
No. of Prefix Bindings: 1
```

```
LDP Service FEC 128 Bindings
```

Type	VCId	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU
No Matching Entries Found								

```
No Matching Entries Found
```

```
LDP Service FEC 129 Bindings
```

AGI	SAII	TAII
No Matching Entries Found		

```

Type          SvcId      SDPIId Peer          IngLbl EgrLbl LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found

```

```

->show router ldp bindings egress-label 131070 199999
LDP LSR ID: 10.11.0.6

```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

## LDP Prefix Bindings

```

Prefix          Peer          IngLbl EgrLbl EgrIntf      EgrNextHop
-----+-----+-----+-----+-----+-----
10.10.0.7/32    10.10.0.7          --     131071  --           --
10.11.0.66/32  10.10.0.7          131069N 131070  --           --

```

No. of Prefix Bindings: 2

## LDP Service FEC 128 Bindings

```

Type  VCId      SvcId      SDPIId Peer          IngLbl EgrLbl LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found

```

## LDP Service FEC 129 Bindings

```

AGI
Type          SvcId      SDPIId Peer          IngLbl EgrLbl LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found

```

**output definitions**

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>Type</b>	The type of service ( <b>V-Eth</b> ) exchanging labels through the Service Distribution Point (SDP).
<b>VCId</b>	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPIId</b>	The SDP ID number associated with the service.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[show router ldp bindings](#)

The base command used to display the entire contents of the LIB for the LDP router.

## MIB Objects

---

## show router ldp bindings prefix

Displays the LDP bindings for a specific IP prefix.

```
show router ldp bindings prefix ip-prefix/mask [session ip-address[:label-space]]
```

---

### Syntax Definitions

<i>ip-prefix</i>	The IP address prefix used to identify the IP network. Specify 0 for the host bits.
<i>mask</i>	The IP address mask used to identify the subnet address within the IP address prefix.
<i>ip-address</i>	The LDP router ID (Loopback0 IP address configured for the switch) for a specific LDP session.
<i>:label-space</i>	The label space ID number that the router advertises on the LDP interface. This value is appended to the LDP router ID address. The valid range is 0–65535.

### Defaults

By default, LDP bindings are displayed for all sessions associated with the specified prefix.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the **session** parameter to display prefix binding information for a specific LDP router session. Note that entering a label-space value is optional with this parameter.

### Examples

```
->show router ldp bindings prefix 10.11.0.6/32
LDP LSR ID: 10.11.0.66
```

Legend: U - Label In Use, N - Label Not In Use

LDP Prefix Bindings

Prefix	Peer	IngLbl	EgrLbl	EgrIntf	EgrNextHop
10.11.0.6/32	10.10.0.7	131069N	131069	--	55.55.55.77

No. of Prefix Bindings: 1

*output definitions*

---

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

[show router ldp bindings](#) The base command used to display the entire contents of the LIB for the LDP router.

**MIB Objects**

---



## show router ldp bindings active

Displays the LDP bindings for active IP prefixes.

**show router ldp bindings active** [**prefix** *ip-prefix/mask*]

---

### Syntax Definitions

<i>ip-prefix</i>	The IP address prefix used to identify the IP network. Specify 0 for the host bits.
<i>mask</i>	The IP address mask used to identify the subnet address within the IP address prefix.

### Defaults

By default, active LDP bindings are displayed for all prefixes.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the optional **prefix** parameter to display active bindings for a specific prefix.

### Examples

```
->show router ldp bindings prefix 10.11.0.6/32
LDP LSR ID: 10.11.0.66
```

Legend: U - Label In Use, N - Label Not In Use

LDP Prefix Bindings

Prefix	Peer	IngLbl	EgrLbl	EgrIntf	EgrNextHop
10.11.0.6/32	10.10.0.7	131069N	131069	--	55.55.55.77

No. of Prefix Bindings: 1

### output definitions

---

<b>Prefix</b>	The IP network address and mask used to identify the prefix binding.
<b>Peer</b>	The IP address of the LDP peer.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>EgrIntf/LspId</b>	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
<b>EgrNextHop</b>	The next hop IP address for the egress label.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[show router ldp bindings](#)

The base command used to display the entire contents of the LIB for the LDP router.

## MIB Objects

---

## show router ldp bindings vc-type

Displays the LDP bindings for the specified virtual circuit (VC) type.

```
show router ldp bindings vc-type vc-type [vc-id vc-id [session ip-address [:label-space]]]
```

---

### Syntax Definitions

<i>vc-type</i>	The virtual circuit type. Valid types are <b>ethernet</b> , <b>vlan</b> , and <b>mirror</b> .
<i>vc-id</i>	The virtual circuit ID number. The valid range is 1–4294967295.
<i>ip-address</i>	The LDP router ID (Loopback0 IP address configured for the switch) for a specific LDP session.
<i>:label-space</i>	The label space ID number that the router advertises on the LDP interface. This value is appended to the LDP router ID address. The valid range is 0–65535.

### Defaults

By default, LDP bindings for all VC IDs and all sessions for each VC ID are displayed for the specified VC type.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **vc-id** parameter to display the LDP bindings for a specific VC ID number.
- Use the **session** parameter to display the LDP bindings for a specific session associated with the specified VC ID number.

### Examples

```
->show router ldp bindings vc-type ethernet
LDP LSR ID: 10.11.0.6
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

```
LDP Service FEC 128 Bindings
Type  VCId      SvcId      SDPIId Peer          IngLbl  EgrLbl  LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----+-----+
V-Eth 100        100        10        10.11.0.66    131068U 131068  1500  1500
```

```
LDP Service FEC 129 Bindings
AGI
Type          SvcId      SDPIId Peer          TAII
-----+-----+-----+-----+-----+-----+-----+-----+
IngLbl  EgrLbl  LMTU  RTMU
```

```
->show router ldp bindings vc-type ethernet vc-id 100
LDP LSR ID: 10.11.0.6
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

LDP Service FEC 128 Bindings

Type	VCId	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU
V-Eth	100	100	10	10.11.0.66	131068U	131068	1500	1500

No. of VC Labels: 1

```
->show router ldp bindings vc-type ethernet vc-id 100 session 10.11.0.66
LDP LSR ID: 10.11.0.6
```

Legend: U = Label In Use, N = Label Not In Use, W = Label Withdrawn,  
 S = Status Signaled Up, D = Status Signaled Down,  
 R = VPRN Service, V = VPLS Service, W = VPWS Service  
 TLV = (Type, Length: Value)

LDP Service FEC 128 Bindings

Type	VCId	SvcId	SDPId	Peer	IngLbl	EgrLbl	LMTU	RMTU
V-Eth	100	100	10	10.11.0.66	131068U	131068	1500	1500

No. of VC Labels: 1

### *output definitions*

<b>Type</b>	The type of service ( <b>V-Eth</b> ) exchanging labels through the Service Distribution Point (SDP).
<b>VCId</b>	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPId</b>	The SDP ID number associated with the service.
<b>Peer</b>	The IP address of the LDP peer.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

### **Release History**

Release 6.4.2; command was introduced.

## **Related Commands**

### **show router ldp bindings**

The base command used to display the entire contents of the LIB for the LDP router.

## **MIB Objects**

---



*output definitions*

---

<b>SvcId</b>	The unique service identification number used to identify the service.
<b>SDPId</b>	The SDP ID number associated with the service.
<b>Peer</b>	The IP address of the LDP peer.
<b>IngLbl</b>	The ingress LDP label.
<b>EgrLbl</b>	The egress LDP label.
<b>LMTU</b>	The local MTU number.
<b>RMTU</b>	The remote MTU number.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

[show router ldp bindings](#) The base command used to display the entire contents of the LIB for the LDP router.

**MIB Objects**

---

## show router ldp discovery

Displays the discovery status of the LDP Hello adjacencies between the local router and LDP peers.

**show router ldp discovery** [state {trying | established | down}] [detail]

---

### Syntax Definitions

<b>trying</b>	Displays LDP interfaces that are trying to establish an adjacency with peers.
<b>established</b>	Displays LDP interfaces that have established adjacencies with peers.
<b>down</b>	Displays LDP interfaces with adjacencies that are down.
<b>detail</b>	Displays detailed information for LDP hello adjacencies.

### Defaults

By default, the discovery status for all the LDP Hello adjacencies is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **state** parameter with the **trying**, **established**, or **down** options to display LDP adjacencies that are in a specific state of discovery.
- Use the **detail** parameter to display additional discovery information and statistics for the adjacencies.

### Examples

```
->show router ldp discovery
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
N/A	10.10.10.5	10.11.0.6	Targ	Estab
N/A	10.10.10.5	20.1.2.3	Targ	Trying
N/A	10.10.10.5	30.1.2.3	Targ	Trying
vlan-30	10.10.10.5	10.11.0.6	Link	Estab

```
No. of Hello Adjacencies: 4
```

```
->show router ldp discovery detail
LDP Hello Adjacencies (Detail)
Peer 10.11.0.66
  Local Address:      10.11.0.6,
  Adjacency Type:    Targeted,
  Up Time:           0d 03:11:09,
  Hello Mesg Recv:   821,
  Local IP Address:  10.11.0.6,
  Local Hello Timeout: 45,
```

```
Peer Address:      10.11.0.66,
State:             Established,
Hold Time Remaining: 34,
Hello Mesg Sent:   819,
Remote IP Address: 10.11.0.66,
Remote Hello Timeout: 45,
```



```

Local Cfg Seq No:    2,                Remote Cfg Seq No:    2265099808

Interface "vlan-30"
Local Address:      10.11.0.6,        Peer Address:        10.10.0.7,
Adjacency Type:    Link,              State:               Established,
Up Time:           0d 03:12:03,       Hold Time Remaining: 14,
Hello Mesg Recv:   2882,              Hello Mesg Sent:     2882,
Local IP Address:  30.30.30.66,        Remote IP Address:   30.30.30.77,
Local Hello Timeout: 15,              Remote Hello Timeout: 15,
Local Cfg Seq No:  3,                  Remote Cfg Seq No:   3

```

->show router ldp discovery state down

Interface Name	Local Addr	Peer Addr	AdjType	State
N/A	10.11.0.6	10.11.0.66	Targ	Down
vlan-30	10.11.0.6	10.10.0.7	Link	Down

No. of Hello Adjacencies: 2

->show router ldp discovery state established

Interface Name	Local Addr	Peer Addr	AdjType	State
N/A	10.11.0.6	10.11.0.66	Targ	Estab
vlan-30	10.11.0.6	10.10.0.7	Link	Estab

No. of Hello Adjacencies: 2

->show router ldp discovery state trying

Interface Name	Local Addr	Peer Addr	AdjType	State
N/A	10.11.0.6	10.11.0.66	Targ	Trying
vlan-30	10.11.0.6	10.10.0.7	Link	Trying

No. of Hello Adjacencies: 2

### output definitions

<b>Interface Name</b>	The name of the local LDP IP interface.
<b>Local Addr</b>	The IP address of the local router.
<b>Peer Addr</b>	The IP address of the LDP peer.
<b>AdjType</b>	The type of adjacency between the local LDP interface and the LDP peer ( <b>Link</b> —peers directly connected establish linked sessions or <b>Targ</b> —peers not directly connected establish targeted sessions).
<b>State</b>	The status of the LDP hello adjacency ( <b>Estab</b> , <b>Trying</b> , or <b>Down</b> ).
<b>No. of Hello Adjacencies</b>	The number of LDP hello adjacencies discovered.
<b>Up Time</b>	The amount of time the adjacency has been established.
<b>Hold Time Remaining</b>	The amount of time left before the peer for this adjacency is declared down.
<b>Hello Mesg Recv</b>	The number of Hello messages received from this adjacency.
<b>Hello Mesg Sent</b>	The number of Hello messages sent for this adjacency.
<b>Local IP Address</b>	The IP address of the local IP interface for this adjacency.

*output definitions*


---

<b>Remote IP Address</b>	The IP address of the peer IP interface for this adjacency.
<b>Local Hello Timeout</b>	The Hello Timeout value configured for the local router.
<b>Remote Hello Timeout</b>	The Hello Timeout value configured for the peer.
<b>Local Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.
<b>Remote Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<b>show router ldp discovery peer</b>	Displays the discovery status for adjacencies that are associated with a specific LDP peer.
<b>show router ldp discovery interface</b>	Displays the discovery status for adjacencies that are associated with a specific LDP interface.

**MIB Objects**

```

vRtrLdpHelloAdjTable
  vRtrLdpPeerLdpId
  vRtrLdpHelloAdjLocalLdpId
  vRtrLdpHelloAdjEntityIndex
  vRtrLdpHelloAdjIndex
  vRtrLdpHelloAdjHoldTimeRemaining
  vRtrLdpHelloAdjType
  vRtrLdpHelloAdjRemoteConfSeqNum
  vRtrLdpHelloAdjRemoteIpAddress
  vRtrLdpHelloAdjUpTime
  vRtrLdpHelloAdjLocalConfSeqNum
  vRtrLdpHelloAdjLocalIpAddress
  vRtrLdpHelloAdjInHelloMsgCount
  vRtrLdpHelloAdjOutHelloMsgCount
  vRtrLdpHelloAdjLocalHelloTimeout
  vRtrLdpHelloAdjRemoteHelloTimeout

```

---

## show router ldp discovery peer

Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP peer.

**show router ldp discovery peer** *ip-address* [state {trying | established | down}] [detail]

---

### Syntax Definitions

<i>ip-address</i>	The IP address of the LDP peer.
<b>trying</b>	Displays LDP interfaces that are trying to establish an adjacency with peers.
<b>established</b>	Displays LDP interfaces that have established adjacencies with peers.
<b>down</b>	Displays LDP interfaces with adjacencies that are down.
<b>detail</b>	Displays detailed information for LDP hello adjacencies.

### Defaults

By default, the discovery status for the LDP Hello adjacencies with the specified LDP peer is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **state** parameter with the **trying**, **established**, or **down** options to display LDP adjacencies that are in a specific state of discovery.
- Use the **detail** parameter to display additional discovery information and statistics for the adjacencies.

### Examples

```
->show router ldp discovery peer 10.11.0.6
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
vlan-30	10.11.0.66	10.11.0.6	Targ	Estab

```
No. of Hello Adjacencies: 1
```

```
->show router ldp discovery peer 10.11.0.6 detail
LDP Hello Adjacencies (Detail)
```

```
Peer 10.11.0.6
  Local Address:      10.11.0.6,      Peer Address:      10.10.0.7,
  Adjacency Type:    Link,          State:             Established,
  Up Time:           0d 03:14:22,    Hold Time Remaining: 15,
  Hello Mesg Recv:   2917,          Hello Mesg Sent:   2917,
  Local IP Address:  30.30.30.66,      Remote IP Address: 30.30.30.77,
  Local Hello Timeout: 15,          Remote Hello Timeout: 15,
```

Local Cfg Seq No: 3, Remote Cfg Seq No: 3

```
->show router ldp discovery peer 10.11.0.6 state down
Interface Name          Local Addr    Peer Addr    AdjType State
-----+-----+-----+-----+-----
No Matching Entries Found
```

```
->show router ldp discovery peer 10.11.0.6 state established
Interface Name          Local Addr    Peer Addr    AdjType State
-----+-----+-----+-----+-----
vlan-30                 10.11.0.6    10.10.0.7    Link     Estab

No. of Hello Adjacencies: 1
```

```
->show router ldp discovery peer 10.11.0.6 state trying
Interface Name          Local Addr    Peer Addr    AdjType State
-----+-----+-----+-----+-----
No Matching Entries Found
```

### *output definitions*

<b>Interface Name</b>	The name of the local LDP IP interface.
<b>Local Addr</b>	The IP address of the local router.
<b>Peer Addr</b>	The IP address of the LDP peer.
<b>AdjType</b>	The type of adjacency between the local LDP interface and the LDP peer ( <b>Link</b> —peers directly connected establish linked sessions or <b>Targeted</b> —peers not directly connected establish targeted sessions).
<b>State</b>	The status of the LDP hello adjacency ( <b>Estab</b> , <b>Trying</b> , or <b>Down</b> ).
<b>No. of Hello Adjacencies</b>	The number of LDP hello adjacencies discovered.
<b>Up Time</b>	The amount of time the adjacency has been established.
<b>Hold Time Remaining</b>	The amount of time left before the peer for this adjacency is declared down.
<b>Hello Mesg Recv</b>	The number of Hello messages received from this adjacency.
<b>Hello Mesg Sent</b>	The number of Hello messages sent for this adjacency.
<b>Local IP Address</b>	The IP address of the local IP interface for this adjacency.
<b>Remote IP Address</b>	The IP address of the peer IP interface for this adjacency.
<b>Local Hello Timeout</b>	The Hello Timeout value configured for the local router.
<b>Remote Hello Timeout</b>	The Hello Timeout value configured for the peer.
<b>Local Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.
<b>Remote Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.

## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                                     |                                                                                                  |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <a href="#">show router ldp discovery</a>           | Displays the discovery status for all the adjacencies associated with the local LDP interfaces.  |
| <a href="#">show router ldp discovery interface</a> | Displays the discovery status for adjacencies that are associated with a specific LDP interface. |

## MIB Objects

```
vRtrLdpHelloAdjTable
  vRtrLdpPeerLdpId
  vRtrLdpHelloAdjLocalLdpId
  vRtrLdpHelloAdjEntityIndex
  vRtrLdpHelloAdjIndex
  vRtrLdpHelloAdjHoldTimeRemaining
  vRtrLdpHelloAdjType
  vRtrLdpHelloAdjRemoteConfSeqNum
  vRtrLdpHelloAdjRemoteIpAddress
  vRtrLdpHelloAdjUpTime
  vRtrLdpHelloAdjLocalConfSeqNum
  vRtrLdpHelloAdjLocalIpAddress
  vRtrLdpHelloAdjInHelloMsgCount
  vRtrLdpHelloAdjOutHelloMsgCount
  vRtrLdpHelloAdjLocalHelloTimeout
  vRtrLdpHelloAdjRemoteHelloTimeout
```

---

## show router ldp discovery interface

Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP interface.

**show router ldp discovery interface** *ip-intf-name* [state {trying | established | down}] [detail]

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<b>trying</b>	Displays adjacencies that the specified interface is trying to establish.
<b>established</b>	Displays established adjacencies for the specified interface.
<b>down</b>	Displays adjacencies for the specified interface that are down.
<b>detail</b>	Displays detailed information about the LDP interface.

### Defaults

By default, this command displays the discovery status for all the LDP Hello adjacencies associated with the specified interface.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **state** parameter with the **trying**, **established**, or **down** options to display LDP adjacencies that are in a specific state of discovery.
- Use the **detail** parameter to display additional discovery information and statistics for the adjacencies.

### Examples

```
->show router ldp discovery interface vlan-30
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
vlan-30	10.11.0.6	10.10.0.7	Link	Estab

```
No. of Hello Adjacencies: 1
```

```
->show router ldp discovery interface vlan-30 detail
LDP Hello Adjacencies (Detail)
```

```
Interface "vlan-30"
  Local Address:      10.11.0.6,      Peer Address:      10.10.0.7,
  Adjacency Type:    Link,           State:             Established,
  Up Time:           0d 03:14:22,    Hold Time Remaining: 15,
  Hello Mesg Recv:   2917,           Hello Mesg Sent:   2917,
  Local IP Address:  30.30.30.66,           Remote IP Address: 30.30.30.77,
  Local Hello Timeout: 15,          Remote Hello Timeout: 15,
  Local Cfg Seq No:  3,             Remote Cfg Seq No:  3
```

```
->show router ldp discovery interface vlan-30 state down
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
-----+-----+-----+-----+-----				

No Matching Entries Found

```
->show router ldp discovery interface vlan-30 state established
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
-----+-----+-----+-----+-----				
vlan-30	10.11.0.6	10.10.0.7	Link	Estab

No. of Hello Adjacencies: 1

```
->show router ldp discovery interface vlan-30 state trying
LDP Hello Adjacencies
```

Interface Name	Local Addr	Peer Addr	AdjType	State
-----+-----+-----+-----+-----				

No Matching Entries Found

### *output definitions*

<b>Interface Name</b>	The name of the local LDP IP interface.
<b>Local Addr</b>	The IP address of the local router.
<b>Peer Addr</b>	The IP address of the LDP peer.
<b>AdjType</b>	The type of adjacency between the local LDP interface and the LDP peer ( <b>Link</b> —peers directly connected establish linked sessions or <b>Targeted</b> —peers not directly connected establish targeted sessions).
<b>State</b>	The status of the LDP hello adjacency ( <b>Estab</b> , <b>Trying</b> , or <b>Down</b> ).
<b>No. of Hello Adjacencies</b>	The number of LDP hello adjacencies discovered.
<b>Up Time</b>	The amount of time the adjacency has been established.
<b>Hold Time Remaining</b>	The amount of time left before the peer for this adjacency is declared down.
<b>Hello Mesg Recv</b>	The number of Hello messages received from this adjacency.
<b>Hello Mesg Sent</b>	The number of Hello messages sent for this adjacency.
<b>Local IP Address</b>	The IP address of the local IP interface for this adjacency.
<b>Remote IP Address</b>	The IP address of the peer IP interface for this adjacency.
<b>Local Hello Timeout</b>	The Hello Timeout value configured for the local router.
<b>Remote Hello Timeout</b>	The Hello Timeout value configured for the peer.

*output definitions*


---

<b>Local Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.
<b>Remote Cfg Seq No</b>	The configuration sequence number that was in the Hello received when this adjacency started up. This configuration sequence number changes when there is a change of configuration.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

- show router ldp discovery** Displays the discovery status for all the adjacencies associated with the local LDP interfaces.
- show router ldp discovery peer** Displays the discovery status for adjacencies that are associated with a specific LDP peer.

**MIB Objects**

```

vRtrLdpHelloAdjTable
  vRtrLdpPeerLdpId
  vRtrLdpHelloAdjLocalLdpId
  vRtrLdpHelloAdjEntityIndex
  vRtrLdpHelloAdjIndex
  vRtrLdpHelloAdjHoldTimeRemaining
  vRtrLdpHelloAdjType
  vRtrLdpHelloAdjRemoteConfSeqNum
  vRtrLdpHelloAdjRemoteIpAddress
  vRtrLdpHelloAdjUpTime
  vRtrLdpHelloAdjLocalConfSeqNum
  vRtrLdpHelloAdjLocalIpAddress
  vRtrLdpHelloAdjInHelloMsgCount
  vRtrLdpHelloAdjOutHelloMsgCount
  vRtrLdpHelloAdjLocalHelloTimeout
  vRtrLdpHelloAdjRemoteHelloTimeout

```

---



## show router ldp interface

Displays the LDP interface configuration for the local router.

**show router ldp interface** [*ip-intf-name* / *ip-address*] [**detail**]

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing LDP interface.
<i>ip-address</i>	The IP address of an existing LDP interface.
<b>detail</b>	Displays detailed adjacency information for the specified interface.

### Defaults

By default, the configuration for all LDP interfaces is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *ip-intf-name* and *ip-address* parameters to display information for a specific interface.
- Use the **detail** parameter to display additional information and statistics for LDP interfaces.

### Examples

```
->show router ldp interface
LDP Interfaces
```

Interface	Adm	Oper	Hello Factor	Hold Time	KA Factor	KA Timeout	Transport Address
vlan-30	Up	Up	3	15	3	30	System

```
No. of Interfaces: 1
```

```
->show router ldp interface detail
LDP Interfaces (Detail)
```

```
Interface "vlan-30"
  Admin State:      Up,
  Hold Time:       15,
  Keepalive Timeout: 30,
  Transport Addr:   System,
  Active Adjacencies: 1,
  Tunneling:       Disabled,
  Lsp Name         : None
  Oper State:      Up,
  Hello Factor:    3,
  Keepalive Factor: 3,
  Last Modified:   05/26/2009 23:14:27,
```

```
->show router ldp interface vlan-30
LDP Interfaces
```

Interface	Adm	Opr	Hello Factor	Hold Time	KA Factor	KA Timeout	Transport Address
vlan-30	Up	Up	3	15	3	30	System

```
No. of Interfaces: 1
```

```
->show router ldp interface vlan-30 detail
LDP Interfaces (Detail)
```

```
Interface "vlan-30"
  Admin State:      Up,
  Hold Time:       15,
  Keepalive Timeout: 30,
  Transport Addr:  System,
  23:14:27,
  Active Adjacencies: 1,
  Tunneling:       Disabled,
  Lsp Name         : None
  Oper State:      Up,
  Hello Factor:    3,
  Keepalive Factor: 3,
  Last Modified:   05/26/2009
```

```
->show router ldp interface 10.11.0.66
LDP Interfaces
```

Interface	Adm	Opr	Hello Factor	Hold Time	KA Factor	KA Timeout	Transport Address
vlan-30	Up	Up	3	15	3	30	System

```
No. of Interfaces: 1
```

### output definitions

<b>Interface</b>	The name of the local LDP IP interface. Configured through the <a href="#">configure router ldp interface-parameters interface</a> command.
<b>Adm</b>	The administrative state of the LDP interface (Up or Down). Configured through the <a href="#">configure router ldp interface-parameters interface shutdown</a> command.
<b>Opr</b>	The operational state of the LDP interface (Up or Down).
<b>Hello Factor</b>	The Hello factor value that is divided into the Hold Time value to determine the interval at which Hello messages are sent from this interface. Configured through the <a href="#">configure router ldp interface-parameters hello</a> command.
<b>Hold Time</b>	The Hold Time value (also referred to as Hello Timeout) determines the amount of time, in seconds, LDP waits to receive hello messages from a peer before declaring that the peer is down. Configured through the <a href="#">configure router ldp interface-parameters hello</a> command.
<b>KA Factor</b>	The Keepalive Factor value. This value is divided into the Keepalive Timeout value to determine the interval at which Keepalive messages are sent from this interface. Configured through the <a href="#">configure router ldp interface-parameters keepalive</a> command.

*output definitions*


---

<b>KA Timeout</b>	The amount of time, in seconds, LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer. Configured through the <a href="#">configure router ldp interface-parameters keepalive</a> command.
<b>Transport Address</b>	The IP address used to set up an LDP session ( <b>System</b> or <b>Interface</b> ). The <b>System</b> value indicates that the Loopback0 address for the switch is used. The <b>Interface</b> value indicates that the IP address for the interface is used.
<b>Last Modified</b>	The date and time the interface configuration was last modified.
<b>Active Adjacencies</b>	The number of active adjacencies between this interface and LDP peers.
<b>Tunneling</b>	The tunneling status for the interface ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Lsp Name</b>	The name of the Label Switch Path associated with this interface.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<a href="#">show router ldp parameters</a>	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
<a href="#">show router ldp discovery interface</a>	Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP interface.
<a href="#">show router ldp peer</a>	Displays configuration information for LDP peers.

**MIB Objects**

```

vRtrLdpHelloAdjTable
  vRtrLdpPeerLdpId
  vRtrLdpHelloAdjLocalLdpId
  vRtrLdpHelloAdjEntityIndex
  vRtrLdpHelloAdjIndex
  vRtrLdpHelloAdjHoldTimeRemaining
  vRtrLdpHelloAdjType
  vRtrLdpHelloAdjRemoteConfSeqNum
  vRtrLdpHelloAdjRemoteIpAddress
  vRtrLdpHelloAdjUpTime
  vRtrLdpHelloAdjLocalConfSeqNum
  vRtrLdpHelloAdjLocalIpAddress
  vRtrLdpHelloAdjInHelloMsgCount
  vRtrLdpHelloAdjOutHelloMsgCount
  vRtrLdpHelloAdjLocalHelloTimeout
  vRtrLdpHelloAdjRemoteHelloTimeout

```

---

## show router ldp parameters

Displays the global LDP parameter values (graceful restart, interface, and targeted session) for the local router.

**show router parameters**

---

### Syntax Definitions

N/A.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

The interface parameters displayed with this command are global values that serve as default values for individual LDP interfaces. Note that parameter values configured for a specific interface override the global values.

### Examples

```
->show router ldp parameters
LDP Parameters (LSR ID 10.10.0.7)

Graceful Restart Parameters
  Fwd State Hold Time (sec): 120,          Reconnect Time (sec): 120,
  Nbor Liveness Time (sec): 120,          Max Recovery Time (sec): 120

Interface Parameters
  Keepalive Timeout (sec): 30,             Keepalive Factor: 3,
  Hold Time (sec): 15,                    Hello Factor: 3,
  Propagate Policy: system,               Transport Address: system,
  Deaggregate FECs: False,                Route Preference: 9,
  Label Distribution: downstreamUnsolicited, Label Retention: liberal,
  Control Mode: ordered,                  Loop Detection: none

Targeted Session Parameters
  Keepalive Timeout (sec): 40,             Keepalive Factor: 4,
  Hold Time (sec): 45,                    Hello Factor: 3,
  Passive Mode: False,                     Targeted Sessions: Enabled
```

#### *output definitions*

---

##### **Graceful Restart Parameters:**

**Fwd State Hold Time (sec)** The amount of time, in seconds, that the LDP router retains its MPLS forwarding state after a graceful restart. Configured through the [configure router ldp fwd-state-holding-time](#) command.

*output definitions*

<b>Reconnect Time (sec)</b>	The amount of time, in seconds, that neighboring LDP routers should wait for the sender of the LDP message to gracefully restart and resume sending LDP messages. Configured through the <b>configure router ldp reconnect-time</b> command.
<b>Nbor Liveness Time (sec)</b>	The amount of time, in seconds, the router will wait for a neighboring router to re-establish an LDP session. Configured through the <b>configure router ldp neighbor-liveness-time</b> command.
<b>Max Recovery Time (sec)</b>	The amount of time, in seconds, the router retains stale MPLS label-forwarding equivalence class (FEC) bindings received from a neighboring LDP router as the result of a graceful restart process. Configured through the <b>configure router ldp maximum-recovery-time</b> command.
<b>Interface Parameters:</b>	
<b>Keepalive Timeout (sec)</b>	The amount of time, in seconds, LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer. Configured through the <b>configure router ldp interface-parameters keepalive</b> command.
<b>Keepalive Factor</b>	The Keepalive factor value that is divided into the Keepalive Timeout value to determine the interval at which Keepalive messages are sent from this interface. Configured through the <b>configure router ldp interface-parameters keepalive</b> command.
<b>Hold Time (sec)</b>	The Hold Time value (also referred to as Hello Timeout) determines the amount of time, in seconds, LDP waits to receive hello messages from a peer before declaring that the peer is down. Configured through the <b>configure router ldp interface-parameters hello</b> command.
<b>Hello Factor</b>	The Hello factor value that is divided into the Hold Time value to determine the interval at which Hello messages are sent from this interface. Configured through the <b>configure router ldp interface-parameters hello</b> command.
<b>Propagate Policy</b>	Indicates whether or not the Label Switch Router (LSR) should generate FECs and which FECs to generate ( <b>system</b> , <b>interface</b> , <b>all</b> , or <b>none</b> ). ( <i>Note to reviewer: Is this supported on AOS switch?</i> )
<b>Transport Address</b>	The IP address used to set up an LDP session ( <b>System</b> or <b>Interface</b> ). The <b>System</b> value indicates that the Loopback0 address for the switch is used. The <b>Interface</b> value indicates that the IP address for the interface is used.
<b>Deaggregate FECs</b>	Indicates whether or not LDP aggregates multiple prefixes into a single (FEC) and advertises a single label for the FEC ( <b>True</b> or <b>False</b> ). This value only applies to LDP interfaces but is not used for targeted sessions.
<b>Route Preference</b>	The route preference assigned to LDP routes. When multiple routes are available to a destination, the route with the lowest preference will be used. This value only applies to LDP interfaces but is not used for targeted sessions.
<b>Label Distribution</b>	The label distribution method.

*output definitions***Label Retention**

The type of advertised label mappings that the router will retain (**liberal** or **conservative**).

The **liberal** value indicates that all advertised label mappings are retained whether or not they are from a valid next hop. When the label distribution value is downstream unsolicited, a router may receive label bindings for the same destination for all its neighbors. Labels for the non-next hops for the FECs are retained in the software but not used. When a network topology change occurs where a non-next hop becomes a valid next hop, the label received earlier is then used.

The **conservative** value indicates that advertised label mappings are retained only if they will be used to forward packets; for example if the label came from a valid next hop. Label bindings received from non-next hops for each FEC are discarded.

**Control Mode**

The response to label request (**ordered** or **independent**).

The **ordered** value indicates that label bindings are not distributed in response to a label request until a label binding has been received from the next hop for the destination.

The **independent** value indicates that label bindings are distributed immediately in response to a label request, even if a label binding has not yet been received from the next hop for the destination.

**Loop Detection**

The status of loop detection for this router. This field displays one of the following values:

- **Enabled**—Loop detection is enabled.
- **Disabled**—Loop detection is disabled.
- **None**—Loop detection is not supported.
- **Other**—Loop detection is supported by a method other than hopCount, pathVector, or hopCountAndPathVector.
- **hopCount**—Loop detection by hop count only.
- **pathVector**—Loop detection by path vector only.
- **hopCountAndPathVector**—Loop detection by hop count and path vector.

**Targeted Session Parameters:****Keepalive Timeout (sec)**

The amount of time, in seconds, LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer. Configured through the [configure router ldp interface-parameters keepalive](#) command.

**Keepalive Factor**

The Keepalive factor value that is divided into the Keepalive Timeout value to determine the interval at which Keepalive messages are sent from this interface. Configured through the [configure router ldp interface-parameters keepalive](#) command.

**Hold Time (sec)**

The Hold Time value (also referred to as Hello Timeout) determines the amount of time, in seconds, LDP waits to receive hello messages from a peer before declaring that the peer is down. Configured through the [configure router ldp interface-parameters hello](#) command.

*output definitions*

---

<b>Hello Factor</b>	The Hello factor value that is divided into the Hold Time value to determine the interval at which Hello messages are sent from this interface. Configured through the <b>configure router ldp interface-parameters hello</b> command.
<b>Passive Mode</b>	Whether or not passive mode is active ( <b>True</b> or <b>False</b> ). When passive mode is active, LDP responds only when a connect request is received from a peer and does not actively try to connect with peers. When this mode is not active, LDP actively tries to connect to peers.
<b>Targeted Sessions</b>	The status of targeted sessions ( <b>Enabled</b> or <b>Disabled</b> ).

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<b>show router ldp interface</b>	Displays the LDP interface configuration for the local router.
<b>show router ldp discovery interface</b>	Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP interface.

**MIB Objects**

---

## show router ldp peer

Displays configuration information for LDP peers.

**show router ldp peer** [*ip-address*] [**detail**]

---

### Syntax Definitions

*ip-address*

The IP address of an LDP peer.

**detail**

Displays detailed information for the specified peers.

### Defaults

By default, the configuration for all LDP peers is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *ip-address* parameter to display information for a specific LDP peer.
- Use the **detail** parameter to display additional information and statistics for the specified LDP peers.

### Examples

```
->show router ldp peer
LDP Peers
```

Peer	Adm	Opr	Hello Factor	Hold Time	KA Factor	KA Timeout	Passive Mode	Auto Created
10.11.0.6	Up	Up	3	45	4	40	Disabled	Yes
20.1.2.3	Up	Up	3	45	4	40	Disabled	Yes
30.1.2.3	Up	Up	3	45	4	40	Disabled	Yes

No. of Peers: 3

```
->show router ldp peer detail
LDP Peers (Detail)
```

```
Peer 10.11.0.66
  Admin State:      Up,
  Hold Time:       45,
  Keepalive Timeout: 40,
  Passive Mode:    Disabled,
  Active Adjacencies: 1,
  Tunneling:       Disabled,
  Lsp Name:        None
  Oper State:      Up,
  Hello Factor:    3,
  Keepalive Factor: 3,
  Last Modified:   05/26/2009 23:14:27,
  d:               Yes,
```



```
->show router ldp peer 10.11.0.6
LDP Peers
```

Peer	Adm	Opr	Hello Factor	Hold Time	KA Factor	KA Timeout	Passive Mode	Auto Created
10.11.0.6	Up	Up	3	45	4	40	Disabled	Yes

```
No. of Peers: 1
```

```
->show router ldp peer 10.11.0.66 detail
LDP Peers (Detail)
```

```
Peer 10.11.0.66
  Admin State:      Up,
  Hold Time:       45,
  Keepalive Timeout: 40,
  Passive Mode:    Disabled,
  Active Adjacencies: 1,
  Tunneling:       Disabled,
  Lsp Name:        None
  Oper State:      Up,
  Hello Factor:    3,
  Keepalive Factor: 4,
  Last Modified:   05/26/2009 23:14:27,
  d:               Yes,
```

### *output definitions*

<b>Peer</b>	The IP address of the LDP peer.
<b>Adm</b>	The administrative state of the LDP peer ( <b>Up</b> or <b>Down</b> ).
<b>Opr</b>	The operational state of the LDP peer ( <b>Up</b> or <b>Down</b> ).
<b>Hello Factor</b>	The Hello factor value that is divided into the Hold Time value to determine the interval at which Hello messages are sent. LDP uses hello messages to discover neighbors and to detect loss of connectivity with its neighbors.
<b>Hold Time</b>	The Hold Time value (also referred to as Hello Timeout) determines the amount of time, in seconds, LDP waits to receive hello messages from a peer before declaring that the peer is down.
<b>KA Factor</b>	The Keepalive Factor value that is divided into the Keepalive Timeout value to determine the interval at which Keepalive messages are sent. LDP keepalive messages are sent to keep the LDP session from timing out when no other LDP traffic is sent between neighbors.
<b>KA Timeout</b>	The amount of time, in seconds, LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer.
<b>Passive Mode</b>	Whether or not passive mode is active ( <b>True</b> or <b>False</b> ). When passive mode is active, LDP responds only when a connect request is received from a peer and does not actively try to connect with peers. When this mode is not active, LDP actively tries to connect to peers.
<b>Auto Created</b>	Indicates if a targeted peer was automatically created through service manager ( <b>Yes</b> or <b>No</b> ). This value is always <b>No</b> for an LDP interface.
<b>Last Modified</b>	The date and time the interface configuration was last modified.
<b>Active Adjacencies</b>	The number of active adjacencies between this interface and LDP peers.

*output definitions*

---

<b>Tunneling</b>	The tunneling status for the peer ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Lsp Name</b>	The name of the Label Switch Path (LSP) associated with the peer.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

**show router ldp discovery peer** Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP peer.

**show router ldp discovery interface** Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP interface.

**MIB Objects**

---

## show router ldp session

Displays configuration information and statistics for LDP sessions.

**show router ldp session** [*ip-address[:label-space]*] [**detail** | **statistics** [*packet-type*]]

---

### Syntax Definitions

<i>ip-address</i>	The IP address of an LDP peer.
<i>:label-space</i>	The label space ID number that the router advertises on the LDP interface. This value is appended to the LDP router ID address. The valid range is 0–65535.
<b>detail</b>	Displays detailed information for the specified sessions.
<i>packet-type</i>	Displays session information for a specific packet type. Valid packet type entries for this parameter are <b>hello</b> , <b>keepalive</b> , <b>init</b> , <b>label</b> , <b>notification</b> , and <b>address</b> .

### Defaults

By default, information is displayed for all LDP sessions.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *ip-address* and *:label-space* parameters to display information for a specific LDP session. Note that entering a label-space value is not required when specifying an IP address.
- The **detail** parameter is available for use with the base command (**show router ldp session**) and in combination with the *ip-address* parameter to show additional information for a specific LDP session.
- The **statistics** parameter is available for use with the base command (**show router ldp session**), but is not used in combination with the *ip-address* parameter. Note that specifying a packet type with this parameter is optional; if no type is specified, statistics are displayed for all types.

### Examples

```
->show router ldp session
LDP Sessions
```

Peer LDP Id	Adj Type	State	Msg Sent	Msg Recv	Up Time
10.11.0.6:0	Both	Established	73211	73213	1d 23:00:59
10.11.0.66:0	Targeted	Established	2417	2419	0d 03:40:28

```
No. of Sessions: 2
```

```
->show router ldp session 10.11.0.66
LDP Sessions
```

Peer LDP Id	Adj Type	State	Msg Sent	Msg Recv	Up Time
10.11.0.66:0	Targeted	Established	2451	2453	0d 03:43:32

No. of Sessions: 1

->show router ldp session detail  
LDP Sessions (Detail)

```

Session with Peer 10.10.0.7:0
Adjacency Type:      Link,           State:                Established,
Up Time:             0d 03:42:56,
Max PDU Length:     4096,           KA/Hold Time Remaining: 25,
Link Adjacencies:   1,             Targeted Adjacencies: 0,
Local Address:      10.11.0.6,      Peer Address:         10.10.0.7,
Local TCP Port:     2364,           Peer TCP Port:        646,
Local KA Timeout:   30,             Peer KA Timeout:      30,
Mesg Sent:          4830,          Mesg Recv:            4829,
FECs Sent:          2,             FECs Recv:            2,
GR In Progress:     No,             GR Helper State:      Capable,
Advrt Reconnc Time: 120,           Advrt Recovery Time: 0,
Nbr Liveness Time: 0,             Max Recovery Time:    0,
Number of Restart: 0,             Last Restart Time:    01/01/1970
00:00:00,
Advertise:          Address

```

```

Session with Peer 10.11.0.66:0
Adjacency Type:      Targeted,        State:                Established,
Up Time:             0d 03:42:02,
Max PDU Length:     4096,           KA/Hold Time Remaining: 38,
Link Adjacencies:   0,             Targeted Adjacencies: 1,
Local Address:      10.11.0.6,      Peer Address:         10.11.0.66,
Local TCP Port:     646,           Peer TCP Port:        50353,
Local KA Timeout:   40,             Peer KA Timeout:      40,
Mesg Sent:          2435,          Mesg Recv:            2437,
FECs Sent:          1,             FECs Recv:            1,
GR In Progress:     No,             GR Helper State:      Not Capable,
Advrt Reconnc Time: 120,           Advrt Recovery Time: 0,
Nbr Liveness Time: 0,             Max Recovery Time:    0,
Number of Restart: 0,             Last Restart Time:    01/01/1970
00:00:00,
Advertise:          Service

```

->show router ldp session statistics  
LDP Session Statistics

```

Session 10.10.0.7:0
Hello_Tx:            3378,           Hello_Rx:             3377,
Keepalive_Tx:        1496,          Keepalive_Rx:         1496,
Init_Tx:              1,             Init_Rx:               1,
Label_Mapping_Tx:    2,             Label_Mapping_Rx:     2,
Label_Request_Tx:    0,             Label_Request_Rx:     0,
Label_Release_Tx:    0,             Label_Release_Rx:     0,
Label_Withdraw_Tx:   0,             Label_Withdraw_Rx:    0,
Label_Abort_Tx:      0,             Label_Abort_Rx:       0,
Notification_Tx:     0,             Notification_Rx:       0,
Address_Tx:           1,             Address_Rx:            1,
Address_Withdraw_Tx: 0,             Address_Withdraw_Rx:  0

```

```
Session 10.11.0.66:0
  Hello_Tx:          960,          Hello_Rx:          962,
  Keepalive_Tx:     1495,         Keepalive_Rx:     1495,
  Init_Tx:          1,           Init_Rx:          1,
  Label_Mapping_Tx: 1,           Label_Mapping_Rx: 1,
  Label_Request_Tx: 0,           Label_Request_Rx: 0,
  Label_Release_Tx: 0,           Label_Release_Rx: 0,
  Label_Withdraw_Tx: 0,          Label_Withdraw_Rx: 0,
  Label_Abort_Tx:   0,           Label_Abort_Rx:   0,
  Notification_Tx:  0,           Notification_Rx:   0,
  Address_Tx:       1,           Address_Rx:       1,
  Address_Withdraw_Tx:0,         Address_Withdraw_Rx: 0
```

```
->show router ldp session statistics address
LDP Session Statistics (Address)
```

```
Session 10.10.0.7:0
  Address_Tx:       1,           Address_Rx:       1,
  Address_Withdraw_Tx:0,         Address_Withdraw_Rx: 0

Session 10.11.0.66:0
  Address_Tx:       1,           Address_Rx:       1,
  Address_Withdraw_Tx:0,         Address_Withdraw_Rx: 0
```

```
->show router ldp session statistics init
LDP Session Statistics (Init)
```

```
Session 10.10.0.7:0
  Init_Tx:          1,           Init_Rx:          1

Session 10.11.0.66:0
  Init_Tx:          1,           Init_Rx:          1
```

```
->show router ldp session statistics keepalive
LDP Session Statistics (Keepalive)
```

```
Session 10.10.0.7:0
  Keepalive_Tx:     1496,         Keepalive_Rx:     1496

Session 10.11.0.66:0
  Keepalive_Tx:     1495,         Keepalive_Rx:     1495
```

```
->show router ldp session statistics label
LDP Session Statistics (Label)
```

```
Session 10.10.0.7:0
  Label_Mapping_Tx: 2,           Label_Mapping_Rx: 2,
  Label_Request_Tx: 0,           Label_Request_Rx: 0,
  Label_Release_Tx: 0,           Label_Release_Rx: 0,
  Label_Withdraw_Tx: 0,          Label_Withdraw_Rx: 0,
  Label_Abort_Tx:   0,           Label_Abort_Rx:   0

Session 10.11.0.66:0
  Label_Mapping_Tx: 1,           Label_Mapping_Rx: 1,
  Label_Request_Tx: 0,           Label_Request_Rx: 0,
  Label_Release_Tx: 0,           Label_Release_Rx: 0,
  Label_Withdraw_Tx: 0,          Label_Withdraw_Rx: 0,
  Label_Abort_Tx:   0,           Label_Abort_Rx:   0
```

---

*output definitions*

---

<b>Peer LDP Id</b>	The IP address of the LDP peer.
<b>Adj Type</b>	The type of adjacency ( <b>Link</b> —adjacency is the result of a Link Hello; <b>Targeted</b> —the adjacency is the result of a Targeted Hello).
<b>State</b>	The state of the adjacency ( <b>Established</b> or <b>Trying</b> ).
<b>Msg Sent</b>	The number of messages sent for this adjacency.
<b>Msg Rcvd</b>	The number of messages received for this adjacency.
<b>Up Time</b>	The amount of time the adjacency has been enabled.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<a href="#">show router ldp status</a>	Displays status information and statistics for the LDP instance on the local router.
<a href="#">show router ldp parameters</a>	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
<a href="#">show router ldp interface</a>	Displays the LDP interface configuration for the local router.

**MIB Objects**

---

## show router ldp status

Displays status information and statistics for the LDP instance on the local router.

**show router ldp status**

---

### Syntax Definitions

N/A.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the information and statistics displayed with this command to determine the status of the local LDP instance.

### Examples

```
->show router ldp status
LDP Status for LSR ID 10.10.0.7
  Admin State:          Up,                Oper State:          Up,
  Created at:          03/25/2009 16:08:06, Up Time:          0d
18:38:14,
  Last Change:        03/25/2009 16:08:06, Tunn Down Damp Time (sec): N/A,
  Import Policies:    None,                Export Policies:     None,
  Active Adjacencies: 2,                  Active Sessions:     2,
  Active Interfaces:  1,                  Inactive Interfaces: 0,
  Active Peers:       1,                  Inactive Peers:      0,
  Addr FECs Sent:     1,                  Addr FECs Recv:      2,
  Serv FECs Sent:     1,                  Serv FECs Recv:      1,
  Attempted Sessions: 0,
  No Hello Err:      0,                  Param Adv Err:       0,
  Max PDU Err:       0,                  Label Range Err:     0,
  Bad LDP Id Err:    0,                  Bad PDU Len Err:     0,
  Bad Mesg Len Err:  0,                  Bad TLV Len Err:     0,
  Malformed TLV Err: 0,                  Keepalive Expired Err: 0,
  Shutdown Notif Sent: 0,                Shutdown Notif Recv: 0
```

#### *output definitions*

---

<b>Adm</b>	The administrative state of the LDP instance ( <b>Up</b> or <b>Down</b> ).
<b>Opr</b>	The operational state of the LDP instance ( <b>Up</b> or <b>Down</b> ).
<b>Created at</b>	The date and time the LDP instance was created.
<b>Up Time</b>	The length of time, in hundredths of seconds, that the LDP instance has been operationally up.

*output definitions*


---

<b>Last Change</b>	The date and time the LDP instance was last modified.
<b>Tunn Down Damp Time (sec)</b>	The amount of time, in seconds, the tunnel has been down.
<b>Import Policies</b>	None (not supported).
<b>Export Policies</b>	None (not supported).
<b>Active Adjacencies</b>	The number of active adjacencies (established sessions) associated with this LDP instance.
<b>Active Sessions</b>	The number of sessions in the process of actively attempting to establish a session.
<b>Active Interfaces</b>	The number of active (operationally up) interfaces associated with this LDP instance.
<b>Inactive Interfaces</b>	The number of inactive (operationally down) interfaces associated with this LDP instance.
<b>Active Peers</b>	The number of active LDP peers.
<b>Inactive Peers</b>	The number of inactive LDP peers.
<b>Addr FECs Sent</b>	The number of address (prefix) FEC labels sent to the peer associated with the FEC.
<b>Addr FECs Recv</b>	The number of address (prefix) FEC labels received from the peer associated with the FEC.
<b>Serv FECs Sent</b>	The number of service FEC labels sent to the peer associated with the FEC.
<b>Serv FECs Recv</b>	The number of service FEC labels received from the peer associated with the FEC.
<b>Attempted Sessions</b>	The number of attempted sessions for this LDP instance.
<b>No Hello Err</b>	The number of “Session Rejected” or “No Hello Error” notification messages sent or received by this LDP instance.
<b>Param Adv Err</b>	The number of “Session Rejected” or “Parameters Advertisement Mode Error” notification messages sent or received by this LDP instance.
<b>Max PDU Err</b>	The number of “Session Rejected” or “Parameters Max PDU Length Error” notification messages sent or received by this LDP instance.
<b>Label Range Err</b>	The total number of “Session Rejected” or “Parameters Label Range Error” notification messages sent or received by this LDP instance.
<b>Bad LDP Id Err</b>	The number of bad LDP identifier fatal errors detected for sessions associated with this LDP instance.
<b>Bad PDU Len Err</b>	The number of bad PDU length fatal errors detected for sessions associated with this LDP instance.
<b>Bad Mesg Len Err</b>	The number of bad message length fatal errors detected for sessions associated with this LDP instance.
<b>Bad TLV Len Err</b>	The number of bad TLV length fatal errors detected for sessions associated with this LDP instance.
<b>Malformed TLV Err</b>	The number of malformed TLV value fatal errors detected for sessions associated with this LDP instance.



*output definitions*

---

<b>Keepalive Expired Err</b>	The number of session Keepalive timer expired errors detected for sessions associated with this LDP instance.
<b>Shutdown Notif Sent</b>	The number of shutdown notifications sent related to sessions associated with this LDP instance.
<b>Shutdown Notif Recv</b>	The number of shutdown notifications received related to sessions associated with this LDP instance.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<a href="#">show router ldp session</a>	Displays configuration information and statistics for LDP sessions.
<a href="#">show router ldp parameters</a>	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
<a href="#">show router ldp interface</a>	Displays the LDP interface configuration for the local router.

**MIB Objects**

---



# 49 MPLS Static LSP and FRR Commands

MPLS forwarding is performed by routers called Label Switching Routers (LSRs). A Label Switched Path (LSP) is a path through one or more LSRs.

There are two types of LSPs that are configurable using MPLS:

- **Static LSPs.** A Static LSP specifies a statically defined path of LSRs. Configuration of label mappings and MPLS actions is required on each router that will participate in the static path. No signaling protocol, such as the Label Distribution Protocol (LDP), is required, and there is no dependence on a gateway protocol topology or local forwarding table. Static LSPs are able to cross an Autonomous System (AS) boundary.
- **Signaled LSP.** The LSPs are set up using a signaling protocol, such as LDP. The signaling protocol allows the automatic assignment of labels from an ingress router to the egress router. Signaling is triggered by the ingress router, therefore configuration is only required on this router. A signaled LSP is confined to one gateway protocol area and, therefore, cannot cross an AS boundary.

In addition to static LSPs, a static Fast Reroute feature is available that allows the configuration of backup static LSP tunnels. FRR uses the backup tunnels for alternate routes in the event an LSP goes down.

This chapter provides information about the Command Line Interface (CLI) commands used to configure static LSPs and backup static LSPs used by the FRR mechanism. For information about LDP commands used to configure signaled LSPs, see [Chapter 48, “MPLS LDP Commands.”](#)

MIB information for static LSP is as follows:

*Filename:* TIMETRA-MPLS-MIB.mib  
*Module:* TIMETRA-MPLS-MIB

MIB information for static FRR is as follows:

*Filename:* AlcatelStaticFrr.mib file  
*Module:* ALCATEL-STATIC-FRR-MIB

The following table summarizes the available static LSP and static FRR commands:

---

<b>Static LSP Commands for All Routers</b>	<code>configure router mpls shutdown</code> <code>configure router mpls interface</code> <code>configure router mpls interface shutdown</code>
<b>Static LSP Commands for Transit Router Configuration</b>	<code>configure router mpls interface label-map</code> <code>configure router mpls interface label-map swap next-hop</code> <code>configure router mpls interface label-map shutdown</code>
<b>Static LSP Commands for Egress Router Configuration</b>	<code>configure router mpls interface label-map pop</code> <code>configure router mpls interface label-map shutdown</code>
<b>Static LSP Commands for Ingress Router Configuration</b>	<code>configure router mpls static-lsp</code> <code>configure router mpls static-lsp to</code> <code>configure router mpls static-lsp push next-hop</code> <code>configure router mpls static-lsp shutdown</code>
<b>Static FRR Command</b>	<code>configure router mpls interface label-map protect-swap next-hop</code>
<b>Show Commands</b>	<code>show router mpls interface</code> <code>show router mpls label</code> <code>show router mpls label-range</code> <code>show router mpls static-lsp</code> <code>show router mpls status</code>

---

## configure router mpls shutdown

Configures the administrative status of the MPLS protocol instance.

**configure router mpls {no shutdown | shutdown}**

---

### Syntax Definitions

<b>no shutdown</b>	Enables the MPLS protocol instance.
<b>shutdown</b>	Disables the MPLS protocol instance.

### Defaults

By default, MPLS is enabled for the switch.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Disabling the MPLS instance disables the Label Switched Paths attached to the instance, as well as any Service Distribution Points (SDPs) and SDP bindings associated with the LSP. When the MPLS instance is once again enabled, the attached LSPs will attempt to re-activate.
- Note that deleting the MPLS instance is not allowed; there is no command for this purpose. Only changing the administrative status of the instance is allowed.

### Examples

```
-> configure router mpls no shutdown  
-> configure router mpls shutdown
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**show router mpls status** Displays the status of the MPLS instance on the router.

### MIB Objects

```
vRtrMplsGeneralTable  
vRtrMplsGeneralAdminState
```

---



## configure router mpls interface shutdown

Configures the administrative status for specified MPLS interface.

**configure router mpls interface** *ip-intf-name* {no shutdown | shutdown}

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<b>no shutdown</b>	Enables the MPLS administrative status for the interface.
<b>shutdown</b>	Disables the MPLS administrative status for the interface.

### Defaults

By default, the administrative status of an MPLS interface is enabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Disabling the administrative status for an MPLS interface does not remove the MPLS configuration from that interface. However, any Label Switched Paths (LSPs) associated with the MPLS interface are also administratively disabled.
- When a disabled MPLS interface is enabled, any associated LSPs are also enabled.
- The MPLS interface name specified with this command must already exist in the router configuration.

### Examples

```
-> configure router mpls interface vlan-20 no shutdown  
-> configure router mpls interface vlan-20 shutdown
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[configure router mpls interface](#) Configures MPLS support on an IP interface.

[show router mpls interface](#) Displays the MPLS interface configuration.

### MIB Objects

```
vRtrMplsIfTable  
vRtrMplsIfAdminState
```

---

## configure router mpls interface label-map

Configures an incoming label number that the specified MPLS interface will process. Use this command to provide this information on each transit and egress router that participates in a static Label Switched Path (LSP).

**configure router mpls interface** *ip-intf-name* **label-map** *in-label*

**configure router mpls interface** *ip-intf-name* **no label-map** *in-label*

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>in-label</i>	An incoming label number. The valid range is 32–1023.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the incoming label map.
- Once created, the incoming label-map number is then associated with a swap (transit router) or pop (egress router) action.
- The label-map number and associated action is not active until the label-map is administratively enabled.

### Examples

```
-> configure router mpls interface vlan-20 label-map 700  
-> configure router mpls interface vlan-20 no label-map 700
```

### Release History

Release 6.4.2; command was introduced.



## Related Commands

- configure router mpls interface** Configures MPLS support on an IP interface.
- configure router mpls interface label-map swap next-hop** Configures the outgoing label number that is swapped for the specified incoming label number and the IP address for the next router in the static LSP.
- configure router mpls interface label-map pop** Configures a pop (remove) label operation to identify the router as an egress (endpoint) router for the static LSP.
- configure router mpls interface label-map shutdown** Configures the administrative status for the label mapping.
- show router mpls label** Displays the MPLS labels that are exchanged.

## MIB Objects

mplsInSegmentTable  
mplsInSegmentRowStatus

---

## configure router mpls interface label-map swap next-hop

Configures the outgoing label number that is swapped for the specified incoming label number. Also configures the next-hop IP address in the static Label Switched Path (LSP). Use this command to provide this information on each transit router that participates in the static LSP.

**configure router mpls interface *ip-intf-name* label-map *in-label* swap *out-label* next-hop *ip-address***

**configure router mpls interface *ip-intf-name* label-map *in-label* no swap**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>in-label</i>	An incoming label number. The valid range is 32–1023.
<i>out-label</i>	An outgoing label number. The valid range is 32–1023.
<i>ip-address</i>	The IP address for the next-hop router.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the outgoing label and the associated next-hop IP address.
- If an ARP entry for the next hop exists, then the static LSP is marked as operational. If an ARP entry does not exist, then the static LSP is marked as operationally down and the local router continues to ARP for the configured next hop at a fixed interval..

### Examples

```
-> configure router mpls interface vlan-20 label-map 700 swap 555 next-hop  
192.168.10.2  
-> configure router mpls interface vlan-20 no label-map 700 no swap
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls interface** Enables MPLS Protocol support on an IP interface.
- configure router mpls interface label-map** Configures an incoming label number that the specified MPLS interface will process.
- configure router mpls interface label-map pop** Configures a pop (remove) label operation to identify the router as an egress (endpoint) router for the static LSP.
- configure router mpls interface label-map shutdown** Configures the administrative status for the label mapping.
- show router mpls label** Displays the MPLS labels that are exchanged.

## MIB Objects

```
mplsInSegmentTable  
  mplsInSegmentXCIndex  
mplsOutSegmentTable  
  mplsOutSegmentTopLabel  
  mplsOutSegmentNextHopIpAddrType  
  mplsOutSegmentNextHopIpv4Addr  
  mplsOutSegmentXCIndex  
  mplsOutSegmentRowStatus  
mplsXCTable  
  mplsXCRowStatus
```

---

## configure router mpls interface label-map pop

Configures a label pop operation for the packet containing the specified incoming label number. This action is configured on an egress Label Edge Router (LER) to identify the end of MPLS switching and the static Label Switched Path (LSP).

**configure router mpls interface *ip-intf-name* label-map *in-label* pop**

**configure router mpls interface *ip-intf-name* label-map *in-label* no pop**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>in-label</i>	Incoming label number. The valid range is 32–1023.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to stop the label pop operation and remove the egress router designation for this router.
- When the egress LER receives a packet with the specified label number, the label is popped off (removed from) the packet. Once the label is removed from the packet, the associated service directs any further action with the packet.

### Examples

```
-> configure router mpls interface vlan-20 label-map 800 pop
-> configure router mpls interface vlan-20 no label-map 800 no pop
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls interface** Enables MPLS Protocol support on an IP interface.
- configure router mpls interface label-map** Configures an incoming label number that the specified MPLS interface will process.
- configure router mpls interface label-map swap next-hop** Configures the outgoing label number that is swapped for the specified incoming label number and the IP address for the next router in the static LSP.
- configure router mpls interface label-map shutdown** Configures the administrative status for the label mapping.
- show router mpls label** Displays the MPLS labels that are exchanged.

## MIB Objects

```
mplsInSegmentTable  
  mplsInSegmentXCIndex  
mplsOutSegmentTable  
  mplsOutSegmentXCIndex  
  mplsOutSegmentRowStatus  
mplsXCTable  
  mplsXCRowStatus
```

---

## configure router mpls interface label-map shutdown

Configures the administrative status for an incoming label-map on a transit Label Switch Router (LSR) or on an egress Label Edge Router (LER).

**configure router mpls interface** *ip-intf-name* **label-map** *in-label* {**no shutdown** | **shutdown**}

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>in-label</i>	Incoming label-map number. The valid range is 32–1023.
<b>no shutdown</b>	Enables the administrative status of the specified label-map.
<b>shutdown</b>	Disables the administrative status of the specified label-map.

### Defaults

By default, the incoming label-map is disabled at the time the label-map is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The MPLS interface and incoming label-map number specified with this command must already exist in the router configuration.
- Disabling the administrative status of the label-map does not remove the label-map configuration from the router.
- When the label-map is disabled, any packets ingressing on the router that contain the label-map number are dropped.

### Examples

```
-> configure router mpls interface vlan-20 label-map 700 shutdown
-> configure router mpls interface vlan-20 label-map 700 no shutdown
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls interface** Enables MPLS Protocol support on an IP interface.
- configure router mpls interface label-map** Configures an incoming label number that the specified MPLS interface will process.
- configure router mpls interface label-map swap next-hop** Configures the outgoing label number that is swapped for the specified incoming label number and the next-hop router IP address for the static LSP.
- configure router mpls interface label-map pop** Configures a pop (remove) label operation to identify the router as an egress (endpoint) router for the static LSP.
- show router mpls interface** Displays the MPLS interface configuration.

## MIB Objects

mplsInSegmentTable  
    mplsInSegmentXCIndex  
mplsXCTable  
    mplsXCAdminStatus

---

## configure router mpls static-lsp

Configures a static Label Switched Path (LSP) instance on an ingress Label Edge Router (LER).

**configure router mpls static-lsp** *lsp-name*

**configure router mpls no static-lsp** *lsp-name*

---

### Syntax Definitions

*lsp-name* An alphanumeric name, up to 32 characters, to assign to the static LSP.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- To remove this static LSP configuration from the ingress router, administratively disable (shutdown) the LSP and then use the **no** form of this command to remove the configuration from the router.
- The Static LSP instance is identified by the LSP name on the ingress router and by the MPLS interface name and ingress label combination on both transit and egress routers.
- Configuring the static LSP instance is done only on the ingress LER to identify the origination point of the LSP.
- Once the static LSP is created and associated with a name, configuring the destination IP address, the push operation, and the next-hop router IP address for the LSP is required.

### Examples

```
-> configure router mpls static-lsp to-R3
-> configure router mpls no static-lsp to-R3
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

**configure router mpls static-lsp shutdown** Configures the administrative status of the static LSP.

**configure router mpls static-lsp to** Configures the destination System IP address for the static LSP.

**configure router mpls static-lsp push next-hop** Pushes the specified label on to the label stack and specifies the IP address for the next-hop router in the static LSP.

**show router mpls static-lsp** Displays static LSP configuration information.



## **MIB Objects**

vRtrMplsLspTable  
vRtrMplsLspRowStatus  
vRtrMplsLspName

---

## configure router mpls static-lsp shutdown

Configures the administrative status for the specified static Label Switched Path (LSP).

```
configure router mpls static-lsp lsp-name {no shutdown | shutdown}
```

---

### Syntax Definitions

<i>lsp-name</i>	The name of an existing static LSP.
<b>no shutdown</b>	Enables the administrative status of the specified static LSP.
<b>shutdown</b>	Disables the administrative status of the specified static LSP.

### Defaults

By default, the static LSP is disabled when the LSP is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The LSP name specified with this command must already exist in the router configuration.
- Disabling the administrative status of the static LSP does not remove the LSP configuration from the router, however, packet forwarding to the next-hop router is stopped. When a disabled static LSP is enabled, packet forwarding continues.

### Examples

```
-> configure router mpls static-lsp to-R3 no shutdown  
-> configure router mpls static-lsp to-R3 shutdown
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls static-lsp** Configures a static LSP on an ingress router.
- configure router mpls static-lsp to** Configures the destination System IP address for the static LSP.
- configure router mpls static-lsp push next-hop** Pushes the specified label on to the label stack and specifies the IP address for the next-hop router in the static LSP.
- show router mpls static-lsp** Displays static LSP configuration information.

## MIB Objects

vRtrMplsLspTable  
vRtrMplsLspAdminState

---

## configure router mpls static-lsp to

Configures the destination system IP address for the specified static LSP. This is configured on the ingress router to identify the destination router for the static LSP.

**configure router mpls static-lsp** *lsp-name to ip-address*

---

### Syntax Definitions

<i>lsp-name</i>	The name of an existing static LSP.
<i>ip-address</i>	The system IP address of the egress router. This is the configured Loopback0 address on an OmniSwitch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The System IP address specified with this command should match the System IP address for the far-end router of the SDP to which the static LSP is attached.
- The LSP name specified with this command must already exist in the router configuration.
- This command is also used to configure backup static LSP tunnels. To create a backup tunnel, configure a static LSP with the same destination system IP address as the protected (primary) tunnel, but with a different LSP name.
- Up to 16 backup LSP tunnels are supported per Service Distribution Point (SDP).
- Configuring a backup static LSP activates the static Fast ReRoute (FRR) mechanism that will redirect traffic to a backup tunnel should the protected LSP tunnel goes down.

### Examples

```
-> configure router mpls static-lsp to-R3 to 10.10.10.3
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls static-lsp** Configures a static LSP on an ingress LER.
- configure router mpls static-lsp shutdown** Configures the administrative status of the static LSP.
- configure router mpls static-lsp push next-hop** Pushes the specified label on to the label stack and specifies the system IP address for the next-hop router in the static LSP.
- show router mpls static-lsp** Displays static LSP configuration information.

## MIB Objects

vRtrMplsLspTable  
vRtrMplsLspToAddr

---

## configure router mpls static-lsp push next-hop

Pushes the specified label on to the label stack and specifies the IP address for the next-hop router in the static Label Switched Path (LSP). After the push operation is complete, the packet is then forwarded to the specified next-hop router.

```
configure router mpls static-lsp lsp-name push out-label next-hop ip-address
```

```
configure router mpls static-lsp lsp-name no push out-label
```

---

### Syntax Definitions

<i>lsp-name</i>	The existing LSP name.
<i>out-label</i>	An outgoing label number. The valid range is 32–1023.
<i>ip-address</i>	The next-hop router IP address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the push label configuration associated with the static LSP.
- The LSP name specified with this command must already exist in the router configuration.
- If an ARP entry for the next hop exists, then the static LSP is marked as operational. If an ARP entry does not exist, then the static LSP is marked as operationally down and the local router continues to ARP for the configured next hop at a fixed interval.

### Examples

```
-> configure router mpls static-lsp to-R3 push 777 next-hop 192.168.10.2  
-> configure router mpls static-lsp to-R3 no push 777
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure router mpls static-lsp** Configures a static LSP on an ingress LER.
- configure router mpls static-lsp shutdown** Configures the administrative status of the static LSP.
- configure router mpls static-lsp to** Configures the system IP address of the static LSP egress router.
- show router mpls static-lsp** Displays static LSP configuration information.

## MIB Objects

```
vRtrMplsLspTable
  vRtrMplsLspOutSegIndx
mplsOutSegmentTable
  mplsOutSegmentTopLabel
  mplsOutSegmentNextHopIpAddrType
  mplsOutSegmentNextHopIpv4Addr
  mplsOutSegmentXCIndex
  mplsOutSegmentRowStatus
mplsXCTable
  mplsXCRowStatus
```

---

## configure router mpls interface label-map protect-swap next-hop

Configures static Fast Reroute (FRR) protection on a transit Label Switch Router (LSR). This command defines an alternate static swap label-map that FRR will use if the next-hop segment goes down.

**configure router mpls interface** *ip-intf-name* **label-map** *in-label* **protect-swap** *out-label* **next-hop** *ip-address*

**configure router mpls interface** *ip-intf-name* **label-map** *in-label* **no protect-swap**

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>in-label</i>	An incoming label number. The valid range is 32–1023.
<i>out-label</i>	An outgoing label number. The valid range is 32–1023.
<i>ip-address</i>	The next-hop router IP address.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the FRR configuration.
- Dynamic FRR is not supported on the OmniSwitch; only static FRR is supported. Static FRR is not compatible with dynamic FRR, which is supported on other Alcatel-Lucent platforms. As a result, a router with dynamic FRR enabled cannot set up backup paths with a downstream node that is an OmniSwitch router.

### Examples

```
-> configure router mpls interface vlan-20 label-map 556 protect-swap 557 next hop  
192.168.10.2  
-> configure router mpls interface vlan-20 label-map 556 no protect-swap
```

### Release History

Release 6.4.2; command was introduced.



## Related Commands

- show router mpls label**      Displays information about MPLS labels.  
**show router mpls static-lsp**      Displays the static LSP configuration.

## MIB Objects

```
vRtrStaticFrrMplsInSegmentTable  
  vRtrStaticFrrMplsInSegmentXCIndex  
  mplsInSegmentRowStatus  
vRtrStaticFrrMplsOutSegmentTable  
  vRtrStaticFrrMplsOutSegmentTopLabel  
  vRtrStaticFrrMplsOutSegmentNextHopIpAddrType  
  vRtrStaticFrrMplsOutSegmentNextHopIpv4Addr  
  vRtrStaticFrrMplsOutSegmentXCIndex  
  vRtrStaticFrrMplsOutSegmentRowStatus  
vRtrStaticFrrMplsXCTable  
  vRtrStaticFrrMplsXCRowStatus
```

---

## show router mpls interface

Displays the MPLS interface configuration.

```
show router mpls interface [ip-intf-name] [label-map label [protect-swap [out-label]]]
```

---

### Syntax Definitions

<i>ip-intf-name</i>	The name of an existing MPLS IP interface.
<i>label</i>	A label number. The valid range is 32–131071.
<i>out-label</i>	The outgoing label number for a protected LSP association. The valid range is 32–131071.

### Defaults

By default, the configuration for all MPLS interfaces is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the command parameters provided to display information for specific interfaces.
- Fields that contain “N/A” are not supported.

### Examples

```
-> show router mpls interface
```

```
MPLS Interfaces
```

Interface	Port-id	Adm	Opr	Te-metric
vlan-20	N/A	Up	Up	N/A
vlan-40	N/A	Up	Up	N/A
vlan-22	N/A	Up	Up	N/A
vlan-23	N/A	Up	Up	N/A

```
Interfaces : 4
```

```
-> show router mpls interface vlan-20
```

Interface	Port-id	Adm	Opr	Te-metric
vlan-20	N/A	Up	Up	N/A

```
Interfaces : 1
```

-> show router mpls interface label-map

MPLS Interfaces (Label-Map)

In Label	In I/F	Out Label	Out I/F	Next Hop	Type	Adm	Opr
400	vlan-20	440	vlan-22	22.22.22.1*	Static	Up	Up
728	vlan-20	730	vlan-20	20.20.20.1*	Static	Up	Up
732	vlan-20	N/A	N/A	N/A	Static	Up	Up
800	vlan-20	840	vlan-22	22.22.22.1*	Static	Up	Up
840	vlan-20	N/A	N/A	N/A	Static	Down	Up
900	vlan-20	920	vlan-22	22.22.22.1*	Static	Up	Up
1000	vlan-20	1020	vlan-22	22.22.22.1*	Static	Up	Up

Interfaces : 7

-> show router mpls interface label-map 400

MPLS Interfaces

Interface	Port-id	Adm	Opr	Te-metric
vlan-20	N/A	Up	Up	N/A
vlan-40	N/A	Up	Up	N/A
vlan-21	N/A	Up	Up	N/A
vlan-22	N/A	Up	Up	N/A
vlan-23	N/A	Up	Up	N/A

Interfaces : 5

-> show router mpls interface label-map protect-swap

MPLS Interfaces (Label-Map)

In Label	In I/F	Protected Out Label	Protected Out I/F	Protected Next Hop	Type	Adm	Opr
400	N/A	480	N/A	23.23.23.1	Static	Up	Up
1000	N/A	1080	N/A	40.40.40.1	Static	Up	Up

Interfaces : 2

-> show router mpls interface label-map 400 protect-swap 480

MPLS Interface (Label-Map 400)

In Label	In I/F	Protected Out Label	Protected Out I/F	Protected Next Hop	Type	Adm	Opr
----------	--------	---------------------	-------------------	--------------------	------	-----	-----

**output definitions**

<b>Interface</b>	The name of an existing MPLS IP interface.
<b>Port-id</b>	The existing port-id.
<b>Adm</b>	The administrative state of the LSP peer ( <b>Up</b> or <b>Down</b> ).

---

<b>Opr</b>	The operational state of the LSP peer ( <b>Up</b> or <b>Down</b> ).
<b>In Label</b>	An incoming label number.
<b>Protected Out Label</b>	An outgoing label number.
<b>Protected Next Hop</b>	Ip address of the next hop.
<b>Type</b>	Type of label to display.

---

### **Release History**

Release 6.4.2; command was introduced.

### **Related Commands**

[configure router mpls interface](#) Configures MPLS support on an IP interface.

### **MIB Objects**

---

## show router mpls label

Displays the MPLS labels that are exchanged.

```
show router mpls label start-label [end-label [label-filter]]
```

---

### Syntax Definitions

<i>start-label</i>	The label value assigned to the ingress router.
<i>end-label</i>	The label value assigned to the egress router.
<i>label-filter</i>	The types of labels to display. The valid entries for this parameter are <b>in-use</b> , <b>bgp</b> , <b>ildp</b> , <b>mirror</b> , <b>rsvp</b> , <b>static</b> , <b>svcmgr</b> , <b>tldp</b> , or <b>vprn</b> . Enter one type per command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the command parameters provided to display information for specific types of labels.

### Examples

```
-> show router mpls label 500
```

```
MPLS Label 500
```

Label	Label Type	Label Owner
500	static-lsp	STATIC

```
In-use labels in entire range : 8
```

```
-> show router mpls label 32 80 static
```

```
MPLS Labels from 32 to 80 (Owner: STATIC)
```

Label	Label Type	Label Owner
-------	------------	-------------

```
In-use labels (Owner: STATIC) in specified range: 0
```

```
In-use labels (Owner: All) in specified range : 0
```

```
In-use labels in entire range : 9
```

```
-> show router mpls label 400 500
```

```
MPLS Labels from 400 to 500
```

Label	Label Type	Label Owner
400	static-lsp	STATIC
401	static-lsp	Not-in-use
402	static-lsp	Not-in-use
403	static-lsp	Not-in-use
404	static-lsp	Not-in-use
405	static-lsp	Not-in-use
406	static-lsp	Not-in-use
407	static-lsp	Not-in-use
408	static-lsp	Not-in-use
409	static-lsp	Not-in-use
410	static-lsp	Not-in-use
411	static-lsp	Not-in-use
412	static-lsp	Not-in-use
413	static-lsp	Not-in-use
414	static-lsp	Not-in-use
415	static-lsp	Not-in-use
416	static-lsp	Not-in-use
417	static-lsp	Not-in-use
418	static-lsp	Not-in-use
419	static-lsp	Not-in-use
420	static-lsp	Not-in-use
421	static-lsp	Not-in-use
422	static-lsp	Not-in-use
423	static-lsp	Not-in-use
424	static-lsp	Not-in-use
425	static-lsp	Not-in-use
426	static-lsp	Not-in-use
427	static-lsp	Not-in-use
428	static-lsp	Not-in-use
429	static-lsp	Not-in-use
430	static-lsp	Not-in-use
431	static-lsp	Not-in-use
432	static-lsp	Not-in-use
433	static-lsp	Not-in-use
434	static-lsp	Not-in-use
435	static-lsp	Not-in-use
436	static-lsp	Not-in-use
437	static-lsp	Not-in-use
438	static-lsp	Not-in-use
439	static-lsp	Not-in-use
440	static-lsp	Not-in-use
441	static-lsp	Not-in-use
442	static-lsp	Not-in-use
443	static-lsp	Not-in-use
444	static-lsp	Not-in-use
445	static-lsp	Not-in-use
446	static-lsp	Not-in-use
447	static-lsp	Not-in-use
448	static-lsp	Not-in-use
449	static-lsp	Not-in-use
450	static-lsp	Not-in-use
451	static-lsp	Not-in-use

452	static-lsp	Not-in-use
453	static-lsp	Not-in-use
454	static-lsp	Not-in-use
455	static-lsp	Not-in-use
456	static-lsp	Not-in-use
457	static-lsp	Not-in-use
458	static-lsp	Not-in-use
459	static-lsp	Not-in-use
460	static-lsp	Not-in-use
461	static-lsp	Not-in-use
462	static-lsp	Not-in-use
463	static-lsp	Not-in-use
464	static-lsp	Not-in-use
465	static-lsp	Not-in-use
466	static-lsp	Not-in-use
467	static-lsp	Not-in-use
468	static-lsp	Not-in-use
469	static-lsp	Not-in-use
470	static-lsp	Not-in-use
471	static-lsp	Not-in-use
472	static-lsp	Not-in-use
473	static-lsp	Not-in-use
474	static-lsp	Not-in-use
475	static-lsp	Not-in-use
476	static-lsp	Not-in-use
477	static-lsp	Not-in-use
478	static-lsp	Not-in-use
479	static-lsp	Not-in-use
480	static-lsp	Not-in-use
481	static-lsp	Not-in-use
482	static-lsp	Not-in-use
483	static-lsp	Not-in-use
484	static-lsp	Not-in-use
485	static-lsp	Not-in-use
486	static-lsp	Not-in-use
487	static-lsp	Not-in-use
488	static-lsp	Not-in-use
489	static-lsp	Not-in-use
490	static-lsp	Not-in-use
491	static-lsp	Not-in-use
492	static-lsp	Not-in-use
493	static-lsp	Not-in-use
494	static-lsp	Not-in-use
495	static-lsp	Not-in-use
496	static-lsp	Not-in-use
497	static-lsp	Not-in-use
498	static-lsp	Not-in-use
499	static-lsp	Not-in-use
500	static-lsp	Not-in-use

In-use labels (Owner: All) in specified range : 1  
 In-use labels in entire range : 9

```
-> show router mpls label 400 500 static
```

```
MPLS Labels from 400 to 500 (Owner: STATIC)
```

Label	Label Type	Label Owner
400	static-lsp	STATIC

```
In-use labels (Owner: STATIC) in specified range: 1
In-use labels (Owner: All) in specified range : 1
In-use labels in entire range : 9
```

```
-> show router mpls label 400 500 in-use
```

```
MPLS Labels from 400 to 500 (In-use)
```

Label	Label Type	Label Owner
400	static-lsp	STATIC

```
In-use labels (Owner: All) in specified range : 1
In-use labels in entire range : 9
```

### *output definitions*

<b>Label</b>	Label value assigned to the router.
<b>Label Type</b>	Type of Label to display.
<b>Label Owner</b>	Type of Label owner.

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**show router mpls label-range** Displays the MPLS label ranges, which includes the label type, start and end label values, aging, and the number of labels available.

## MIB Objects

```
vRtrMplsStaticSvcLabelTable
vRtrMplsStaticSvcLabelTable
```



## show router mpls label-range

Displays the MPLS label ranges, which includes the label type, start and end label values, aging, and the number of labels available.

**show router mpls label-range**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

N/A.

### Examples

```
-> show router mpls label-range
```

Label Ranges

Label Type	Start Label	End Label	Aging	Total Available
Static-lsp	32	1023	-	986
Static-svc	2048	18431	-	16383
Dynamic	32768	131071	0	98303

#### *output definitions*

---

<b>Label Type</b>	Type of Label to display.
<b>Start Label</b>	The label value assigned to the ingress router.
<b>End Label</b>	The label value assigned to the egress router.
<b>Aging</b>	Label aging to be displayed.
<b>Total Available</b>	Total Label ranges available

---

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

**show router mpls label**      Displays the MPLS labels that are exchanged.

**MIB Objects**

vrtrMplsLabelRangeTable

---

## show router mpls static-lsp

Displays static Label Switched Path (LSP) information.

**show router mpls static-lsp** [*lsp-name* / **transit** | **terminate** | **count**]

---

### Syntax Definitions

<i>lsp-name</i>	The name of an existing LSP.
<b>transit</b>	Displays transit information for static LSPs.
<b>terminate</b>	Displays endpoint information for static LSPs.
<b>count</b>	Displays the total number of static LSPs.

### Defaults

By default, information for all static LSPs is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the command parameters provided to display information for a specific static LSP or to provide a count of the number of static LSPs.

### Examples

```
-> show router mpls static-lsp
```

```
MPLS Static LSPs (Originating)
```

LSP Name ID	To	Next Hop	Out Label Out Port	Up/Down Time	Adm	Opr
lsp-1 1	10.1.1.4	20.20.20.1*	734 n/a	0d 05:56:45	Up	Up
lsp-2 2	10.11.0.6	20.20.20.1*	750 n/a	0d 05:56:45	Up	Up
lsp-3 3	5.5.5.5	20.20.20.1*	750 n/a	0d 05:56:45	Up	Up

```
LSPs : 3
```

```
-> show router mpls static-lsp lsp-1
```

```
MPLS Static LSPs (Originating)
```

LSP Name ID	To	Next Hop	Out Label Out Port	Up/Down Time	Adm	Opr
lsp-1 1	10.1.1.4	20.20.20.1*	734 n/a	0d 05:56:52	Up	Up

```
LSPs: 1
```

```
-> show router mpls static-lsp transit
```

```
MPLS Static LSPs (Transit)
```

In Lable	In Port	Out Label Out Port	Next Hop	Adm	Opr
vlan-22	vlan-20	440	22.22.22.1	Up	Up
vlan-20	vlan-20	730	20.20.20.1	Up	Up
vlan-22	vlan-20	840	22.22.22.1	Up	Up
vlan-22	vlan-20	920	22.22.22.1	Up	Up
vlan-22	vlan-20	1020	22.22.22.1	Up	Up

```
LSPs : 5
```

```
-> show router mpls static-lsp terminate
```

In Lable	In Port	Out Label	Out Port	Next Hop	Adm	Opr
732	NA	NA	NA	NA	Up	Up
840	N/A	N/A	N/A	N/A	Down	Up

```
LSPs : 2
```

```
-> show router mpls static-lsp count
```

```
MPLS Static-LSP Count
```

Originate	Transit	Terminate
3	5	2

### *output definitions*

<b>LSP Name ID</b>	The name of an existing LSP.
<b>To</b>	Ip address of the destination.
<b>Out Label Out Port</b>	Outgoing label number.
<b>Up/Down Time</b>	Time for Up or Down state.
<b>Opr</b>	The operational state of the LSP peer ( <b>Up</b> or <b>Down</b> ).

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[configure router mpls static-lsp](#) Configures a static LSP on an ingress Label Edge Router (LER).

## MIB Objects

---

## show router mpls status

Displays the MPLS status.

**show router mpls status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

This command administrative and operational information for the MPLS instance on the router.

### Examples

```
-> show router mpls status
```

```
MPLS Status
```

```
Admin Status:      Up,          Oper Status:      Up,
Oper Down Reason:  N/A
```

LSP Counts	Originate	Transit	Terminate
Static LSPs	0	4	0
Dynamic LSPs	0	0	0
Detour LSPs	0	0	0

### *output definitions*

---

<b>Admin Status</b>	The administrative state of the LSP peer ( <b>Up</b> or <b>Down</b> ).
<b>Oper Status</b>	The operational state of the LSP peer ( <b>Up</b> or <b>Down</b> ).
<b>Oper Down Reason</b>	Reason for operational state - Down.
<b>LSP Counts</b>	Displays the total number of static LSPs.
<b>Originate</b>	Displays originate information for static LSPs.
<b>Transit</b>	Displays transit information for static LSPs.
<b>Terminate</b>	Displays endpoint information for static LSPs.

---

### Release History

Release 6.4.2; command was introduced.

### **Related Commands**

**show router mpls static-lsp** Displays detailed static LSP information.

### **MIB Objects**

---





# 50 Virtual Private LAN Service (VPLS) Commands

A Virtual Private LAN Service (VPLS) is a Virtual Private Network (VPN) technology that allows any-to-any (multipoint) connectivity. The provider network emulates a LAN by connecting all the remote customer sites at the edge of the provider network to a single bridged LAN. A full mesh of pseudo-wires (PW) needs to be established to form a VPLS.

A VPLS-capable network consists of Customer Edges (CE), Provider Edges (PE), and a core MPLS network. The CE device is a router or switch located at the customer's premises and is connected to the PE via an Attachment Circuit (AC). In the case of VPLS, it is assumed that Ethernet is the layer 2 protocol used between the CE and the PE.

The PE device is where the services originate and terminate and where all the necessary tunnels are set up to connect to all the other PEs. As VPLS is an Ethernet Layer 2 service, the PE must be capable of Media Access Control (MAC) learning, bridging, and replication on a per-VPLS basis.

The IP/MPLS core network interconnects the PEs but does not participate in the VPN functionality. Traffic is simply switched based on the MPLS labels.

This implementation of VPLS makes use of a service-based architecture that provides the following logical entities that are required to provision a service:

- **Customers (subscribers).** An account is created for each customer and assigned an ID. The customer ID is required and associated with the service at the time the service is created.
- **Service Access Points (SAPs).** Each subscriber service type is configured with at least one SAP. A SAP identifies the point at which customer traffic enters the service.
- **Service Distribution Points (SDPs).** A SDP provides a logical point at which customer traffic is directed from one PE to another PE through a one-way service tunnel.

A distributed service consists of at least one SAP on a local node, one SAP on a remote node, and an SDP binding the service to the service tunnel.

This chapter provides information about the Command Line Interface (CLI) commands used to configure the above entities required to provision a service.

MIB information for the LDP commands is as follows:

*Filename:* AlcatelIND1ServiceMgr.MIB  
*Module:* Alcatel-IND1-SERVICE-MGR-MIB

*Filename:* TIMETRA-SDP.MIB\_mib  
*Module:* TIMETRA-SDP-MIB

A summary of the available commands is listed here:

<b>Customer Account Commands</b>	<pre>configure service customer create configure service customer contact configure service customer phone configure service customer description</pre>
<b>Service Distribution Point (SDP) Commands</b>	<pre>configure service sdp create configure service sdp description configure service sdp far-end configure service sdp shutdown configure service sdp ldp configure service sdp signaling configure service sdp lsp configure service sdp adv-mtu-override configure service sdp path-mtu</pre>
<b>VPLS Commands</b>	<pre>configure service vpls create configure service vpls description configure service vpls shutdown configure service vpls def-mesh-vc-id configure service vpls send-flush-on-failure configure service vpls service-mtu configure service vpls mesh-sdp configure service vpls mesh-sdp shutdown configure service vpls mesh-sdp egress vc-label configure service vpls mesh-sdp ingress vc-label configure service vpls mesh-sdp static-mac</pre>
<b>Service Access Point (SAP) Commands</b>	<pre>configure service l2profile configure service port mode access configure service port l2profile configure service port encap-type configure service vpls sap create configure service vpls sap description configure service vpls sap trusted configure service vpls sap shutdown configure service vpls sap static-mac</pre>
<b>Clear Commands</b>	<pre>clear service id fdb clear service id mesh-sdp ingress-vc-label</pre>
<b>Show Commands</b>	<pre>show service l2profile show service port show service customer show service sdp show service id all show service id base show service id labels show service id sap show service id sdp show service sap-using show service sdp-using show service egress-label show service ingress-label show service fdb-info show service fdb-mac</pre>

## configure service customer create

Creates a customer ID that is used to associate account information with a specific customer. The customer ID is associated with a Virtual Private LAN Service (VPLS) that is used to carry traffic between customer sites over a provider-managed MPLS network.

**configure service customer** *customer-id* **create**

**configure service no customer** *customer-id*

---

### Syntax Definitions

*customer-id*                      A unique numerical value to associate with a specific customer. The valid ID range is 2–2147483647.

### Defaults

A default customer account ID (customer 1) exists on each router and is automatically assigned to new services.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Specify a customer ID that does not already exist in the router configuration.
- Use the **no** form of this command to remove a customer ID and all associated customer information. Note that deleting all service associations with a customer ID is required before the ID is removed from the router configuration.
- Editing or removing the default customer 1 account is not allowed.

### Examples

```
-> configure service customer 10 create  
-> configure service no customer 10
```

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

<b>configure service customer contact</b>	Configures contact information for a customer account.
<b>configure service customer description</b>	Configures a description for a customer account.
<b>configure service customer phone</b>	Configures phone number information for a customer account.
<b>show service customer</b>	Displays the customer account information configured for the router.

**MIB Objects**

```
custInfoTable  
  custId
```

---

## configure service customer contact

Configures contact information for the specified customer account. Use this command to provide information about the customer, such as a contact name or account contract name.

**configure service customer** *customer-id* **contact** *contact-info*

**configure service customer** *customer-id* **no contact**

---

### Syntax Definitions

*customer-id* An existing customer ID number.

*contact-info* An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example "Technical Support").

### Defaults

By default, no customer contact information is configured when a customer account ID is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove customer contact information from the specified customer account ID.
- Printable, 7-bit ASCII characters are allowed in the contact information string.

### Examples

```
-> configure service customer 10 contact "Thomas Smith - Tech Support"  
-> configure service no contact
```

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

<b>configure service customer create</b>	Creates a customer account and associates that account with a customer ID.
<b>configure service customer description</b>	Configures a description for a customer account.
<b>configure service customer phone</b>	Configures phone number information for a customer account.
<b>show service customer</b>	Displays the customer account information configured for the router.

**MIB Objects**

```
custInfoTable  
  custId  
  custContact
```

---

## configure service customer phone

Configures telephone number information for the specified customer account.

**configure service customer** *customer-id* **phone** *phone-info*

**configure service customer** *customer-id* **no phone**

---

### Syntax Definitions

*customer-id*

An existing customer ID number.

*phone-info*

An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example "800-444-1234").

### Defaults

By default, telephone information is not added when a customer account is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the telephone information from the specified customer account ID.
- Printable, 7-bit ASCII characters are allowed in the description text string.

### Examples

```
-> configure service customer 10 phone "888-444-1234"  
-> configure service customer 10 no phone
```

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

<code>configure service customer create</code>	Creates a customer account and associates that account with a customer ID.
<code>configure service customer contact</code>	Configures contact information for a customer account.
<code>configure service customer description</code>	Configures a description for a customer account.
<code>show service customer</code>	Displays the customer account information configured for the router.

**MIB Objects**

```
custInfoTable
  custId
  custPhone
```

---



## configure service customer description

Configures an optional description for the specified customer account. Use this command to add more information about the customer or additional account details.

**configure service customer** *customer-id* **description** *desc-info*

**configure service customer** *customer-id* **no description**

---

### Syntax Definitions

*customer-id* An existing customer ID number.

*desc-info* An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example "Services Contract #4000").

### Defaults

By default, a description is not added when a customer account is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the description from the specified customer account ID.
- Printable, 7-bit ASCII characters are also allowed in the description text string.

### Examples

```
-> configure service customer 10 description "PT-Cal_Service_Manager"  
-> configure service customer 10 no description
```

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

<b>configure service customer create</b>	Creates a customer account and associates that account with a customer ID.
<b>configure service customer contact</b>	Configures contact information for a customer account.
<b>configure service customer phone</b>	Configures phone number information for a customer account.
<b>show service customer</b>	Displays the customer account information configured for the router.

**MIB Objects**

```
custInfoTable
  custId
  custDescription
```

---

## configure service sdp create

Configures a Service Distribution Point (SDP). An SDP is a logical entity that directs traffic to another router through MPLS-based service tunnels.

**configure service sdp** *sdp-id* [**mpls**] **create**

**configure service no sdp** *sdp-id*

---

### Syntax Definitions

<i>sdp-id</i>	The identification number to associate with the specified SDP. The valid ID range is 1–17407.
<b>mpls</b>	The delivery mechanism for the SDP. No other mechanism is supported at this time.

### Defaults

By default, MPLS is the delivery mechanism for the SDP and the SDP administrative state is disabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the specified SDP. Disable the administrative status and remove any services associated with the SDP before attempting to remove the SDP.
- Administratively enabling the SDP is not allowed until a far-end router address is configured for the SDP. Specifying this address identifies the router on which the SDP will terminate. As a result, an SDP tunnel is configured that will provide a path from Point A to Point B.
- Configure an SDP on each participating provider edge (PE) router.
- Once created, an SDP is then bound to a specific customer Virtual Private LAN Service (VPLS). This binding process allows routers to participate in a service.
- Binding multiple services to one SDP is allowed; up to 32 SDP sessions are allowed at the same time.

### Examples

```
-> configure service sdp 10 create
-> configure service sdp 20 mpls create
-> configure service no sdp 20
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

sdpInfoTable  
  sdpId  
  sdpDelivery

---

## configure service sdp description

Configures a description for the specified SDP.

**configure service sdp** *sdp-id* **description** *desc-info*

**configure service sdp** *sdp-id* **no description**

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<i>desc-info</i>	An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example "PE1 to PE2").

### Defaults

By default, a description is not added when the SDP is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the description from the specified SDP.
- Printable, 7-bit ASCII characters are also allowed in the description text string.

### Examples

```
-> configure service sdp 10 description "SW-A to SW-B"  
-> configure service sdp 10 no description
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable  
  sdpId  
  sdpDescription
```

---

## configure service sdp far-end

Configures the system IP address of the far-end destination router for the Service Distribution Point (SDP). This far-end address identifies the SDP endpoint, which is where the service associated with the SDP will terminate.

**configure service sdp** *sdp-id* **far-end** *ip-address*

**configure service sdp** *sdp-id* **no far-end**

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<i>ip-address</i>	The system IP address for the far-end router. This is the user-configured Loopback0 address if the far-end router is an OmniSwitch.

### Defaults

By default, a far-end address is not defined when the SDP is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the far-end system IP address for the specified SDP. Administratively disable the SDP before attempting to remove the far-end address.
- Removing the far-end IP address from the SDP also removes all Label Switch Paths (LSPs) associated with the SDP.
- Administratively enabling an SDP is not allowed until a far-end router address is configured for the SDP. Specifying this address identifies the router on which the SDP will terminate. As a result, an SDP tunnel is configured that will provide a path from Point A to Point B.
- The SDP is operational when the SDP is administratively enabled and the protocol routing table contains the far-end IP address as a host route. OSPF ABRs should not summarize host routes between areas. This can cause SDPs to become operationally down. To avoid this potential problem, configure static host routes (direct and indirect) in the local router.
- If the SDP uses MPLS encapsulation (OmniSwitch supports MPLS only), the far-end IP address is used to check LSP names when added to the SDP. If the “**to** IP address” defined within the LSP configuration does not exactly match the SDP far-end IP address, the LSP is not added to the SDP and an error is generated.

### Examples

```
-> configure service sdp 10 far-end 10.1.1.2
-> configure service sdp 10 no far-end
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable
  sdpId
  sdpFarEndIpAddress
```

---



## configure service sdp shutdown

Configures the administrative status of the specified Service Distribution Point (SDP).

**configure service sdp** *sdp-id* {no shutdown | shutdown}

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<b>no shutdown</b>	Administratively enables the SDP.
<b>shutdown</b>	Administratively disables the SDP.

### Defaults

By default, the SDP administrative status is disabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Administratively enabling an SDP is not allowed until a system IP address for a far-end router is configured for the SDP.
- Disabling the SDP administrative status does not remove the SDP configuration from the router.
- The SDP is operational when the SDP is administratively enabled and the protocol routing table contains the far-end IP address as a host route. OSPF ABRs should not summarize host routes between areas. This can cause SDPs to become operationally down. To avoid this potential problem, configure static host routes (direct and indirect) in the local router.

### Examples

```
-> configure service sdp 10 no shutdown
-> configure service sdp 20 shutdown
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable
  sdpId
  sdpAdminStatus
```

---



## Related Commands

- configure service sdp create** Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
- configure service sdp shutdown** Configures the administrative status of the specified SDP.
- configure service sdp signaling** Enables or disables auto-label signaling for the specified SDP. Enable signaling if LDP-signaled LSPs are configured for the SDP.
- configure service sdp adv-mtu-override** Enables or disables VC-type MTU override for the specified SDP.
- configure service sdp path-mtu** Configures the administrative MTU value for the SDP.
- show service sdp-using** Displays the SDP usage for the local router or for a far-end router IP address.
- show service id sdp** Displays the SDP configuration for the specified service.

## MIB Objects

sdpInfoTable  
  sdpId  
  sdpLdpEnabled

---

## configure service sdp signaling

Enables or disables auto-label signaling for the specified SDP. Enable signaling if the specified SDP is using LDP-signaled LSPs for targeted LDP (TLDP) sessions. Disable signaling if the specified SDP is using static LSPs, which use manually configured label mappings and actions.

**configure service sdp** *sdp-id* **signaling** {**off** | **tldp**}

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<b>off</b>	Disables auto-label signaling for the specified SDP.
<b>tldp</b>	Enables auto-label signaling for the specified SDP.

### Defaults

By default, auto-label signaling (TLDP) is enabled for the SDP.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- If signaling is disabled, then labels are manually configured when a service is bound to the SDP.
- Enabling or disabling auto-label signaling is only allowed when the SDP is administratively disabled.

### Examples

```
-> configure service sdp 10 signaling off  
-> configure service sdp 10 signaling tldp
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable  
  sdpId  
  sdpLabelSignaling
```

---

## configure service sdp lsp

Configures a static Label Switched Path (LSP) association with the specified Service Distribution Point (SDP). A static LSP is a user-configured path through Label Switching Routers (LSRs). Each participating LSR in the path requires manual configuration of MPLS actions and label mappings. However, associating a static LSP with an SDP is only done on the SDP router.

**configure service sdp** *sdp-ip* **lsp** *lsp-name*

**configure service sdp** *sdp-ip* **no lsp** *lsp-name*

---

### Syntax Definitions

*sdp-id* An existing SDP ID number.

*lsp-name* The name of an existing static LSP to assign to the SDP ID.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the static LSP association with the specified SDP.
- There are two types of LSPs: LDP and static. This command attaches a static LSP to a SDP. See [Chapter 49, “MPLS Static LSP and FRR Commands,”](#) for more information.
- LDP and static LSPs are mutually exclusive for the same SDP. If LDP is enabled for the SDP, disable LDP first before attempting to configure a static LSP for the SDP. The reverse is also true; disable any static LSPs associated with the SDP before attempting to enable LDP for the SDP.
- Configuring LSPs is only allowed when the SDP is administratively disabled.
- The specified SDP must have LDP signaling enabled if the SDP is going to use LDP-signaled LSPs.
- The static LSPs associated with an SDP must terminate at the same far-end router IP address used by the SDP.

### Examples

```
-> configure service sdp 10 lsp to-r4
-> configure service sdp 10 no lsp to-r4
```

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

- configure service sdp create** Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
- show service sdp-using** Displays the SDP usage for the local router or for a far-end router IP address.
- show service id sdp** Displays the SDP configuration for the specified service.

**MIB Objects**

sdpInfoTable  
  sdpId  
  sdpLspList

---





## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp path-mtu</b>	Configures the administrative MTU value for the SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable  
  sdpId  
  sdpAdvertisedVl1MtuOverride
```

---

## configure service sdp path-mtu

Configures the administrative Maximum Transmission Unit (MTU) value for the SDP. This value specifies the largest service frame size that the SDP can transmit to the far-end router without dropping packets or requiring IP fragmentation.

**configure service sdp *sdp-ip* path-mtu bytes**

**configure service sdp *sdp-ip* no path-mtu**

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<i>bytes</i>	The largest service frame size, in bytes, allowed through this SDP. The valid range is 576–9194.

### Defaults

By default, the path MTU for the SDP is set to zero. This specifies that the MTU value is dynamically calculated from the corresponding tunnel.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to revert the path MTU to the default value of zero.
- If the physical MTU on an egress interface or channel indicates the next hop on an SDP path cannot support the current path MTU, the operational path MTU on that SDP is modified to a value that can be transmitted without fragmentation.
- If the service MTU is larger than the path MTU, the SDP binding for the service is placed in an inoperative state. If the service MTU is equal to or less than the path MTU, then the SDP binding is placed in an operational state.

### Examples

```
-> configure service sdp 10 path-mtu 1514
-> configure service sdp 10 no path-mtu
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service sdp create</b>	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
<b>configure service sdp description</b>	Configures a description for the specified SDP.
<b>configure service sdp far-end</b>	Configures the system IP address of the far-end destination router for the SDP.
<b>configure service sdp shutdown</b>	Configures the administrative status of the specified SDP.
<b>configure service sdp ldp</b>	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
<b>configure service sdp signaling</b>	Enables or disables auto-label signaling for the specified SDP;
<b>configure service sdp adv-mtu-override</b>	Enables or disables VC-type MTU override for the specified SDP.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the SDP configuration for the specified service.

## MIB Objects

```
sdpInfoTable  
  sdpId  
  sdpAdvertisedVllMtuOverride
```

---

## configure service vpls create

Configures a Virtual Private LAN Service (VPLS) and associates that service with a customer account. A VPLS connects multiple customer sites together across a provider-managed core network by creating a virtual zero-hop, Layer 2 switched domain.

**configure service vpls** *service-id* **customer** *customer-id* **create**

**configure service no vpls** *service-id*

---

### Syntax Definitions

<i>service-id</i>	A unique numerical value to associate with a specific VPLS. The valid service ID range is 1–2147483647.
<i>customer-id</i>	An existing customer ID number to associate with the specified service ID number.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the specified VPLS. Before attempting to remove the VPLS, shutdown the administrative status of the service and shutdown and delete any Service Access Points (SAPs) or Service Distribution Points (SDPs) associated with the service.
- Creating more than one VPLS for a single customer ID is allowed. However, once a customer ID is associated with a VPLS, changing the customer ID for that association is not allowed. If it is necessary to make such a change, delete the VPLS and create the service again with the new customer ID.
- Once a VPLS is created, it is then possible to bind the service to SAPs and SDPs.
- Up to 1024 VPLS services are supported.

### Examples

```
-> configure service vpls 10 customer 10 create  
-> configure service no vpls 10
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls description</b>	Configures a description for the specified VPLS.
<b>configure service vpls shutdown</b>	Configures the administrative status of the specified VPLS.
<b>configure service vpls def-mesh-vc-id</b>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<b>configure service vpls send-flush-on-failure</b>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<b>configure service vpls service-mtu</b>	Configures the administrative MTU value for the specified VPLS
<b>show service id all</b>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
  svcId
  svcCustId
```

---

## configure service vpls description

Configures a description for the specified Virtual Private LAN Service (VPLS).

**configure service vpls** *service-id* [**customer** *customer-id*] **description** *desc-info*

**configure service vpls** *service-id* [**customer** *customer-id*] **no description**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>customer-id</i>	Optional. The customer ID number associated with the specified service ID number.
<i>desc-info</i>	An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example "PE1 to PE2 Service1").

### Defaults

By default, a description is not added when the VPLS is created.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the description from the specified VPLS.
- Specifying the customer ID associated with this VPLS is not required when using this command. However, if the customer ID specified is not the one associated with the VPLS, the command is not allowed.
- Printable, 7-bit ASCII characters are also allowed in the description text string.

### Examples

```
-> configure service vpls 10 description "VPLS1-CustA"  
-> configure service vpls 10 customer 10 description "VPLS1-CustA"  
-> configure service vpls 10 no description
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls create</b>	Configures a VPLS and associates the service with a customer account.
<b>configure service vpls shutdown</b>	Configures the administrative status of the specified VPLS.
<b>configure service vpls def-mesh-vc-id</b>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<b>configure service vpls send-flush-on-failure</b>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<b>configure service vpls service-mtu</b>	Configures the administrative MTU value for the specified VPLS
<b>show service id all</b>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
  svcId
  svcCustId
  svcDescription
```

---



## configure service vpls shutdown

Configures the administrative status of the specified VPLS.

**configure service vpls** *service-id* [**customer** *customer-id*] {**no shutdown** | **shutdown**}

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>customer-id</i>	Optional. The customer ID number associated with the specified service ID number.
<b>no shutdown</b>	Administratively enables the service.
<b>shutdown</b>	Administratively disables the service.

### Defaults

By default, the administrative status for the service is disabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Disable the administrative status of the VPLS and any associated SAPs and SDPs before attempting to remove a VPLS.
- Disabling the VPLS administrative status does not remove the VPLS configuration from the router.
- Specifying the customer ID associated with this VPLS is not required when using this command. However, if the customer ID specified is not the one associated with the VPLS, the command is not allowed.

### Examples

```
-> configure service vpls 10 no shutdown
-> configure service vpls 20 customer 20 no shutdown
-> configure service vpls 20 shutdown
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls create</b>	Configures a VPLS and associates the service with a customer account.
<b>configure service vpls description</b>	Configures a description for the specified VPLS.
<b>configure service vpls def-mesh-vc-id</b>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<b>configure service vpls send-flush-on-failure</b>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<b>configure service vpls service-mtu</b>	Configures the administrative MTU value for the specified VPLS
<b>show service id all</b>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
  svcId
  svcCustId
  svcAdminStatus
```

---

## configure service vpls def-mesh-vc-id

Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC. This value is used to identify the VC instead of getting this information from the label. Configuring the VC ID only applies to services bound to mesh SDPs.

**configure service vpls** *service-id* [**customer** *customer-id*] **def-mesh-vc-id** *vc-id*

**configure service no vpls** *service-id* [**customer** *customer-id*] **no def-mesh-vc-id**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>customer-id</i>	Optional. The customer ID number associated with the specified service ID number.
<i>vc-id</i>	The VC ID number to assign. The valid range is 1–4294967295.

### Defaults

By default, the VPLS ID number is used as the VC ID.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the VC ID number.
- Specifying the customer ID associated with this VPLS is not required when using this command. However, if the customer ID specified is not the one associated with the VPLS, the command is not allowed.
- The VC ID number is significant between peer routers on the same hierarchical level.
- The value of a VC ID is conceptually independent from the value of the label or any other datalink specific information for the VC.

### Examples

```
-> configure service vpls 10 def-mesh-vc-id 20
-> configure service vpls 10 customer 10 def-mesh-vc-id 20
-> configure service vpls 10 no def-mesh-vc-id 20
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls create</b>	Configures a VPLS and associates the service with a customer account.
<b>configure service vpls description</b>	Configures a description for the specified VPLS.
<b>configure service vpls shutdown</b>	Configures the administrative status of the specified VPLS.
<b>configure service vpls send-flush-on-failure</b>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<b>configure service vpls service-mtu</b>	Configures the administrative MTU value for the specified VPLS
<b>show service id all</b>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
  svcId
  svcCustId
  svcDefMeshVcId
```

---

## configure service vpls send-flush-on-failure

Enables or disables the sending of a MAC flush message when a port or Service Access Point (SAP) associated with the VPLS goes down.

**configure service vpls** *service-id* [**customer** *customer-id*] **send-flush-on-failure**

**configure service no vpls** *service-id* [**customer** *customer-id*] **no send-flush-on-failure**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>customer-id</i>	Optional. A customer ID number associated with the specified service ID number.

### Defaults

By default, the sending of a MAC flush message on failure is disabled.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to disable sending of MAC flush messages.
- Specifying the customer ID associated with this VPLS is not required when using this command. However, if the customer ID specified is not the one associated with the VPLS, the command is not allowed.
- This functionality provides an LDP-based mechanism for recovering a physical link failure in a dual-homed connection to a VPLS service.

### Examples

```
-> configure service vpls 10 send-flush-on-failure
-> configure service vpls 10 customer 10 send-flush-on-failure
-> configure service vpls 10 no send-flush-on-failure
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls create</b>	Configures a VPLS and associates the service with a customer account.
<b>configure service vpls description</b>	Configures a description for the specified VPLS.
<b>configure service vpls shutdown</b>	Configures the administrative status of the specified VPLS.
<b>configure service vpls def-mesh-vc-id</b>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<b>configure service vpls service-mtu</b>	Configures the administrative MTU value for the specified VPLS
<b>show service id all</b>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
    svcId
    svcCustId
svcTlsInfoTable
    svcTlsMacFlushOnFail
```

---

## configure service vpls service-mtu

Configures the administrative Maximum Transmission Unit (MTU) value for the specified Virtual Private LAN Service (VPLS). This value specifies the largest frame size that the VPLS can transmit to the far-end router without dropping packets or requiring IP fragmentation.

**configure service vpls** *service-ip* [**customer** *customer-id*] **service-mtu** *bytes*

**configure service vpls** *service-ip* [**customer** *customer-id*] **no service-mtu**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>customer-id</i>	Optional. A customer ID number associated with the specified service ID number.
<i>bytes</i>	The largest service frame size, in bytes, allowed through this service. The valid range is 1–9194.

### Defaults

By default, the service MTU for VPLS is set to 1514.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to revert the service MTU to the default value.
- Specifying the customer ID associated with this VPLS is not required when using this command. However, if the customer ID specified is not the one associated with the VPLS, the command is not allowed.
- The service MTU and the service delineation encapsulation overhead (for example., 4 bytes for a 802.1Q tag) of the SAP is used to derive the required MTU of the physical port or channel on which the SAP was created. If the required payload is larger than the port or channel MTU, then the SAP is placed in an inoperative state. If the required MTU is equal to or less than the port or channel MTU, the SAP is able to transition to an operative state.
- When binding an SDP to a service, the service MTU is compared to the path MTU associated with the SDP. The path MTU is dynamically reduced due to the MTU capabilities discovered by the tunneling mechanism of the SDP or the egress interface MTU capabilities based on the next hop in the tunnel path.
- If the service MTU is larger than the path MTU, the SDP binding for the service is placed in an inoperative state. If the service MTU is equal to or less than the path MTU, then the SDP binding is placed in an operational state.

## Examples

```
-> configure service vpls 10 service-mtu 3000
-> configure service vpls 10 customer 10 service-mtu 3000
-> configure service vpls 10 no service-mtu
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">configure service vpls create</a>	Configures a VPLS and associates the service with a customer account.
<a href="#">configure service vpls description</a>	Configures a description for the specified VPLS.
<a href="#">configure service vpls shutdown</a>	Configures the administrative status of the specified VPLS.
<a href="#">configure service vpls def-mesh-vc-id</a>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<a href="#">configure service vpls send-flush-on-failure</a>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<a href="#">show service id all</a>	Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration that is associated with the service.

## MIB Objects

```
svcBaseInfoTable
  svcId
  svcMtu
```

---



## configure service vpls mesh-sdp

Configures a mesh binding between a Virtual Private LAN Service (VPLS) and a Service Distribution Point (SDP). Mesh SDPs bound to a service are logically treated as a single bridge port for flooded traffic, where flooded traffic received on any mesh SDP for the service is replicated to other ports and not transmitted on any mesh SDPs.

**configure service vpls** *service-id* **mesh-sdp** *sdp-id[:vc-id]* [**vc-type** {**ether** | **vlan**}] **create**

**configure service vpls** *service-id* **no mesh-sdp** *sdp-id*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number to bind to the specified service ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<b>ether</b>	Specifies Ethernet as the VC type for the mesh-SDP binding.
<b>vlan</b>	Specifies Ethernet VLAN as the VC type for the mesh-SDP binding.

### Defaults

<b>parameter</b>	<b>default</b>
<i>vc-id</i>	<i>service-id</i> number
<b>ether / vlan</b>	<b>ether</b>

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the SDP binding for the specified VPLS. Note that the SDP configuration is not removed, just the SDP binding with the service. Once the binding is removed, no packets are forwarded to the far-end router.
- Binding a service (VPLS instance) to an SDP is required to set up a Virtual Circuit (VC)/Pseudo Wire (PW) to the far end of the MPLS tunnel. If an SDP is not explicitly bound to a service, no far-end routers can participate in the service.
- When configuring services between OmniSwitch and SR Series routers, set the VC type to Ethernet if the null encapsulation type is used or to VLAN if the dot1q encapsulation type is used.
- The administrative and operational state of the SDP determines the state of that SDP for the service to which it is bound.

## Examples

```
-> configure service vpls 10 mesh-sdp 100 create
-> configure service vpls 20 mesh-sdp 200 vc-type vlan create
-> configure service no mesh-sdp 100
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

### **configure service vpls mesh-sdp shutdown**

Enables or disables the administrative status of the specified SDP mesh binding.

### **configure service vpls mesh-sdp egress vc-label**

Configures the static MPLS VC label used by this router to send packets to the far-end router using the specified SDP mesh binding.

### **configure service vpls mesh-sdp ingress vc-label**

Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified mesh SDP binding.

### **configure service vpls mesh-sdp static-mac**

Configures a static MAC address entry in the VPLS forwarding database that is associated with the specified mesh SDP binding.

### **show service sdp-using**

Displays the SDP usage for the local router or for a far-end router IP address.

### **show service id sdp**

Displays configuration information for the SDPs associated with the specified service.

## MIB Objects

```
sdpBindTable
  sdpBindId
  sdpBindType
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---

## configure service vpls mesh-sdp shutdown

Enables or disables the administrative status of the specified mesh-SDP binding.

```
configure service vpls service-id mesh-sdp sdp-id[:vc-id] {no shutdown | shutdown}
```

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number to bind to the specified service ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<b>no shutdown</b>	Enables the VPLS–SDP binding.
<b>shutdown</b>	Disables the VPLS–SDP binding.

### Defaults

By default, the administrative status of the mesh–SDP binding is disabled.

---

parameter	default
<i>vc-id</i>	<i>service-id</i> value

---

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Administratively disabling a VPLS–SDP binding does not remove the binding configuration from the router.

### Examples

```
-> configure service vpls 10 mesh-sdp 100 no shutdown  
-> configure service no mesh-sdp 100 shutdown
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

**configure service vpls mesh-sdp**

Configures a binding between a VPLS and a SDP.

**configure service vpls mesh-sdp egress vc-label**

Configures the static MPLS VC label used by this router to send packets to the far-end router using the specified SDP mesh binding.

**configure service vpls mesh-sdp ingress vc-label**

Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified mesh SDP binding.

**configure service vpls mesh-sdp static-mac**

Configures a static MAC address entry in the VPLS forwarding database that is associated with the specified mesh SDP binding.

**show service sdp-using**

Displays the SDP usage for the local router or for a far-end router IP address.

**show service id sdp**

Displays configuration information for the SDPs associated with the specified service.

## MIB Objects

sdpBindTable

  sdpBindId

  sdpBindType

  sdpBindAdminStatus

svcBaseInfoTable

  svcId

  svcDefMeshVcId

---

## configure service vpls mesh-sdp egress vc-label

Configures the static MPLS VC label used by this router to send packets to the far-end router using the specified mesh SDP binding.

**configure service vpls** *service-id* **mesh-sdp** *sdp-id[:vc-id]* **egress vc-label** *egress-vc-label*

**configure service vpls** *service-id* **no mesh-sdp** *sdp-id* **no egress vc-label**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number that is bound to the specified service ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<i>egress-vc-label</i>	The egress VC value that identifies a specific connection. The valid range is 16–1048575.

### Defaults

By default, the egress VC label value is set to zero (0).

parameter	default
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the **no** form of this command to remove the egress VC label from the specified VPLS.

### Examples

```
-> configure service vpls 100 mesh-sdp 20 egress vc-label 131070  
-> configure service vpls 100 mesh-sdp 20 egress no vc-label
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">configure service vpls mesh-sdp</a>	Configures a binding between a VPLS and a SDP.
<a href="#">configure service vpls mesh-sdp shutdown</a>	Enables or disables the administrative status of the specified SDP mesh binding.
<a href="#">configure service vpls mesh-sdp ingress vc-label</a>	Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified mesh SDP binding.
<a href="#">configure service vpls mesh-sdp static-mac</a>	Configures a static MAC address entry in the VPLS forwarding database that is associated with the specified mesh SDP binding.
<a href="#">show service sdp-using</a>	Displays the SDP usage for the local router or for a far-end router IP address.
<a href="#">show service id sdp</a>	Displays configuration information for the SDPs associated with the specified service.

## MIB Objects

```
sdpBindTable
  sdpBindId
  sdpBindType
  sdpBindAdminEgressLabel
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---

## configure service vpls mesh-sdp ingress vc-label

Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified mesh SDP binding.

**configure service vpls** *service-id* **mesh-sdp** *sdp-id[:vc-id]* **ingress vc-label** *ingress-vc-label*

**configure service vpls** *service-id* **no mesh-sdp** *sdp-id* **no ingress vc-label**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number that is bound to the specified service ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<i>vc-label</i>	The ingress VC value that identifies a specific connection. The valid range is 2048–18431.

### Defaults

By default, the ingress VC label value is set to zero (0).

parameter	default
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use the **no** form of this command to remove the ingress VC label from the specified VPLS.

### Examples

```
-> configure service vpls 100 mesh-sdp 20 ingress vc-label 131069  
-> configure service vpls 100 mesh-sdp 20 ingress no vc-label
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls mesh-sdp</b>	Configures a binding between a VPLS and a SDP.
<b>configure service vpls mesh-sdp shutdown</b>	Enables or disables the administrative status of the specified SDP mesh binding.
<b>configure service vpls mesh-sdp egress vc-label</b>	Configures the static MPLS VC label used by this router to send packets to the far-end router using the specified SDP mesh binding.
<b>configure service vpls mesh-sdp static-mac</b>	Configures a static MAC address entry in the VPLS forwarding database that is associated with the specified mesh SDP binding.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays configuration information for the SDPs associated with the specified service.

## MIB Objects

```
sdpBindTable
  sdpBindId
  sdpBindType
  sdpBindAdminIngressLabel
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---



## configure service vpls mesh-sdp static-mac

Configures a static MAC address entry in the Virtual Private LAN Service (VPLS) forwarding database (FDB) that is associated with the specified mesh-Service Distribution Point (SDP) binding. Static MACs associated with SDPs are classified as remote MACs. A remote MAC is used by the associated VPLS so that MAC addresses are not learned on the edge device.

**configure service vpls** *service-id* **mesh-sdp** *sdp-id[:vc-id]* **static-mac** *mac-address*

**configure service vpls** *service-id* **mesh-sdp** *sdp-id* **no static-mac** *mac-address*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number that is bound to the specified service ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

---

parameter	default
<i>vc-id</i>	<i>service-id</i> value

---

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the remote static MAC address entry from the VPLS forwarding database.
- Static MAC addresses configured on one edge device are not propagated to other edge devices associated with the same VPLS instance. Each edge device has an independent forwarding database for the associated VPLS.
- A MAC address can participate in only one static MAC address entry (local or remote) for a specific VPLS.

### Examples

```
-> configure service vpls 100 mesh-sdp 20 static-mac 00:00:da:3e:44:01
-> configure service vpls 100 mesh-sdp 20 no static-mac 00:00:da:3e:44:01
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls mesh-sdp</b>	Configures a binding between a VPLS and a SDP.
<b>configure service vpls mesh-sdp shutdown</b>	Enables or disables the administrative status of the specified SDP mesh binding.
<b>configure service vpls mesh-sdp egress vc-label</b>	Configures the static MPLS VC label used by this router to send packets to the far-end router using the specified SDP mesh binding.
<b>configure service vpls mesh-sdp ingress vc-label</b>	Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified mesh SDP binding.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays configuration information for the SDPs associated with the specified service.

## MIB Objects

```
tlsFdbInfoTable
  tlsFdbMacAddr
  tlsFdbType
  tlsFdbLocale
  tlsFdbSdpId
  tlsFdbVcId
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---

## configure service l2profile

Configures a Layer 2 profile that is applied to an access (customer facing) port. This profile is used to specify how to process Layer 2 control frames ingressing on the access port.

```
configure service l2profile profile-name [create] {stp | 802.1x | 802.1ab | 802.3ad | gvrp | mvrp | amap}
{peer | discard | tunnel}
```

```
configure service no l2profile profile-name
```

---

### Syntax Definitions

<i>profile-name</i>	Alphanumeric string of up to 32 characters. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").
<b>create</b>	Creates the Layer 2 profile if the <i>profile-name</i> specified does not exist in the switch configuration.
<b>stp</b>	Specifies how to process Spanning Tree BPDU.
<b>802.1x</b>	Specifies how to process 802.1x control frames.
<b>802.1ab</b>	Specifies how to process 802.1ab control frames.
<b>802.3ad</b>	Specifies how to process 802.3ad control frames.
<b>gvrp</b>	Specifies how to process GARP VLAN Registration Protocol packets.
<b>mvrp</b>	Specifies how to process Multiple VLAN Registration Protocol packets.
<b>amap</b>	Specifies how to process Alcatel-Lucent Management Adjacency Protocol packets.
<b>peer</b>	Allows the UNI port to participate in the specified protocol.
<b>discard</b>	Discards the specified PDU.
<b>tunnel</b>	Tunnels the specified PDU across the provider network.

### Defaults

A default Layer 2 profile (**def-access-profile**) exists with the following default values:

parameter	default
stp	tunnel
802.1x	discard
802.1ab	discard
802.3ad	peer
gvrp	tunnel
mvrp	tunnel
amap	discard

## Platforms Supported

OmniSwitch 9000E

## Usage Guidelines

- Use the **no** form of this command to delete a Layer 2 profile. Removing the **def-access-profile** is not allowed.
- Remove any profile associations with access ports before attempting to modify or delete the profile.
- Not all of the protocol parameters are currently supported with the **peer**, **tunnel**, and **discard** parameters. Use the following table to determine the parameter combinations that are supported:

	<b>peer</b>	<b>discard</b>	<b>tunnel</b>
<b>stp</b>	no	yes	yes
<b>802.1x</b>	no	yes	yes
<b>802.1ab</b>	no	yes	yes
<b>802.3ad</b>	yes	no	no
<b>gvrp</b>	no	yes	yes
<b>mvrp</b>	no	yes	yes
<b>amap</b>	no	yes	no

- If a user-configured Layer 2 profile is *not* associated with an access port, then the **def-access-profile** is used to process control packets ingressing on the port.

## Examples

```
-> configure service l2profile "sap_1_profile" create stp discard
-> configure service l2profile "sap_1_profile" gvrp discard
-> configure service no l2profile "sap_1_profile"
```

## Release History

Release 6.4.2; command was introduced.

Release 6.4.3; **mvrp** parameter added.

## Related Commands

- configure service port mode access** Configures a switch port or link aggregate as an access port.
- configure service port l2profile** Assigns a Layer 2 profile to the specified service access port.
- show service l2profile** Displays the Layer 2 profile configuration information for the router..

## **MIB Objects**

```
alaServiceMgrPortProfileTable  
  alaServiceMgrPortProfileID  
  alaServiceMgrPortProfileStpBpduTreatment  
  alaServiceMgrPortProfileGvrpTreatment  
  alaServiceMgrPortProfileGvrpTreatment  
  alaServiceMgrPortProfile8021xTreatment  
  alaServiceMgrPortProfile8021ABTreatment  
  alaEServiceUNIProfileGvrpTreatment  
  alaServiceMgrPortProfileAmapTreatment  
  alaServiceMgrPortProfile8023ADTreatment
```

---

## configure service port mode access

Configures a switch port or link aggregate as an access port for customer traffic.

**configure service port** {*slot/port* / **linkagg** *agg\_num*} **mode access**

**configure service port** {*slot/port* / **linkagg** *agg\_num*} **no mode**

---

### Syntax Definitions

*slot/port1* The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg\_num* The link aggregate ID number (0–31).

### Defaults

By default, switch ports and link aggregates are classified as network ports.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to revert the port mode back to the default mode (network).
- Access ports are required to configure a Service Access Point (SAP). A SAP is the point at which customer traffic enters and exits the provider service. SAPs are not configured on network ports

### Examples

```
-> configure service port 1/3 mode access
-> configure service port linkagg 10 mode access
-> configure service port 1/3 no mode
-> configure service port linkagg 10 no mode
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                           |                                                                                                                                                                |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>configure service port encaps-type</b> | Configures an encapsulation type for the specified service access port. The encapsulation type determines if an access port will support one or more services. |
| <b>configure service l2profile</b>        | Configures a Layer 2 profile that is used to specify how to process Layer 2 control frames ingressing on the access port.                                      |
| <b>configure service port l2profile</b>   | Assigns a Layer 2 profile to the specified service access port.                                                                                                |
| <b>show service port</b>                  | Displays the access (customer-facing) port configuration for the router.                                                                                       |

## MIB Objects

```
alaServiceMgrAccessPortTable  
  alaServiceMgrPortID  
  alaServiceMgrPortMode
```

---

## configure service port l2profile

Assigns an existing Layer 2 profile to the specified service access port. This profile determines how Layer 2 protocol frames ingressing on the access port are processed.

```
configure service port {slot/port / linkagg agg_num} l2profile {default | profile-name}
```

---

### Syntax Definitions

<i>slot/port1</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>default</b>	Assigns the default profile to the specified port.
<i>profile-name</i>	The name of an existing Layer 2 profile.

### Defaults

By default, the default Layer 2 profile (**def-access-profile**) is assigned when a port is configured as a service access port.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to revert the associated profile back to the default profile.
- Specify only ports or link aggregates that are configured as service access ports. This command does not apply to network ports.
- Specify a profile name that already exists in the router configuration.

### Examples

```
-> configure service port 1/3 l2profile sap_1_profile
-> configure service port linkagg 10 l2profile sap_1_profile
-> configure service port 1/3 l2profile default
-> configure service port linkagg 10 l2profile default
```

### Release History

Release 6.4.2; command was introduced.



## Related Commands

<b>configure service port mode access</b>	Configures a switch port or link aggregate as an access port.
<b>configure service l2profile</b>	Configures a Layer 2 profile that is used to specify how to process Layer 2 control frames ingressing on the access port.
<b>configure service port encaps-type</b>	Configures an encapsulation type for the specified service access port. The encapsulation type determines if an access port will support one or more services.
<b>show service port</b>	Displays the access (customer-facing) port configuration for the router.

## MIB Objects

```
alaServiceMgrAccessPortTable  
  alaServiceMgrPortID  
  alaServiceMgrPortMode  
  alaServiceMgrPortProfileID
```

---

## configure service port encap-type

Configures an encapsulation type for the specified service access port. The encapsulation type determines if the access port will support single or multiple Service Access Points (SAPs) for customer services.

**configure service port** {*slot/port* / **linkagg** *agg\_num*} **encap-type** {**null** | **dot1q**}

---

### Syntax Definitions

<i>slot/port1</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>null</b>	Allows only one SAP (one customer service) on the port. All customer traffic (tagged and untagged) is allowed.
<b>dot1q</b>	Allows multiple SAP associations (customer services) for the port. Only 802.1Q-tagged traffic on the port.

### Defaults

By default, the **null** encapsulation type is selected when the port is configured as a service access port.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Specify only ports or link aggregates that are configured as service access ports. This command does not apply to network ports.
- The encapsulation type configured for the access port determines the encapsulation type for any SAPs associated with the port.

### Examples

```
-> configure service port 1/3 encap-type null
-> configure service port linkagg 10 encap-type null
-> configure service port 1/17 encap-type dot1q
-> configure service port linkagg 20 encap-type dot1q
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- configure service port mode access** Configures a switch port or link aggregate as an access port.
- configure service l2profile** Configures a Layer 2 profile that is used to specify how to process Layer 2 control frames ingressing on the access port.
- configure service port l2profile** Assigns a Layer 2 profile to the specified service access port.
- show service port** Displays the access (customer-facing) port configuration for the router.

## MIB Objects

alaServiceMgrAccessPortTable  
  alaServiceMgrPortId  
  alaServiceMgrPortMode  
  alaServiceMgrPortEncapType

---

## configure service vpls sap create

Configures a Service Access Point (SAP) by associating a SAP ID with a Virtual Private LAN Service (VPLS). A SAP ID is comprised of a customer-facing port (referred to as an access port) and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

**configure service vpls** *service-id* **sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtagl*] **create**

**configure service vpls** *service-id* **no sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtagl*]

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/portl</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>:0</b>	Specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on <b>null</b> encapsulation access ports.
<i>:qtagl</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on <b>null</b> encapsulation access ports.

### Defaults

parameter	default
<b>:0</b>   <b>:all</b>   <i>:qtagl</i>	<b>:0</b> (null)

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- To specify a SAP ID, use the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to specify the SAP on access port 1/2 that maps all traffic to this service that is not already mapped to other SAPs.
- Use the **no** form of this command to remove a a SAP.
- Specify only ports or link aggregates that are configured as service access ports (see [configure service port mode access](#)). This command does not apply to network ports.
- The encapsulation mode for the access port determines how many SAPs are allowed on the access port. If the port is set to **null** encapsulation, only one default SAP is allowed on the port. If the port is set to

**dot1q** encapsulation, multiple SAPs (services) are allowed on the one port (see [configure service port encaps-type](#)).

- If the SAP is configured to use the **null** encapsulation type, the access port encapsulation mode determines if both tagged and untagged traffic or only untagged traffic is allowed on the SAP. For example, if the access port is set to **null** encapsulation, both tagged and untagged traffic is mapped to the SAP. If the access port is set to **dot1q** encapsulation, then only tagged traffic is mapped to the SAP.

## Examples

```
-> configure service vpls 10 sap 1/2
-> configure service vpls 11 sap 1/2:all
-> configure service vpls 12 sap 1/2:10
-> configure service vpls 13 linkagg 20
-> configure service vpls 14 linkagg 20:all
-> configure service vpls 15 linkagg 20:100
-> configure service vpls 10 no sap 1/2
-> configure service vpls 13 no linkagg 20
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">configure service vpls sap description</a>	Configures a description for the specified SAP ID.
<a href="#">configure service vpls sap trusted</a>	Configures the trust mode for the specified SAP ID.
<a href="#">configure service vpls sap shutdown</a>	Configures the administrative status for the specified SAP ID.
<a href="#">configure service vpls sap static-mac</a>	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
<a href="#">show service id sap</a>	Displays configuration information about the SAPs associated with the specified service.
<a href="#">show service sap-using</a>	Displays the SAP configuration for the local router.

## MIB Objects

```
sapBaseInfoTable
  sapPortId
  sapEncapValue
svcBaseInfoTable
  svcId
```

---

## configure service vpls sap description

Configures a description for the specified Service Access Point (SAP) ID. A SAP ID is comprised of a customer-facing port (referred to as an access port) and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

**configure service vpls** *service-id* **sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtag1*] **description** *desc-info*

**configure service vpls** *service-id* **no sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtag1*] **no description**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/port1</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>:0</b>	Specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag1</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.
<i>desc-info</i>	An ASCII text string up to 80 characters in length. Enclose special characters, such as #, \$, or spaces, in double quotation marks (for example “CE1 to VPLS1 SAP”).

### Defaults

By default, a description is not added when the SAP is created.

parameter	default
<b>:0</b>   <b>:all</b>   <i>:qtag1</i>	<b>:0</b> (null)

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- To specify a SAP ID, use the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to specify the SAP on access port 1/2 that maps all traffic to this service that is not already mapped to other SAPs.
- Use the **no** form of this command to remove the description from the specified SAP.

- Specify an existing VPLS service ID number and the associated access port for this SAP.
- Printable, 7-bit ASCII characters are also allowed in the description text string.

### Examples

```
-> configure service vpls 10 sap 1/2:10 description "CE1 to VPLS1 SAP"  
-> configure service vpls 13 linkagg 20 description "CE2 to VPLS2 SAP"  
-> configure service vpls 10 sap 1/2:10 no description  
-> configure service vpls 13 linkagg 20 no description
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">configure service vpls sap create</a>	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
<a href="#">configure service vpls sap trusted</a>	Configures the trust mode for the specified SAP ID.
<a href="#">configure service vpls sap shutdown</a>	Configures the administrative status for the specified SAP ID.
<a href="#">configure service vpls sap static-mac</a>	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
<a href="#">show service id sap</a>	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
<a href="#">show service sap-using</a>	Displays the SAP configuration for the local router.

### MIB Objects

```
sapBaseInfoTable  
  sapPortId  
  sapEncapValue  
  sapDescription  
svcBaseInfoTable  
  svcId
```

---

## configure service vpls sap trusted

Configures the trust mode for the specified Service Access Port (SAP) ID. A SAP ID is comprised of a customer-facing port (referred to as an access port) and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

A trusted SAP can accept 802.1p values in incoming packets; an untrusted SAP will set any 802.1p values to zero in incoming packets, unless an 802.1p value is configured with this command.

**configure service vpls *service-id* sap {*slot/port* | linkagg *agg\_num*} [:0 | :all | :*qtag1*] trusted**

**configure service vpls *service-id* sap {*slot/port* | linkagg *agg\_num*} [:0 | :all | :*qtag1*] no trusted**  
**priority *value***

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/port1</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>:0</b>	Specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag1</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.
<b>trusted</b>	Allows the SAP to use the priority value obtained from tagged packets ingressing on the SAP port. Untagged packets use the default port priority value.
<i>value</i>	The priority value to set. Values range from 0 (lowest priority) to 7 (highest priority). This is the priority assigned to tagged and untagged packets ingressing on an untrusted SAP.

### Defaults

By default, the SAP is trusted with the priority set to best effort (zero). These default values are set when a port is configured as an access port and then associated with the SAP.

parameter	default
<b>:0   :all   :<i>qtag1</i></b>	<b>:0 (null)</b>

### Platforms Supported

OmniSwitch 9000E



## Usage Guidelines

- To specify a SAP ID, use the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to specify the SAP on access port 1/2 that maps all traffic to this service that is not already mapped to other SAPs.
- Use the **no trusted** form of this command with the **priority** *value* parameter to configure a priority value to assign to packets ingressing on the SAP.
- Administratively disabling the SAP is not required to change the trust mode for the SAP.
- When the trust mode is changed from untrusted to trusted, the priority value is automatically set to the default best effort priority value (zero).
- Note that untagged Layer 2 control packets (for example, BPDU, GVRP, and AMAP) are always tunneled (if enabled) through the MPLS cloud with the default EXP bits set to 7, so that they can arrive at the destination router at the highest COS queue of 7. As a result, trusted and untrusted SAPs configured on the access ports will not affect the Layer 2 control packets ingressing on the access ports.
- Configuring the trust mode on an access port is not allowed. These settings are configured for the SAP to which the access port is associated.

## Examples

```
-> configure service vpls 10 sap 1/2:10 trusted
-> configure service vpls 13 linkagg 20 trusted
-> configure service vpls 10 sap 1/2:10 no trusted priority 7
-> configure service vpls 13 linkagg 20 no trusted priority 3
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<b>configure service vpls sap create</b>	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
<b>configure service vpls sap description</b>	Configures a description for the specified SAP ID.
<b>configure service vpls sap shutdown</b>	Configures the administrative status for the specified SAP ID.
<b>configure service vpls sap static-mac</b>	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
<b>show service id sap</b>	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
<b>show service sap-using</b>	Displays the SAP configuration for the local router.

## MIB Objects

```
alaSapExtraInfoTable
  alaSapInfoTrusted
  alaSapInfoPriority
```

---

## configure service vpls sap shutdown

Configures the administrative status for the specified Service Access Point (SAP) ID. A SAP ID is comprised of a customer-facing port (referred to as an access port) and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

```
configure service vpls service-id sap [slot/port | linkagg agg_num] [:0 | :all | :qtag1] {no shutdown | shutdown}
```

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/port1</i>	The slot and port number of the service access port.
<b>:0</b>	Specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag1</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>no shutdown</b>	Enables the administrative status of the SAP.
<b>shutdown</b>	Disables the administrative status of the SAP.

### Defaults

By default, the administrative status of the SAP is disabled.

parameter	default
<b>:0</b>   <b>:all</b>   <i>:qtag1</i>	<b>:0</b> (null)

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- To specify a SAP ID, use the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to specify the SAP on access port 1/2 that maps all traffic to this service that is not already mapped to other SAPs.
- Specify an existing VPLS service ID number and the associated access port for this SAP.

- Disabling the SAP administrative status does not remove the SAP configuration from the router.
- If an access port goes down, all SAPs associated with that port are operationally taken down as well.
- A SAP does not appear operationally down when a service is shutdown, even though traffic for that service is discarded.

## Examples

```
-> configure service vpls 10 sap 1/2:10 no shutdown
-> configure service vpls 13 linkagg 20 no shutdown
-> configure service vpls 10 sap 1/2:10 shutdown
-> configure service vpls 13 linkagg 20 shutdown
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">configure service vpls sap create</a>	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
<a href="#">configure service vpls sap description</a>	Configures a description for the specified SAP ID.
<a href="#">configure service vpls sap trusted</a>	Configures the trust mode for the specified SAP ID.
<a href="#">configure service vpls sap static-mac</a>	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
<a href="#">show service id sap</a>	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
<a href="#">show service sap-using</a>	Displays the SAP configuration for the local router.

## MIB Objects

```
sapBaseInfoTable
  sapPortId
  sapEncapValue
  sapAdminStatus
  sapOperStatus
svcBaseInfoTable
  svcId
```

---

## configure service vpls sap static-mac

Configures a static MAC address entry in the Virtual Private LAN Service (VPLS) forwarding database (FDB) that is associated with the specified SAP ID. A SAP ID is comprised of a customer-facing port (referred to as an access port) and an encapsulation value that is used to identify the type of customer traffic to map to the associated service.

**configure service vpls** *service-id* **sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtag1*] **static-mac** *mac-address*

**configure service vpls** *service-id* **sap** {*slot/port* | **linkagg** *agg\_num*} [**:0** | **:all** | *:qtag1*] **no static-mac** *mac-address*

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/port1</i>	The slot and port number of the service access port.
<b>:0</b>	Specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag1</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

parameter	default
<b>:0</b>   <b>:all</b>   <i>:qtag1</i>	<b>:0</b> (null)

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- To specify a SAP ID, use the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to specify the SAP on access port 1/2 that maps all traffic to this service that is not already mapped to other SAPs.
- Use the **no** form of this command to remove the remote static MAC address entry from the VPLS forwarding database.

- Static MACs associated with a SAP are classified as local MACs. A local MAC is used by the associated VPLS so that MAC addresses are not learned on the edge device.
- A MAC address can participate in only one static MAC address entry (local or remote) for a specific VPLS.
- Static MAC addresses configured on one edge device are not propagated to other edge devices associated with the same VPLS instance. Each edge device has an independent forwarding database for the associated VPLS.

## Examples

```
-> configure service vpls 100 sap 1/2:10 static-mac 00:00:da:3e:44:01
-> configure service vpls 101 sap linkagg 20:all static-mac 00:01:95:44:2a:10
-> configure service vpls 100 sap 1/2:10 no static-mac 00:00:da:3e:44:01
-> configure service vpls 101 sap linkagg 20:all no static-mac 00:01:95:44:2a:10
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

<a href="#">configure service vpls sap create</a>	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
<a href="#">configure service vpls sap description</a>	Configures a description for the specified SAP ID.
<a href="#">configure service vpls sap trusted</a>	Configures the trust mode for the specified SAP ID.
<a href="#">configure service vpls sap shutdown</a>	Configures the administrative status for the specified SAP ID.
<a href="#">show service id sap</a>	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
<a href="#">show service sap-using</a>	Displays the SAP configuration for the local router.

## MIB Objects

```
tlsFdbInfoTable
  tlsFdbMacAddr
  tlsFdbType
  tlsFdbLocale
sapBaseInfoTable
  sapPortId
  sapEncapValue
svcBaseInfoTable
  svcId
```

---

## clear service id fdb

Clears MAC addresses (including static) from the Source Learning MAC address Forwarding Database (FDB) for the specified VPLS service.

```
clear service id service-id fdb {all | mac mac-address | sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] | mesh-sdp sdp-id[:vc-id]}
```

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<b>all</b>	Clear all MAC addresses from the FDB for the specified service.
<i>mac-address</i>	A 48-bit MAC address ( <i>aa:bb:cc:dd:ee:ff</i> ) to clear from the FDB. Clears FDB entries related to this address.
<i>slot/port1</i>	The slot and port number of a service access port that identifies the specified SAP.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate that identifies an existing SAP.
<b>:0</b>	The encapsulation type portion of the SAP ID that specifies a null encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	The encapsulation type portion of the SAP ID that determines if untagged and tagged traffic is mapped to the SAP. Combine this parameter with the <i>slot/port</i> or <b>linkagg</b> parameters.
<i>:qtag1</i>	The encapsulation type portion of the SAP ID that identifies a VLAN ID tag for SAP traffic. Combine this parameter with the <i>slot/port</i> or <b>linkagg</b> parameters.
<i>sdp-id</i>	An existing SDP ID number.
<i>vc-id</i>	A VC ID number that identifies the VC ID portion of each mesh SDP binding defined for the service.

### Defaults

parameter	default
<b>:0   :all   :qtag</b>	null
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

## Usage Guidelines

- Use this command to clear all MACs, a specific MAC, or all MACs associated with a specific SAP or mesh SDP from the FDB associated with the specified VPLS.
- A SAP ID is comprised of an access port or link aggregate number and an encapsulation type. To specify an existing SAP ID with this command, combine the **:all** or *:qtag1* parameter with the *slot/port* or **linkagg agg\_num** parameter. For example, if a SAP is mapped to access port 1/10 and customer traffic ingressing on this SAP is tagged with VLAN ID 200, enter 1/10:200 (*slot/port:qtag*) for the SAP ID.

## Examples

```
-> clear service id 10 fdb all
-> clear service id 20 fdb mac 00:00:1a:22:33:10
-> clear service id 30 fdb 1/10:all
-> clear service id 40 fdb linkagg 10:all
-> clear service id 50 fdb mesh-sdp 10
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[show service fdb-info](#)

Displays global forwarding database information for the router

[show service fdb-mac](#)

Displays the MAC address entry information found in the forwarding database.

## MIB Objects

```
tlsFdbInfoTable
  tlsFdbMacAddr
  tlsFdbType
  tlsFdbLocale
sapBaseInfoTable
  sapPortId
  sapEncapValue
sdpBindTable
  sdpBindId
  sdpBindType
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---

## clear service id mesh-sdp ingress-vc-label

Clears the static MPLS VC label used by the far-end router to send packets to this router.

**clear service id** *service-id* **mesh-sdp** *sdp-id[:vc-id]* **ingress-vc-label**

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number.
<i>vc-id</i>	A VC ID number that identifies the VC ID portion of each mesh SDP binding defined for the service.

### Defaults

parameter	default
<i>vc-id</i>	<i>service-id</i> value

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

Use this command to clear ingress VC label information for the specified service-SDP association.

### Examples

```
-> clear service id 10 mesh-sdp 20 ingress-vc-label
-> clear service id 20 mesh-sdp 30:10 ingress-vc-label
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">configure service vpls mesh-sdp ingress vc-label</a>	Configures the static MPLS VC label used by the far-end router to send packets to this router using the specified service and SDP binding.
<a href="#">show service ingress-label</a>	Displays the services that are using a specific ingress label or a range of ingress labels.

### MIB Objects

```
sdpBindTable
  sdpBindId
  sdpBindType
  sdpBindAdminIngressLabel
```



```
svcBaseInfoTable
  svcId
  svcDefMeshVcId
```

---

## show service l2profile

Displays the Layer 2 profile configuration information for the router. This type of profile is applied to access (customer-facing) ports and specifies how to process Layer 2 protocol frames ingressing on such ports.

**show service l2profile** [*profile-name*]

---

### Syntax Definitions

*profile-name* An existing Layer 2 profile name. Use quotes around string if the profile name contains multiple words with spaces between them (e.g., "Alcatel-Lucent Engineering").

### Defaults

By default, all profiles are displayed if a profile name is not specified with this command.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *profile-name* parameter to display information for a specific profile. Entering a profile name is case sensitive.
- If there are no profiles configured for the router, this command still displays the information for the default profile (def-access-profile). This profile is applied to access ports that were not associated with a specific profile.

### Examples

```
->show service l2profile
```

```
Port Profile Table
```

Profile Name	Stp	802.1x	802.3ad	802.1ab	GVRP	AMAP	MVRP
DropBPDU	drop	drop	peer	drop	tunnel	drop	tunnel
Tunnel-Amap	tunnel	drop	peer	drop	tunnel	tunnel	tunnel
def-access-profile	tunnel	drop	peer	drop	tunnel	drop	tunnel

```
Number of Port Profiles: 3
```

```
->show service l2profile Tunnel-Amap
```

```
Port Profile Table
```

Profile Name	Stp	802.1x	802.3ad	802.1ab	GVRP	AMAP	MVRP
Tunnel-Amap	tunnel	drop	peer	drop	tunnel	tunnel	tunnel

```
Number of Port Profiles: 1
```

*output definitions*

---

<b>Profile Name</b>	The name of the Layer 2 profile.
<b>Stp</b>	Indicates how Spanning Tree traffic control packets are processed.
<b>802.1x</b>	Indicates how IEEE 802.1x control packets are processed.
<b>802.3ad</b>	Indicates how IEEE 802.3ad control packets are processed.
<b>802.1AB</b>	Indicates how IEEE 802.1AB control packets are processed.
<b>GVRP</b>	Indicates how GARP VLAN Registration Protocol packets are processed.
<b>AMAP</b>	Indicates how Alcatel-Lucent Mapping Adjacency Protocol packets are processed.
<b>MVRP</b>	Indicates how Multiple VLAN Registration Protocol packets are processed.

---

**Release History**

Release 6.4.2; command was introduced.

Release 6.4.3: **mvrp** field was added.

**Related Commands**

<b>configure service l2profile</b>	Configures a Layer 2 profile that is applied to a service access port.
<b>configure service port l2profile</b>	Assigns an existing Layer 2 profile to the specified service access port
<b>show service port</b>	Displays the access (customer-facing) port configuration for the router.

**MIB Objects**

```
alaServiceMgrPortProfileTable
  alaServiceMgrPortProfileID
  alaServiceMgrPortProfileStpBpduTreatment
  alaServiceMgrPortProfileGvrpTreatment
  alaServiceMgrPortProfile8021xTreatment
  alaServiceMgrPortProfile8021ABTreatment
  alaEServiceUNIPProfileGvrpTreatment
  alaServiceMgrPortProfileAmapTreatment
  alaServiceMgrPortProfile8023ADTreatment
  alaServiceMgrPortProfileMvrpTreatment
```

---

## show service port

Displays the access (customer-facing) port configuration for the router.

**show service port** [*slot/port* / **linkagg** *agg\_num*]

---

### Syntax Definitions

*slot/port*                      The slot number for the module and the physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).

*agg-num*                        The link aggregate ID number (0–31).

### Defaults

By default, all service access ports are displayed if a port or link aggregate number is not specified.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *slot/port* and **linkagg** *agg-num* parameters to display the configuration for a specific port or link aggregate.
- Access ports are required to configure a Service Access Point (SAP). A SAP is the point at which customer traffic enters and exits the provider service. SAPs are not configured on network ports

### Examples

```
-> show service port
```

Port Table

Port Id	Admin Status	Link Status	Cfg MTU	Oper MTU	Port Mode	Port Encp	L2Profile
8/7	Down	Down	1528	1528	accs	null	def-access-profile
8/8	Up	Up	9212	9212	accs	null	DropBPDU
8/9	Up	Down	9212	9212	accs	dotq	Tunnel-Amap
0/19	Up	Up	9212	9212	accs	null	def-access-profile

Number of Ports : 4

```
-> show service port 8/9
```

Port Table

Port Id	Admin Status	Link Status	Cfg MTU	Oper MTU	Port Mode	Port Encp	L2Profile
8/9	Up	Down	9212	9212	accs	dotq	Tunnel-Amap

Number of Ports : 1

```
-> show service port linkagg 19
```

```
Port Table
```

Port Id	Admin Status	Link Status	Cfg MTU	Oper MTU	Port Mode	Port Encp	L2Profile
0/19	Up	Up	9212	9212	accs	null	def-access-profile

```
Number of Ports : 1
```

### output definitions

<b>Port Id</b>	The access port number or link aggregate ID number.
<b>Admin Status</b>	The administrative status ( <b>Up</b> or <b>Down</b> ) of the access port.
<b>Link Status</b>	The status of the link connection to the access port ( <b>Up</b> or <b>Down</b> ).
<b>Cfg MTU</b>	The configured MTU value for the access port.
<b>Oper MTU</b>	The operational MTU value for the access port.
<b>Port Mode</b>	The port mode ( <b>accs</b> ) indicates that the port is a service access port. Configured through the <b>configure service port mode access</b> command.
<b>Port Encp</b>	The encapsulation type associated with the access port. Configured through the <b>configure service port encap-type</b> command.
<b>L2Profile</b>	The name of the Layer 2 profile associated with the access port. Configured through the <b>configure service port l2profile</b> command.

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<b>show service l2profile</b>	Displays the Layer 2 profile configuration for the router.
<b>show service sap-using</b>	Displays the Service Access Point (SAP) configuration for the local router.
<b>show service id sap</b>	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.

### MIB Objects

```
alaServiceMgrAccessPortTable
  alaServiceMgrPortID
  alaServiceMgrPortMode
  alaServiceMgrPortEncapType
  alaServiceMgrPortProfileId
```

## show service customer

Displays the customer account information configured for the router.

**configure service customer** [*customer-id*]

---

### Syntax Definitions

*customer-id*                      An existing customer ID number.

### Defaults

By default, configuration information for all customer accounts is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *customer-id* parameter to display information for a specific customer account.
- A default customer account (ID 1) exists on each router and is included in the general display of all customer accounts. This account is not user-configurable.

### Examples

```
-> show service customer
```

```
Customer
  Customer-ID 1
    Description:      Default customer

  Customer-ID 129
    Contact:         VJ Pedapudi,
    Description:     Customer 129,
    Phone:          100-232-4407

  Customer-ID 1234
    Contact:         John Clark,
    Description:     Customer 1234,
    Phone:          100-434-1248

Total Customers : 3
```

```
-> show service customer 129
```

```
Customer
  Customer-ID 129
    Contact:         VJ Pedapudi,
    Description:     Customer 129,
    Phone:          100-232-4407
```

*output definitions*

---

<b>Customer-Id</b>	The customer account ID number. Configured through the <b>configure service customer create</b> command.
<b>Contact</b>	Contact information for the customer account. Configured through the <b>configure service customer contact</b> command. This field does not display if a contact was not configured for this customer.
<b>Description</b>	Additional descriptive information for the customer account. Configured through the <b>configure service customer description</b> command. This field does not display if a description was not configured for this customer.
<b>Phone</b>	The contact phone number for the customer account. Configured through the <b>configure service customer phone</b> command. This field does not display if a phone number was not configured for this customer.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

**show service id all** Displays the detailed configuration for the specified service ID and associated service distribution and access points.

**MIB Objects**

```
custInfoTable
  custId
  custContact
  custDescription
  custPhone
```

---

## show service sdp

Displays the Service Distribution Point (SDP) configuration for the switch.

**show service sdp** [*sdp-id*] [**detail**]

---

### Syntax Definitions

*sdp-id*                                      An existing SDP ID number.

**detail**                                      Displays detailed SDP information.

### Defaults

By default, a list of all SDPs is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *sdp-id* parameter to display information for a specific SDP.
- Use the **detail** parameter to display additional information about the SDPs.

### Examples

```
-> show service sdp
```

```
Services: Service Destination Points
```

SdpId	Adm MTU	Opr MTU	IP address	Adm	Opr	Deliver	Signal
12	0	1514	1.1.1.3	Up	Up	LDP	TLDP
22	0	1514	1.1.1.4	Up	Up	LDP	TLDP
32	0	1514	1.1.1.5	Up	Up	LDP	TLDP
111	0	1514	1.1.1.1	Up	Up	LDP	TLDP

```
Number of SDPs : 4
```

```
-> show service sdp 32
```

```
Services: Service Destination Points
```

SdpId	Adm MTU	Opr MTU	IP address	Adm	Opr	Deliver	Signal
32	0	1514	1.1.1.5	Up	Up	LDP	TLDP



-> show service sdp detail

Services: Service Destination Points Details

Sdp Id 10 -(1.1.1.2)

SDP Id:	10,	SDP-Source:	N/A,
Admin Path MTU:	0,	Oper Path MTU:	0,
Far End:	1.1.1.2,	Delivery:	MPLS,
Admin State:	Down,	Oper State:	Down,
Signaling:	None,	Metric:	0,
Acct. Pol:	N/A,	Collect Stats:	0,
Last Status Change:	09/02/2009 17:59:54,	Adv. MTU Over.:	No,
Last Mgmt Change:	09/02/2009 17:59:54,	VLAN VC Etype:	0x8100

Flags: SdpAdminDown,  
Flags: TranspTunnDown TranspTunnUnstable

KeepAlive Information:

Admin State:	Ukwn,	Oper State:	Ukwn,
Hello Time:	0,	Hello Msg Len:	0,
Hello Timeout:	0,	Unmatched Replies:	0,
Max Drop Count:	0,	Hold Down Time:	0,
Tx Hello Msgs:	0,	Rx Hello Msgs:	0

Associated LSP LIST:

Lsp Name:	path-to-R4,		
Admin State:	Down,	Oper State:	Down,

No Programmed LSPs

Sdp Id 11 -(2.2.2.1)

SDP Id:	11,	SDP-Source:	N/A,
Admin Path MTU:	0,	Oper Path MTU:	0,
Far End:	2.2.2.1,	Delivery:	LDP,
Admin State:	Down,	Oper State:	Down,
Signaling:	TLDP,	Metric:	0,
Acct. Pol:	N/A,	Collect Stats:	0,
Last Status Change:	09/02/2009 17:59:54,	Adv. MTU Over.:	No,
Last Mgmt Change:	09/02/2009 17:59:54,	VLAN VC Etype:	0x8100

Flags: SdpAdminDown,  
Flags: TldpSessDown TranspTunnDown

KeepAlive Information:

Admin State:	Ukwn,	Oper State:	Ukwn,
Hello Time:	0,	Hello Msg Len:	0,
Hello Timeout:	0,	Unmatched Replies:	0,
Max Drop Count:	0,	Hold Down Time:	0,
Tx Hello Msgs:	0,	Rx Hello Msgs:	0

Associated LSP LIST:

No LSPs Associated

No Programmed LSPs

Sdp Id 30 -(0.0.0.0)

SDP Id:	30,	SDP-Source:	N/A,
Admin Path MTU:	0,	Oper Path MTU:	0,
Far End:	0.0.0.0,	Delivery:	LDP,

```

Admin State:          Down,          Oper State:          Down,
Signaling:           TLDP,          Metric:             0,
Acct. Pol:           N/A,          Collect Stats:      0,
Last Status Change: 09/10/2009 18:35:35, Adv. MTU Over.:    No,
Last Mgmt Change:   09/10/2009 18:36:47, VLAN VC Etype:     0x8100

```

```

Flags:              SdpAdminDown,
Flags:              TranspTunnDown TranspTunnUnstable

```

## KeepAlive Information:

```

Admin State:        Ukwn,          Oper State:          Ukwn,
Hello Time:         0,          Hello Msg Len:      0,
Hello Timeout:      0,          Unmatched Replies:  0,
Max Drop Count:     0,          Hold Down Time:     0,
Tx Hello Msgs:      0,          Rx Hello Msgs:      0

```

## Associated LSP LIST:

No LSPs Associated

No Programmed LSPs

Number of SDPs : 3

-> show service sdp 10 detail

## Services: Service Destination Points Details

## Sdp Id 10 -(1.1.1.2)

```

SDP Id:             10,          SDP-Source:         N/A,
Admin Path MTU:     0,          Oper Path MTU:      0,
Far End:            1.1.1.2,    Delivery:           MPLS,
Admin State:        Down,       Oper State:          Down,
Signaling:          None,       Metric:             0,
Acct. Pol:          N/A,       Collect Stats:      0,
Last Status Change: 09/02/2009 17:59:54, Adv. MTU Over.:    No,
Last Mgmt Change:   09/02/2009 17:59:54, VLAN VC Etype:     0x8100

```

```

Flags:              SdpAdminDown,
Flags:              TranspTunnDown TranspTunnUnstable

```

## KeepAlive Information:

```

Admin State:        Ukwn,          Oper State:          Ukwn,
Hello Time:         0,          Hello Msg Len:      0,
Hello Timeout:      0,          Unmatched Replies:  0,
Max Drop Count:     0,          Hold Down Time:     0,
Tx Hello Msgs:      0,          Rx Hello Msgs:      0

```

## Associated LSP LIST:

No LSPs Associated

No Programmed LSPs

### *output definitions*

---

<b>SDP Id</b>	The SDP identifier comprised of the SDP ID number and the IP address of the far-end router for this SDP tunnel. For example, <b>10: - (1.1.1.2)</b> identifies SDP 10 with the tunnel endpoint at router 1.1.1.2.
<b>Admin Path MTU</b>	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the <b>configure service sdp path-mtu</b> command.
<b>Oper Path MTU</b>	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
<b>Far End</b>	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the <b>configure service sdp far-end</b> command.
<b>Delivery</b>	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
<b>Admin State</b>	The administrative state of this SDP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service sdp shutdown</b> command.
<b>Oper State</b>	The operational state of this SDP ( <b>Up</b> or <b>Down</b> ).
<b>Signaling</b>	Indicates whether or not Targeted LDP signaling is enabled ( <b>none</b> or <b>TLDP</b> ). Note that if TLDP is not enabled, only static LSPs are configurable for this SDP.
<b>Collect Stats</b>	Specifies whether or not LDP statistics are collected for this SDP.
<b>Last Status Change</b>	The date and time of the last operational status change to this SDP.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this SDP.
<b>Flags</b>	The conditions that affect the operational status of this SDP.
<b>Associated LSP List</b>	Displays static LSP information.
<b>Programmed LSP List</b>	Displays LDP-signaled LSP information.

---

### **Release History**

Release 6.4.2; command was introduced.

### **Related Commands**

<b>show service sdp-using</b>	Displays the Service Distribution Point (SDP) usage for the local router or for a far-end router IP address.
<b>show service id sdp</b>	Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.

### **MIB Objects**

---

## show service id all

Displays detailed configuration information about the specified service ID, including the SDP and SAP configuration associated with the service.

**show service id** *service-id* **all**

---

### Syntax Definitions

*service-id* An existing VPLS ID number.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

The service ID is a unique number that identifies a specific VPLS. All information associated with the service ID is displayed.

### Examples

```
-> show service id 100 all
```

#### Service Detailed Information

```
Service Id:          100,          Vpn Id:          N/A,
Service Type:       VPLS,
Customer Id:        1,
Last Status Change: 01/19/2009 13:09:36,
Last Mgmt Change:  01/19/2009 13:09:10,
Admin State:        Up,           Oper State:       Up,
MTU:                1514,         Def. Mesh VC Id: 100,
SAP Count:          5,           SDP Bind Count:  1,
Snd Flush on Fail: Disabled,     Host Conn Verify: N/A,
Propagate MacFlush: N/A
```

#### Service Destination Points(SDPs)

```
Sdp Id 10:100 -(10.11.0.6)
```

```
SDP Id:             10:100,       Type:             Mesh,
VC Type:            Ether,        VC Tag:           n/a,
Admin Path MTU:    1514,          Oper Path MTU:    1514,
Far End:           10.11.0.6,     Delivery:         LDP,

Admin State:        Up,           Oper State:       Up,
Acct. Pol:         N/A,           Collect Stats:    LDP,
Ingress Label:     131069,        Egress Label:    131070,
Ing mac Fltr:      n/a,           Egr mac Fltr:    n/a,
Ing ip Fltr:       n/a,           Egr ip Fltr:     n/a,
Admin ControlWord: N/A,           Oper ControlWord: False,
Last Status Change: 01/19/2009 13:10:48, Signaling:        TLDP,
Last Mgmt Change:  01/19/2009 13:09:10, Force Vlan-Vc: Disabled,
```

Class Fwding State: N/A,  
Flags: None

## Service Destination Points(SDPs)

Sdp Id 50:200 -(10.11.0.7)

SDP Id:	50:200,	Type:	Mesh,
VC Type:	Ether,	VC Tag:	N/A,
Admin Path MTU:	0,	Oper Path MTU:	0,
Far End:	10.11.0.7,	Delivery:	LDP,
Admin State:	Up,	Oper State:	Down,
Acct. Pol:	N/A,	Collect Stats:	LDP,
Ingress Label:	0,	Egress Label:	0,
Admin ControlWord:	N/A,	Oper ControlWord:	False,
Last Status Change:	01/19/2009 22:28:16,	Signaling:	TLDP,
Last Mgmt Change:	15/19/2009 11:18:50,	Force Vlan-Vc:	Disabled,
Flags:	SdpOperDown,		
Flags:	NoIngVCLabel NoEgrVCLabel,		
Flags:	PathMTUTooSmall		

## Service Access Points

SAP 1/2:100

Service Id:	100,		
SAP:	1/2:100,	Encap:	q-tag,
Admin State:	Up,	Oper State:	Down,
Flags:	PortOperDown PortMTUTooSmall,		
Multi Svc Site:	None,		
Last Status Change:	01/19/2009 13:09:10,		
Last Mgmt Change:	01/19/2009 13:09:10		

SAP 8/8:300

Service Id:	100,		
SAP:	8/8:300,	Encap:	q-tag,
Admin State:	Up,	Oper State:	Up,
Flags:	None,		
Multi Svc Site:	None,		
Last Status Change:	01/19/2009 13:09:36,		
Last Mgmt Change:	01/19/2009 13:09:10		

*output definitions*

<b>SvcId</b>	The unique service identification number used to identify the service. Configured through the <b>configure service vpls create</b> command.
<b>Service Type</b>	The type of service (only VPLS is supported).
<b>Customer Id</b>	The customer account ID number. Configured through the <b>configure service customer create</b> command.
<b>Last Status Change</b>	The date and time of the last operational status change to this service.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this service.
<b>Admin State</b>	The administrative state of the service ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls shutdown</b> command.
<b>Oper State</b>	The operational state of the service ( <b>Up</b> or <b>Down</b> ).

*output definitions*

<b>MTU</b>	The largest frame size that can pass through this service without requiring fragmentation. Configured through the <b>configure service vpls service-mtu</b> command.
<b>Def. Mesh VC Id</b>	The default VC ID for the mesh SDP binding for this service. Configured through the <b>configure service vpls def-mesh-vc-id</b> command.
<b>SAP Count</b>	The number of SAPs associated with this service.
<b>SDP Bind Count</b>	The number of SDPs bound to this service.
<b>Send Flush on Fail</b>	Whether or not ( <b>Enabled</b> or <b>Disabled</b> ) a MAC flush message is sent when an access port or SAP failure occurs. Configured through the <b>configure service vpls send-flush-on-failure</b> command.
<b>Service Destination Points (SDPs)</b>	The following fields display configuration information for each SDP associated with this service.
<b>SDP Id</b>	The SDP identifier comprised of the SDP ID number, the service ID number, and the IP address of the far-end router for this SDP tunnel. For example, <b>10:100 -(10.11.0.6)</b> identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
<b>Type</b>	The SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for this service. The spoke binding type is not supported. Configured through the <b>configure service vpls mesh-sdp</b> command.
<b>VC Type</b>	The type of VC ( <b>Ether</b> , <b>Vlan</b> , or <b>Vpls</b> ). Configured through the <b>configure service vpls mesh-sdp</b> command.
<b>Admin Path MTU</b>	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the <b>configure service sdp path-mtu</b> command.
<b>Oper Path MTU</b>	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
<b>Far End</b>	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the <b>configure service sdp far-end</b> command.
<b>Delivery</b>	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
<b>Admin State</b>	The administrative state of this SDP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service sdp shutdown</b> command.
<b>Oper State</b>	The operational state of this SDP ( <b>Up</b> or <b>Down</b> ).
<b>Collect Stats</b>	Specifies whether or not LDP statistics are collected for this SDP.
<b>Ingress Label</b>	The VC label used by the far-end device to send packets to the local device for this SDP binding.
<b>Egress Label</b>	The VC label used by the local device to send packets to the far-end device for SDP binding.
<b>Last Status Change</b>	The date and time of the last operational status change to this SDP.
<b>Signaling</b>	The signaling protocol used to obtain the ingress and egress labels from frames transmitted and received on this SDP.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this SDP.
<b>Flags</b>	The conditions that affect the operational status of this SDP.

*output definitions*

---

<b>Service Access Points (SAPs)</b>	The following fields display configuration information for each SDP associated with this service.
<b>Service Id</b>	The service ID associated with the SAP. Configured through the <b>configure service vpls create</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>SAP</b>	The access port number for the SAP. Configured through the <b>configure service port mode access</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>Encap</b>	The encapsulation type ( <b>null</b> or <b>dot1q</b> ) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the <b>configure service port encaps-type</b> command.
<b>Admin State</b>	The administrative state of this SAP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls sap shutdown</b> command.
<b>Oper State</b>	The operational state of this SAP ( <b>Up</b> or <b>Down</b> ).
<b>Flags</b>	The conditions that affect the operational status of this SAP.
<b>Multi Svc Site</b>	The multi-service site of which the SAP is a member.
<b>Last Status Change</b>	The date and time of the last operational status change to this SAP.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this SAP.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<b>show service id base</b>	Displays the basic configuration for the specified service ID and a list of service distribution and access points associated with the service.
<b>show service id labels</b>	Displays a list of all labels that the specified service is using.

**MIB Objects**

---





*output definitions*

<b>SvcId</b>	The unique service identification number used to identify the service. Configured through the <b>configure service vpls create</b> command.
<b>Service Type</b>	The type of service (only VPLS is supported).
<b>Customer Id</b>	The customer account ID number. Configured through the <b>configure service customer create</b> command.
<b>Last Status Change</b>	The date and time of the last operational status change to this service.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this service.
<b>Admin State</b>	The administrative state of the service ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls shutdown</b> command.
<b>Oper State</b>	The operational state of the service ( <b>Up</b> or <b>Down</b> ).
<b>MTU</b>	The largest frame size that can pass through this service without requiring fragmentation. Configured through the <b>configure service vpls service-mtu</b> command.
<b>Def. Mesh VC Id</b>	The default VC ID for the mesh SDP binding for this service. Configured through the <b>configure service vpls def-mesh-vc-id</b> command.
<b>SAP Count</b>	The number of SAPs associated with this service.
<b>SDP Bind Count</b>	The number of SDPs bound to this service.
<b>Send Flush on Fail</b>	Whether or not ( <b>Enabled</b> or <b>Disabled</b> ) a MAC flush message is sent when an access port or SAP failure occurs. Configured through the <b>configure service vpls send-flush-on-failure</b> command.
<b>Service Access and Destination Points</b>	The following fields display basic information for each SAP and SDP associated with this service.
<b>Identifier</b>	The SAP or SDP identifier: <ul style="list-style-type: none"> <li>• The SAP ID is comprised of the access port number and encapsulation value (0, VLAN ID, or all). For example, <b>sap:1/2:100</b> identifies a SAP on access port 1/2 using a VLAN ID 100 to map customer traffic tagged with VLAN 100 to the service associated with the SAP.</li> <li>• The SDP identifier is comprised of the SDP ID number, the service ID number, and the IP address of the far-end router for this SDP tunnel. For example, <b>10:100 -M(10.11.0.6)</b> identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.</li> </ul>
<b>Type</b>	The encapsulation type ( <b>null</b> or <b>dot1q</b> ) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the <b>configure service port encaps-type</b> command. Note that the encapsulation type does not apply to SDPs;
<b>AdmMTU</b>	The desired largest frame size that can pass through the service or SDP to the far-end router without requiring fragmentation. Configured through the <b>configure service vpls service-mtu</b> or <b>configure service sdp path-mtu</b> commands.
<b>OprMTU</b>	The actual largest frame size that can pass through the service or SDP to the far-end router without requiring fragmentation.

*output definitions*

---

<b>Adm</b>	The administrative state of the SAP or SDP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls sap shutdown</b> or <b>configure service sdp shutdown</b> commands.
<b>Opr</b>	The operational state of the SAP or SDP ( <b>Up</b> or <b>Down</b> ).

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<b>show service id all</b>	Displays the detailed configuration for the specified service ID and associated service distribution and access points.
<b>show service id labels</b>	Displays a list of all labels that the specified service is using.

**MIB Objects**

---

## show service id labels

Displays a list of all labels that the specified service is using.

**show service id** *service-id* labels

---

### Syntax Definitions

*service-id* An existing VPLS ID number.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

The service ID is a unique number that identifies a specific VPLS. All ingress and egress labels that this service is using are displayed.

### Examples

```
-> show service id 100 labels
Martini Service Labels
```

Svc Id	Sdp Binding	Type	I.Lbl	E.Lbl
100	10:100	Mesh	131069	131070

Number of Bindings Found : 1

### *output definitions*

---

<b>Svc Id</b>	The unique service identification number used to identify the service.
<b>SDP Binding</b>	The SDP ID number associated with the service.
<b>Type</b>	The SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for the service. The spoke SDP binding type is not supported.
<b>I.Lbl</b>	The VC label used by the far-end device to send packets to the local device for the SDP binding.
<b>E.Lbl</b>	The VC label used by the local device to send packets to the far-end device for the SDP binding.

---

### Release History

Release 6.4.2; command was introduced.

**Related Commands**

<b>show service id all</b>	Displays the detailed configuration for the specified service ID and associated service distribution and access points.
<b>show service egress-label</b>	Displays a list of services that are using the specified egress labels.
<b>show service ingress-label</b>	Displays a list of service that are using the specified ingress labels.

**MIB Objects**

---

## show service id sap

Displays configuration information about the Service Access Points (SAPs) associated with the specified service.

**show service id** *service-id* **sap** [*slot/port* | **linkagg** *agg\_num*] [:**0** | **:all** | *:qtag1*]

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>slot/port1</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>:0</b>	Specifies no (null) encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All 802.1q-tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag1</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.

### Defaults

By default, a list of all SAPs associated with the specified service ID is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

To display detailed information for an individual SAP, specify a SAP ID using the *slot/port* and **linkagg** *agg-num* parameters combined with the **:0**, *:qtag*, or **:all** parameters. For example, enter **1/2:all** to display information for the SAP on access port 1/2 that maps all traffic that is not classified into other SAPs to this service.

### Examples

```
-> show service id 100 sap
```

PortId	SvcId	Adm	Oper	Trusted	Pri
1/11:200	100	Up	Up	Yes	0
1/11:all	100	Up	Up	Yes	0
1/11:0	100	Down	Down	Yes	0

Number of SAPs : 3

*output definitions*


---

<b>PortId</b>	The access port number and encapsulation type for the SAP. Configured through the <b>configure service port mode access</b> command.
<b>Service Id</b>	The service ID associated with the SAP. Configured through the <b>configure service vpls create</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>Adm</b>	The administrative state of this SAP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls sap shutdown</b> command.
<b>Oper</b>	The operational state of this SAP ( <b>Up</b> or <b>Down</b> ).
<b>Trusted</b>	The trusted status ( <b>Yes</b> or <b>No</b> ) for traffic mapped to this SAP. If <b>Yes</b> is displayed, the internal priority value for ingress traffic is used. If <b>No</b> is displayed, the value displayed in the <b>Pri</b> field is used.
<b>Pri</b>	The priority value assigned to the traffic mapped to this SAP. This value is only applied if the <b>Trusted</b> status for the SAP is set to <b>Yes</b> .

---

```
-> show service id 100 sap 1/11:200
```

## Service Access Points(SAP)

```
Service Id:          100,
SAP:                 1/11:200,          Encap:          q-tag,
Admin State:         Up,                Oper State:     Up,
Flags:               None,
Multi Svc Site:      None,
Last Status Change: 01/19/2009 13:09:36,
Last Mgmt Change:   01/19/2009 13:09:10
```

*output definitions*


---

<b>Service Id</b>	The service ID associated with the SAP. Configured through the <b>configure service vpls create</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>SAP</b>	The access port number for the SAP. Configured through the <b>configure service port mode access</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>Encap</b>	The encapsulation type ( <b>null</b> or <b>dot1q</b> ) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the <b>configure service port encaps-type</b> command.
<b>Admin State</b>	The administrative state of this SAP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls sap shutdown</b> command.
<b>Oper State</b>	The operational state of this SAP ( <b>Up</b> or <b>Down</b> ).
<b>Flags</b>	The conditions that affect the operational status of this SAP.
<b>Multi Svc Site</b>	The multi-service site of which the SAP is a member.
<b>Last Status Change</b>	The date and time of the last operational status change to this SAP.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this SAP.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                        |                                                                                                                            |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <a href="#">show service id all</a>    | Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service. |
| <a href="#">show service sap-using</a> | Displays the Service Access Point (SAP) configuration for the local router.                                                |
| <a href="#">show service port</a>      | Displays the access (customer-facing) port configuration for the router.                                                   |

## MIB Objects

---

## show service id sdp

Displays configuration information for the Service Distribution Points (SDPs) associated with the specified service.

**show service id** *service-id* **sdp** [*sdp-id[:vc-id]* | **far-end** *ip-address*] [**detail**]

---

### Syntax Definitions

<i>service-id</i>	An existing VPLS ID number.
<i>sdp-id</i>	An existing SDP ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<i>ip-address</i>	The system IP address for the far-end router. This is the user-configured Loopback0 address if the far-end router is an OmniSwitch.
<b>detail</b>	Displays detailed SDP information.

### Defaults

By default, a list of all SDPs associated with the specified service ID is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *sdp-id* parameter to display information for a specific SDP.
- Use the **far-end** *ip-addr* parameter to display information about an SDP with a specific far-end address.
- Use the **detail** parameter to display additional information about the SDPs.

### Examples

```
-> show service id 100 sdp
```

```
Services: Service Destination Points
```

SdpId	Type	IP address	Adm	Opr	I.Lbl	E.Lbl
10:100	Mesh	10.11.0.6	Up	Up	131069	131070

```
Number of SDPs : 1
```

```
-> show service id 100 sdp detail
```

```
Services: Service Destination Points Details
```

```
Sdp Id 10:100 -(10.11.0.6)
SDP Id:          10:100,          Type:          Mesh,
```



```

VC Type:          Ether,          VC Tag:          n/a,
Admin Path MTU:   1514,            Oper Path MTU:   1514,
Far End:          10.11.0.6,       Delivery:        LDP,

Admin State:      Up,
Acct. Pol:        N/A,
Ingress Label:    131069,
Ing mac Fltr:     n/a,
Ing ip Fltr:      n/a,
Admin ControlWord: N/A,
Last Status Change: 01/19/2009 13:10:48,
Last Mgmt Change: 01/19/2009 13:09:10,
Class Fwding State: N/A,
Flags:            None
Oper State:       Up,
Collect Stats:    LDP,
Egress Label:     131070,
Egr mac Fltr:     n/a,
Egr ip Fltr:      n/a,
Oper ControlWord: False,
Signaling:        TLDP,
Force Vlan-Vc:    Disabled,

```

Number of SDPs : 1

-> show service id 100 sdp far-end 10.11.0.6

Service Destination Point(Far-End : 10.11.0.6)

SdpId	Type	IP address	Adm	Opr	I.Lbl	E.Lbl
10:100	Mesh	10.11.0.6	Up	Up	131069	131070

Number of SDPs : 1

-> show service id 100 sdp far-end 10.11.0.6 detail

Service Destination Point(Far-End : 10.11.0.6) Details

```

Sdp Id 10:100 -(10.11.0.6)
SDP Id:          10:100,          Type:            Mesh,
VC Type:          Ether,          VC Tag:          n/a,
Admin Path MTU:   1514,            Oper Path MTU:   1514,
Far End:          10.11.0.6,       Delivery:        LDP,

Admin State:      Up,
Acct. Pol:        N/A,
Ingress Label:    131069,
Ing mac Fltr:     n/a,
Ing ip Fltr:      n/a,
Admin ControlWord: N/A,
Last Status Change: 01/19/2009 13:10:48,
Last Mgmt Change: 01/19/2009 13:09:10,
Class Fwding State: N/A,
Flags:            None
Oper State:       Up,
Collect Stats:    LDP,
Egress Label:     131070,
Egr mac Fltr:     n/a,
Egr ip Fltr:      n/a,
Oper ControlWord: False,
Signaling:        TLDP,
Force Vlan-Vc:    Disabled,

```

Number of SDPs : 1

*output definitions*


---

<b>SDP Id</b>	The SDP identifier comprised of the SDP ID number, the service ID number, and the IP address of the far-end router for this SDP tunnel. For example, <b>10:100 -(10.11.0.6)</b> identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
<b>Type</b>	The SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for this service. The spoke binding type is not supported. Configured through the <b>configure service vpls mesh-sdp</b> command.
<b>VC Type</b>	The type of VC ( <b>Ether</b> , <b>Vlan</b> , or <b>Vpls</b> ). Configured through the <b>configure service vpls mesh-sdp</b> command.
<b>Admin Path MTU</b>	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the <b>configure service sdp path-mtu</b> command.
<b>Oper Path MTU</b>	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
<b>Far End</b>	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the <b>configure service sdp far-end</b> command.
<b>Delivery</b>	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
<b>Admin State</b>	The administrative state of this SDP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service sdp shutdown</b> command.
<b>Oper State</b>	The operational state of this SDP ( <b>Up</b> or <b>Down</b> ).
<b>Collect Stats</b>	Specifies whether or not LDP statistics are collected for this SDP.
<b>Ingress Label</b>	The VC label used by the far-end device to send packets to the local device for this SDP binding.
<b>Egress Label</b>	The VC label used by the local device to send packets to the far-end device for SDP binding.
<b>Last Status Change</b>	The date and time of the last operational status change to this SDP.
<b>Signaling</b>	The signaling protocol used to obtain the ingress and egress labels from frames transmitted and received on this SDP.
<b>Last Mgmt Change</b>	The date and time of the last management-initiated change to this SDP.
<b>Flags</b>	The conditions that affect the operational status of this SDP.

---

**Release History**

Release 6.4.2; command was introduced.

## Related Commands

<b>show service id all</b>	Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.
<b>show service id labels</b>	Displays a list of all labels that the specified service is using.
<b>show service sdp-using</b>	Displays the SDP usage for the local router or for a far-end router IP address.
<b>show service sdp</b>	Displays the SDP configuration for the switch.

## MIB Objects

---

## show service sap-using

Displays the Service Access Point (SAP) configuration for the local router.

```
show service sap-using [sap {slot/port | linkagg agg_num}] [:0 | :all | :qtag]
```

---

### Syntax Definitions

<i>slot/port</i>	The slot and port number of the service access port.
<i>agg_num</i>	The link aggregate ID number (0–31) of a service access link aggregate.
<b>:0</b>	Specifies no (null) encapsulation value for the SAP. Depending on the pre-configured encapsulation type for the access port, a SAP using a null encapsulation will direct tagged and untagged or only untagged traffic to the associated service.
<b>:all</b>	Specifies a wildcard SAP. All 802.1q-tagged or untagged traffic that is not classified into another SAP is mapped to the wildcard SAP. Not configurable on null encapsulation access ports.
<i>:qtag</i>	Specifies a VLAN ID tag for traffic ingressing on the access port. Only traffic with this tag is mapped to this SAP. Not configurable on null encapsulation access ports.

### Defaults

By default, a list of all SAPs configured for the router is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

To display detailed information for an individual SAP, specify a SAP ID using the *slot/port* and **linkagg agg-num** parameters combined with the **:0**, **:qtag**, or **:all** parameters. For example, enter **1/2:all** to display information for the SAP on access port 1/2 that maps all traffic that is not classified into other SAPs to this service.

### Examples

```
-> show service sap-using
```

```
Service Access Points
```

PortId	SvcId	Adm	Opr	Trusted	Pri
1/2:100	100	Up	Down	Yes	0
1/2:110	100	Up	Down	Yes	0
1/2:all	100	Up	Down	Yes	0
1/11:200	100	Up	Up	Yes	0
8/8:300	100	Up	Up	Yes	0
1/3	200	Up	Up	Yes	0
0/5:400	200	Up	Up	Yes	0

```
-> show service sap-using sap linkagg 5:400
```

```
Service Access Points Using Port 0/5:400
```

PortId	SvcId	Adm	Opr	Trusted	Pri
0/5:400	200	Up	Up	Yes	0

```
Number of SAPs : 1
```

### *output definitions*

---

<b>PortId</b>	The access port number and encapsulation type for the SAP. Configured through the <b>configure service port mode access</b> command.
<b>Service Id</b>	The service ID associated with the SAP. Configured through the <b>configure service vpls create</b> command and bound to the SAP using the <b>configure service vpls sap create</b> command.
<b>Adm</b>	The administrative state of this SAP ( <b>Up</b> or <b>Down</b> ). Configured through the <b>configure service vpls sap shutdown</b> command.
<b>Oper</b>	The operational state of this SAP ( <b>Up</b> or <b>Down</b> ).
<b>Trusted</b>	The trusted status ( <b>Yes</b> or <b>No</b> ) for traffic mapped to this SAP. If <b>Yes</b> is displayed, the internal priority value for ingress traffic is used. If <b>No</b> is displayed, the value displayed in the <b>Pri</b> field is used.
<b>Pri</b>	The priority value assigned to the traffic mapped to this SAP. This value is only applied if the <b>Trusted</b> status for the SAP is set to <b>Yes</b> .

---

### **Release History**

Release 6.4.2; command was introduced.

### **Related Commands**

- show service id sap** Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.
- show service port** Displays the access (customer-facing) port configuration for the router.

### **MIB Objects**

---

## show service sdp-using

Displays the Service Distribution Point (SDP) usage for the local router or for a far-end router IP address.

**show service sdp-using** [*sdp-id[:vc-id]*] | **far-end** *ip-address*]

---

### Syntax Definitions

<i>sdp-id</i>	An existing SDP ID number.
<i>vc-id</i>	A VC ID number used to validate the VC ID portion of each mesh SDP binding defined for the service.
<i>ip-address</i>	The system IP address for the far-end router. This is the user-configured Loopback0 address if the far-end router is an OmniSwitch.

### Defaults

By default, a list of all associated SDPs configured for the switch is displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the *sdp-id* parameter to display information for a specific SDP.
- Use the **far-end** *ip-addr* parameter to display information about an SDP with a specific far-end address.

### Examples

```
-> show service sdp-using
```

```
SDP Using
```

SvcId	SdpId	Type	Far End	Opr	I.Label	E.Label
100	10:100	Mesh	10.11.0.6	Up	131069	131070
200	30:200	Mesh	30.1.2.3	Down	0	0

```
Number of SDPs : 2
```

```
-> show service sdp-using 10
```

```
Service Destination Point (Sdp Id : 10:0)
```

SvcId	SdpId	Type	Far End	Opr	I.Label	E.Label
100	10:100	Mesh	10.11.0.6	Up	131069	131070

```
Number of SDPs : 1
```

```
-> show service sdp-using far-end 10.11.0.5
```

```
Service Destination Point(Far-End : 10.11.0.6)
```

SvcId	SdpId	Type	Far End	Opr	I.Label	E.Label
100	10:100	Mesh	10.11.0.6	Up	131069	131070

```
Number of SDPs : 1
```

### output definitions

<b>SvcId</b>	The service ID associated with the SDP. Configured through the <a href="#">configure service vpls create</a> command and bound to the SAP using the <a href="#">configure service vpls mesh-sdp</a> command.
<b>SDP Id</b>	The SDP identifier comprised of the SDP ID number, the service ID number, and the IP address of the far-end router for this SDP tunnel. For example, <b>10:100</b> identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
<b>Type</b>	The SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for this service. The spoke binding type is not supported. Configured through the <a href="#">configure service vpls mesh-sdp</a> command.
<b>Far End</b>	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the <a href="#">configure service sdp far-end</a> command.
<b>Oper S</b>	The operational state of this SDP ( <b>Up</b> or <b>Down</b> ).
<b>I. Label</b>	The VC label used by the far-end device to send packets to the local device for this SDP binding.
<b>E. Label</b>	The VC label used by the local device to send packets to the far-end device for SDP binding.

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">show service id all</a>	Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.
<a href="#">show service id labels</a>	Displays a list of all labels that the specified service is using.
<a href="#">show service id sdp</a>	Displays configuration information for the Service Distribution Points (SDPs) associated with the specified service.
<a href="#">show service sdp</a>	Displays the SDP configuration for the switch.

### MIB Objects

## show service egress-label

Displays the services that are using a specific egress label or a range of egress labels.

**show service egress-label** *start-label* [*end-label*]

---

### Syntax Definitions

<i>start-label</i>	An egress label number. The valid range is 0 or 16–131071.
<i>end-label</i>	The last egress label number in a range of labels. The valid range is 2049–131071.

### Defaults

By default, all services associated with the starting label number are displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the optional *end-label* parameter along with the *start-label* parameter to specify a range of egress labels.
- If an ending label number is not specified, then all services using the starting label number are displayed. No range is specified.

### Examples

```
-> show service egress-label 131070
Martini Service Labels
```

Svc Id	Sdp Binding	Type	I.Lbl	E.Lbl
100	10:100	Mesh	131069	131070

```
Number of Bindings Found : 1
```

#### output definitions

---

<b>Svc Id</b>	The unique service identification number used to identify the service.
<b>SDP Binding</b>	The SDP ID number associated with the service.
<b>Type</b>	The SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for the service. The spoke SDP binding type is not supported.
<b>I.Lbl</b>	The VC label used by the far-end device to send packets to the local device for this SDP binding.
<b>E.Lbl</b>	The VC label used by the local device to send packets to the far-end device for this SDP binding.

---



## Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                            |                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------|
| <a href="#">show service ingress-label</a> | Displays the services that are using a specific ingress label or a range of ingress labels. |
| <a href="#">show service id labels</a>     | Displays a list of all labels that the specified service is using.                          |

## MIB Objects

---

## show service ingress-label

Displays the services that are using a specific ingress label or a range of ingress labels.

**show service ingress-label** *start-label* [*end-label*]

---

### Syntax Definitions

<i>start-label</i>	An ingress label number. The valid range is 0 or 2048–131071.
<i>end-label</i>	The last ingress label number in a range of labels. The valid range is 2049–131071.

### Defaults

By default, all services associated with the starting label number are displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the optional *end-label* parameter along with the *start-label* parameter to specify a range of ingress labels.
- If an ending label number is not specified, then all services using the starting label number are displayed. No range is specified.

### Examples

```
-> show service ingress-label 2048 131071
Martini Service Labels
```

Svc Id	Sdp Binding	Type	I.Lbl	E.Lbl
100	10:100	Mesh	131069	131070
200	30:200	Mesh	0	0

Number of Bindings Found : 2

#### *output definitions*

---

<b>Svc Id</b>	The unique service identification number used to identify the service.
<b>SDP Binding</b>	The SDP ID number associated with the service.
<b>Type</b>	Indicates the SDP binding type ( <b>mesh</b> or <b>spoke</b> ) for the service. The spoke SDP binding type is not supported.
<b>I.Lbl</b>	The VC label used by the far-end device to send packets to the local device for this SDP binding.
<b>E.Lbl</b>	The VC label used by the local device to send packets to the far-end device for this SDP binding.

---

## Release History

Release 6.4.2; command was introduced.

## Related Commands

**show service egress-label**

Displays the services that are using a specific egress label or a range of egress labels.

**show service id labels**

Displays a list of all labels that the specified service is using.

**clear service id mesh-sdp  
ingress-vc-label**

Clears the static MPLS VC label used by the far-end router to send packets to this router.

## MIB Objects

---

## show service fdb-info

Displays global forwarding database (FDB) information for the router.

**show service fdb-info**

---

### Syntax Definitions

N/A.

### Defaults

N/A.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

This command displays the FDB information that exists for all services. Fields that display “N/A” are currently not supported.

### Examples

```
-> show service fdb-info
Forwarding Database (FDB) Information
```

```
Service 100
  Service Id:          100,          Mac Move:          N/A,
  Mac Move Rate:      N/A,          Mac Move Timeout: N/A,
  Table Size:         N/A,          Total Count:       5,
  Learned Count:      5,            Static Count:      0,
  OAM-learned Count: N/A,          DHCP-learned Count: N/A,
  Host-learned Count: N/A,
  Remote Age:         N/A,          Local Age:         N/A,
  Mac Learning:       N/A,          Discard Unknown:  N/A,
  Mac Aging:          N/A,          Relearn Only:     N/A

Service 200
  Service Id:          200,          Mac Move:          N/A,
  Mac Move Rate:      N/A,          Mac Move Timeout: N/A,
  Table Size:         N/A,          Total Count:       1,
  Learned Count:      0,            Static Count:      1,
  OAM-learned Count: N/A,          DHCP-learned Count: N/A,
  Host-learned Count: N/A,
  Remote Age:         N/A,          Local Age:         N/A,
  Mac Learning:       N/A,          Discard Unknown:  N/A,
  Mac Aging:          N/A,          Relearn Only:     N/A

Total Service FDBs          : 2
Total FDB Configured Size : N/A
Total FDB Entries In Use   : 6
```

*output definitions*

---

<b>Service Id</b>	The unique service identification number used to identify the service.
<b>Total Count</b>	The number of MAC address entries (both learned and static) in the FDB for this service.
<b>Learned Count</b>	The number of dynamically learned MAC address entries in the FDB for this service.
<b>Static Count</b>	The number of static MAC address entries in the FDB for this service.
<b>Total Service FDBs</b>	The total number of service FDBs.
<b>Total FDB Entries In Use</b>	The total number of entries (both learned and static) in use.

---

**Release History**

Release 6.4.2; command was introduced.

**Related Commands**

<a href="#">show service fdb-mac</a>	Displays the MAC address entry information found in the forwarding database (FDB).
<a href="#">clear service id fdb</a>	Clears MAC addresses (including static) from the Source Learning MAC address forwarding database for the specified service.

**MIB Objects**

---

## show service fdb-mac

Displays the MAC address entry information found in the forwarding database (FDB).

**show service fdb-mac** [*mac-address*]

---

### Syntax Definitions

*mac-address*

A 48-bit MAC address for the static ARP (*aa:bb:cc:dd:ee:ff*). Valid addresses are any non-broadcast, non-multicast MAC, and non-IEEE reserved addresses.

### Defaults

By default, all MAC address entries are displayed.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the optional *mac-address* parameter with this command to display information for a specific MAC address.
- Fields that display “N/A” are currently not supported.

### Examples

```
-> show service fdb-mac 00:02:da:16:02:0c
```

```
Service Forwarding Database for 00:02:da:16:02:0c
```

ServId	MAC Address	Source-Identifier	Type	Last-Change
2000	00:02:da:16:02:0c	sap:16/6:2	Learn	N/A

```
No. of Entries: 1
```

### output definitions

---

<b>Service Id</b>	The unique service identification number used to identify the service.
<b>MAC Address</b>	The MAC address entry associated with this service.
<b>Source-Identifier</b>	The Service Access Point (SAP) on which the address was learned or configured.
<b>Type</b>	The type of MAC address ( <b>Learned</b> =dynamically learned address or <b>Static</b> =management configured permanent address).

---

### Release History

Release 6.4.2; command was introduced.

## Related Commands

### **show service fdb-info**

Displays global forwarding database (FDB) information for the router.

### **clear service id fdb**

Clears MAC addresses (including static) from the Source Learning MAC address forwarding database for the specified service.

## MIB Objects

---





# 51 Switch Logging Commands

This chapter includes descriptions for Switch Logging commands. These commands are used to configure parameters for the Switch Logging utility.

MIB information for the system commands is as follows:

*Filename:* AlcatelIND1System.MIB  
*Module:* ALCATEL-IND1-SYSTEM-MIB

A summary of the available commands is listed here.

---

**swlog**  
**swlog syslog-facility-id**  
**swlog appid level**  
**swlog remote command-log**  
**swlog remote command-log**  
**swlog output flash file-size**  
**swlog clear**  
**show log swlog**  
**show swlog**

---

## swlog

Enables or disables switch logging. Switch logging allows you to view a history of various switch activities in a text format.

**swlog**

**no swlog**

---

### Syntax Definitions

N/A

### Defaults

By default, switch logging is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> swlog  
-> no swlog
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">swlog appid level</a>	Defines the level at which switch logging information will be filtered for the specified application.
<a href="#">swlog remote command-log</a>	Enables or disables switch logging output to the console, file, or data socket.
<a href="#">show log swlog</a>	Displays stored switch logging information from flash.
<a href="#">show swlog</a>	Displays switch logging information.

### MIB Objects

```
systemSwitchLoggingGroup  
  systemSwitchLoggingEnable
```

---

## swlog syslog-facility-id

Specifies a facility ID that switch logging will include in the priority (PRI) section of the event message.

**swlog syslog-facility-id** {*facility\_id* | *integer*}

---

### Syntax Definitions

*facility\_id* A facility identification keyword. Current facility IDs are listed in the table below.

*integer* A numerical equivalent value for the facility ID, in the range of 0–23. Current numeric equivalent values are listed in the table below.

---

### Supported Facility IDs and their Numeric Equivalents

kernel - 0	NTP - 12
user - 1	log-audit - 13
mail - 2	log-alert - 14
system - 3	clock2 - 15
sec-auth1-4	local0 - 16
syslog - 5	local1 - 17
lptr - 6	local2 - 18
net-news - 7	local3 - 19
UUCP - 8	local4 - 20
clock1- 9	local5 - 21
sec-auth2 - 10	local6 - 22
FTP - 11	local7 - 23

### Defaults

parameter	default
<i>facility_id</i>	local0
<i>integer</i>	16

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

Use the ID name (i.e., **system**) or the numeric equivalent to specify the facility ID.

### Examples

```
-> swlog syslog-facility-id system
-> swlog syslog-facility-id 3
```

### Release History

Release 6.3.1.R02; command was introduced.

**Related Commands**

<b>swlog</b>	Enables or disables switch logging.
<b>swlog remote command-log</b>	Enables or disables switch logging output to the console, file, or data socket.
<b>show log swlog</b>	Displays stored switch logging information from flash.
<b>show swlog</b>	Displays switch logging information.

---

## swlog appid level

Defines the level at which switch logging information will be filtered for the specified application. All application events of the defined level and lower are captured. Applications can be specified by their application ID (i.e., subsystem) or by their numeric equivalent.

**swlog appid** {*app\_id* | *integer*} **level** {*level* | *integer*}

**no swlog appid** *app\_id*

---

### Syntax Definitions

*app\_id* An application identification keyword. Current application IDs are listed in the table below.

*integer* A numerical equivalent value for the application ID. Current numeric equivalent values are listed in the table below.

---

### Supported Application IDs and their Numeric Equivalents

802.1q - 7	ip - 15	psm - 81
aaa - 20	ipc-diag - 1	qdispatcher - 3
amap - 18	ip-helper - 22	qdriver - 2
bridge - 10	ipc-link - 4	qos - 13
chassis - 64	ipc-mon - 21	rmon - 79
cli - 67	ipms - 17	rsvp - 14
config - 66	ipx - 16	session - 71
dbggw - 89	lanpower - 108	slb - 25
diag - 0	ldap - 86	smni - 83
distrib - 84	linkagg - 12	snmp - 68
drc - 74	mipgw - 70	ssl - 88
eipc - 26	module - 24	stp - 11
epilogue - 85	nan-driver - 78	system - 75
ftp - 82	ni-supervision - 5	telnet - 80
gmap - 19	nosnmp - 87	trap - 72
health - 76	pmm - 23	vlan - 8
idle - 255	policy - 73	vrrp - 77
interface - 6	port-mgr - 64	web - 69

*level* The severity level filter keyword value for the application ID (*see table on the following page*). All switch logging messages of the specified level and lower will be captured. The severity level is a value assigned to the relative severity of the switch logging message. A lower value indicates messages that are more severe, a higher value indicates messages that are less severe.

*integer* A numerical equivalent value for the severity level (*see table on the following page*). All switch logging messages of the specified level and lower will be captured. The severity level is a value assigned to the relative severity of the switch logging message. A lower value indicates messages that are more severe, a higher value indicates messages that are less severe. Values range from 2–9.

Supported Levels	Numeric Equivalents	Description
<b>alarm</b>	<b>2</b>	Highest severity. The system is about to crash and reboot.
<b>error</b>	<b>3</b>	System functionality is reduced.
<b>alert</b>	<b>4</b>	A violation has occurred.
<b>warning</b>	<b>5</b>	A unexpected, non-critical event has occurred.
<b>info</b>	<b>6</b>	Any other non-debug message (default).
<b>debug1</b>	<b>7</b>	A normal event debug message.
<b>debug2</b>	<b>8</b>	A debug-specific message.
<b>debug3</b>	<b>9</b>	Lowest severity. A maximum verbosity debug message.

## Defaults

Default severity level is **info**. The numeric equivalent for info is 6.

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- You may enter multiple application IDs in the command line. Separate each application ID with a space and no comma.
- Application IDs may be entered in any order.
- This command can also be used on the secondary CMM.

## Examples

```
-> swlog appid 254 level alarm
-> swlog appid policy level info
-> swlog appid policy snmp web aaa vlan level alert
-> no swlog appid debug2
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>swlog</b>	Enables or disables switch logging.
<b>swlog remote command-log</b>	Enables or disables switch logging output to the console, file, or data socket.
<b>show log swlog</b>	Displays stored switch logging information from flash.
<b>show swlog</b>	Displays switch logging information.

## MIB Objects

```
systemSwitchLoggingGroup  
  systemSwitchLoggingLevelAppId  
  systemSwitchLoggingLevel
```

---

## swlog remote command-log

Enables or disables remote command logging.

`swlog remote command-log {enable | disable}`

---

### Syntax Definitions

N/A

### Defaults

By default, switch logging is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> swlog remote command-log enable
-> swlog remote command-log disable
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

<a href="#">swlog output</a>	Enables or disables switch logging output to the console, file, or data socket.
<a href="#">show log swlog</a>	Displays stored switch logging information from flash.
<a href="#">show swlog</a>	Displays switch logging information.

### MIB Objects

```
systemSwitchLoggingGroup
  systemSwitchLoggingEnable
```

---



## swlog output

Enables or disables switch logging output to the console, file, or data socket (remote session).

**swlog output** {**console** | **flash** | **socket** [*ip\_address*] [**remote command-log**]}

**no swlog output** {**console** | **flash** | **socket** [*ip\_address*]}

---

### Syntax Definitions

<b>console</b>	Specifies console output. When enabled, switch logging output is printed to the user console.
<b>flash</b>	Specifies /flash file output. When enabled, switch logging output is printed to a file in the switch's /flash file system.
<b>socket</b>	Specifies data socket output. When enabled, switch logging output is printed to a remote session.
<i>ip_address</i>	The IPv4 or IPv6 address for the remote session host.
<b>remote command-log</b>	Specifies command-log output to be sent to a remote session.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>console</b>   <b>flash</b>   <b>socket</b>	<b>flash and console</b>

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable one or more configured output IP addresses.
- This command can also be used on the secondary CMM.
- You can send files to multiple hosts (maximum of four) using the **socket** keyword, followed by the IP address of the remote host.
- When sending the output to a syslog server, the Loopback0 address is used if configured, otherwise the VLAN's IP address is used.

### Examples

```
-> swlog output console
-> no swlog output flash
-> swlog output socket 14.1.1.1
-> swlog output socket 15.1.1.1 remote command-log
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">swlog</a>	Enables or disables switch logging.
<a href="#">swlog appid level</a>	Defines the level at which switch logging information will be filtered for the specified application.
<a href="#">show log swlog</a>	Displays stored switch logging information from flash.
<a href="#">show swlog</a>	Displays switch logging information.

## MIB Objects

```
systemSwitchLoggingGroup
  systemSwitchLoggingFlash
  systemSwitchLoggingSocket
  systemSwitchLoggingSocketIpAddr
  systemSwitchLoggingConsole
systemSwitchLoggingHostTable
  systemSwitchLoggingHostIpAddr
  systemSwitchLoggingHostPort
  systemSwitchLoggingHostUserCommandHost
  systemSwitchLoggingHostStatus
```

---

## swlog output flash file-size

Configures the size of the switch logging file.

**swlog output flash file-size** *bytes*

---

### Syntax Definitions

*bytes*

The size of the switch logging file. The minimum value is 32000 while the maximum value is the total amount of free space in flash memory.

### Defaults

---

parameter	default
<i>bytes</i>	128000

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **ls** command to determine the amount of available flash memory.
- This command can also be used on the secondary CMM.

### Examples

```
-> swlog output flash file size 400000
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">swlog clear</a>	Clears the files that store switch logging data.
<a href="#">show log swlog</a>	Displays stored switch logging information from flash.
<a href="#">show swlog</a>	Displays switch logging information.

### MIB Objects

systemSwitchLoggingGroup  
  systemSwitchLoggingFileSize

---

## swlog clear

Clears the files that store switch logging data.

swlog clear

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command when the switch logging display is too long due to some of the data being old or out of date.
- This command can also be used on the secondary CMM.

### Examples

```
-> swlog clear
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">swlog remote command-log</a>	Enables or disables switch logging output to the console, file, or data socket.
<a href="#">show log swlog</a>	Displays stored switch logging information from flash.
<a href="#">show swlog</a>	Displays switch logging information.

### MIB Objects

```
systemSwitchLoggingGroup  
  systemSwitchLoggingClear
```

---

## show log swlog

Displays stored switch logging information.

**show log swlog**

**show log swlog** [*session session\_id*] [*timestamp start\_time [end\_time]*] [*appid appid*] [*level level*]

---

### Syntax Definitions

<i>session_id</i>	Identification number of the session for which switch logging information is displayed.
<i>start_time</i>	Specify the starting time for the switch logging information to be displayed. Use the format mm/dd/yyyy hh:mm where mm represents the month, dd is the day, yyyy is the year, hh is the hour, and mm is the minutes. Use four digits to specify the year.
<i>end_time</i>	Specify the ending time for the switch logging information to be displayed. Use the format mm/dd/yyyy hh:mm where mm represents the month, dd is the day, yyyy is the year, hh is the hour, mm is the minutes. Use four digits to specify the year.
<i>appid</i>	A digit that represents the application ID for the switch logging information to be displayed. Values are listed in the following table.

---

### Supported Application IDs and their Numeric Equivalents

802.1q - 7	ip - 15	qdispatcher - 3
aaa - 20	ipc-diag - 1	qdriver - 2
amap - 18	ip-helper - 22	qos - 13
bridge - 10	ipc-link - 4	rmon - 79
chassis - 64	ipc-mon - 21	rsvp - 14
cli - 67	ipms - 17	session - 71
config - 66	ipx - 16	slb - 25
dbggw - 89	ldap - 86	smni - 83
diag - 0	linkagg - 12	snmp - 68
distrib - 84	mipgw - 70	ssl - 88
drc - 74	module - 24	stp - 11
eipc - 26	nan-driver - 78	system - 75
epilogue - 85	ni-supervision - 5	telnet - 80
ftp - 82	nosnmp - 87	trap - 72
gmap - 19	pmm - 23	vlan - 8
health - 76	policy - 73	vrrp - 77
idle - 255	port-mgr - 64	web - 69
interface - 6	psm - 81	

---

*level*

A numerical equivalent value for the severity level (*see table below*). All switch logging messages of the specified level and lower will be shown. The severity level is a value assigned to the relative severity of the switch logging message. A lower value indicates messages that are more severe, a higher value indicates messages that are less severe. Values range from 2–9.

Supported Levels	Numeric Equivalents	Description
<b>alarm</b>	<b>2</b>	Highest severity. The system is about to crash and reboot.
<b>error</b>	<b>3</b>	System functionality is reduced.
<b>alert</b>	<b>4</b>	A violation has occurred.
<b>warning</b>	<b>5</b>	A unexpected, non-critical event has occurred.
<b>info</b>	<b>6</b>	Any other non-debug message (default).
<b>debug1</b>	<b>7</b>	A normal event debug message.
<b>debug2</b>	<b>8</b>	A debug-specific message.
<b>debug3</b>	<b>9</b>	Lowest severity. A maximum verbosity debug message.

## Defaults

N/A

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- When the switch logging display is too long, you may use the **show log swlog** command to clear all of the switch logging information.
- This command can also be used on the secondary CMM.

## Examples

```
-> show log swlog
Displaying file contents for 'swlog2.log'
FILEID: fileName[swlog2.log], endPtr[32]
configSize[64000], currentSize[64000], mode[2]
Displaying file contents for 'swlog1.log'
FILEID: fileName[swlog1.log], endPtr[395]
configSize[64000], currentSize[64000], mode[1]
```

```
Time Stamp           Application      Level   Log Message
-----+-----+-----+-----
MON NOV 11 12:42:11 2002          SYSTEM    info Switch Logging files cleared by
command
MON NOV 11 13:07:26 2002              WEB       info The HTTP session login successfu
l!
MON NOV 11 13:18:24 2002              WEB       info The HTTP session login successfu
l!
MON NOV 11 13:24:03 2002          TELNET    info New telnet connection, Address ,
```

```
128.251.30.88
MON NOV 11 13:24:03 2002      TELNET    info Session 4, Created
MON NOV 11 13:59:04 2002      WEB       info The HTTP session user logout successful!
```

*output definitions*

---

<b>Time Stamp</b>	The day, date and time for which Switch Logging log information is displayed.
<b>Application</b>	The Application ID (Subsystem) for which Switch Logging log information is displayed.
<b>Level</b>	The corresponding Severity Level for which Switch Logging information was stored. Levels include alarm, error, alert, warning, info, debug1, debug2, and debug3.
<b>Log Message</b>	The condition that resulted in the logging information being stored.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>swlog</b>	Enables or disables switch logging.
<b>swlog appid level</b>	Adds or removes a filter level for a specified subsystem.
<b>swlog remote command-log</b>	Enables or disables switch logging output to the console, file, or data socket.
<b>swlog clear</b>	Clears the files that store switch logging data.
<b>show swlog</b>	Displays switch logging information.

---

## show swlog

Displays switch logging information (e.g., switch logging status, log devices, application IDs with non-default severity level settings).

**show swlog**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command can also be used on the secondary CMM.

### Examples

```
-> show swlog
Operational Status           : On,
Log Device 1                 : flash,
Log Device 2                 : console,
Log Device 3                 : ipaddr 1.1.1.1 remote command-log,
Syslog FacilityID           : local0(16),
Remote command-log          : Disabled,
Console Display Level       : debug3 (9),
All Applications Trace Level : info (6)
```

### *output definitions*

---

<b>Operational Status</b>	The operational status of switch logging.
<b>Log Device</b>	The device where the output is being logged.
<b>Syslog FacilityID</b>	The facility ID that switch logging will include in the priority (PRI) section of the event message.
<b>Remote command-log</b>	The status of the remote command-log feature.
<b>Console Display Level</b>	The Console Display Level. Levels include alarm (2), error (3), alert (4), warning (5), info (6), debug1 (7), debug2 (8), and debug3 (9).
<b>All Applications Trace Level</b>	The Severity Level of the Application ID. Levels include alarm (2), error (3), alert (4), warning (5), info (6), debug1 (7), debug2 (8), and debug3 (9).

---



## Release History

Release 6.1; command was introduced.

## Related Commands

<b>swlog</b>	Enables or disables switch logging.
<b>swlog appid level</b>	Defines the level at which switch logging information will be filtered for the specified application.
<b>swlog remote command-log</b>	Enables or disables switch logging output to the console, file, or data socket.
<b>show log swlog</b>	Displays stored switch logging information from flash.

---



# 52 Health Monitoring Commands

The Health Monitoring function monitors the consumable resources of the switch (e.g., bandwidth usage, CPU usage) and provides a single integrated resource for a Network Management System (NMS). This function monitors the switch, and at fixed intervals, collects the current values for each resource being monitored. Users specify resource threshold limits and traps are sent to an NMS if a value falls above or below a user-specified threshold.

The Health Monitoring commands comply with RFC1212.

MIB information for the Health Monitoring commands is as follows:

*Filename:* AlcatelIND1Health.mib  
*Module:* healthMIB

A summary of the available commands is listed here:

---

**health threshold**  
**health interval**  
**health statistics reset**  
**show health threshold**  
**show health interval**  
**show health**  
**show health all**  
**show health slice**  
**show health fabric**

---

## health threshold

Configures thresholds for input traffic (RX), output/input traffic (TX/RX), memory usage, CPU usage, and chassis temperature.

Input traffic, output/input traffic, memory usage, and CPU usage thresholds specify the maximum percentage for each resource that may be consumed before a trap is sent to the user. The temperature threshold specifies the maximum operating temperature, in Celsius, allowed within the chassis before a trap is sent.

**health threshold** {*rx percent* | *txrx percent* | **memory percent** | **cpu percent** | **temperature degrees**}

---

### Syntax Definitions

<b>rx</b>	Specifies the maximum input (RX) traffic threshold.
<b>txrx</b>	Specifies the maximum output/input (TX/RX) traffic threshold.
<b>memory</b>	Specifies the maximum RAM memory usage threshold.
<b>cpu</b>	Specifies the maximum CPU usage threshold.
<i>percent</i>	The new threshold value, in percent, for the corresponding resource—i.e., <b>rx</b> , <b>txrx</b> , <b>memory</b> , <b>cpu</b> —(0–100).
<b>temperature</b>	Specifies the temperature threshold for the chassis.
<i>degrees</i>	The new threshold value, in Celsius, for the chassis temperature threshold (0–100).

### Defaults

parameter	default
<i>percentage</i>	80
<i>degrees</i>	50

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When a resource falls back below the configured threshold, an additional trap is sent to the user. This indicates that the resource is no longer operating beyond its configured threshold limit.
- Changing a threshold value sets the value for all levels of the switch (i.e., switch, module, and port). You cannot set different threshold values for each level.
- For detailed information on each threshold type, refer to [page 52-6](#), or refer to the “Diagnosing Switch Problems” chapter in the *OmniSwitch AOS Release 6 Network Configuration Guide*.
- To view the current health threshold values, use the **show health threshold** command. Do not use the **show temperature** command as it does not display health threshold statistics. These two **show** commands are unrelated.

## Examples

```
-> health threshold rx 85
-> health threshold txrx 55
-> health threshold memory 95
-> health threshold cpu 85
-> health threshold temperature 40
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[show health threshold](#) Displays the current health threshold settings.

## MIB Objects

```
HealthThreshInfo
  healthThreshDeviceRxLimit
  healthThreshDeviceTxRxLimit
  healthThreshDeviceTempLimit
  healthThreshDeviceMemoryLimit
  healthThreshDeviceCpuLimit
```

---

---

## health interval

Configures the sampling interval between health statistics checks. The sampling interval is the time interval between polls of the switch's consumable resources to see if it is performing within set thresholds.

**health interval** *seconds*

---

### Syntax Definitions

*seconds* Sampling interval (in seconds). Valid entries are 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30.

### Defaults

parameter	default
<i>seconds</i>	5

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Decreasing the polling interval may impact switch performance.

### Examples

```
-> health interval 6
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show health interval](#) Displays the current health sampling interval.

### MIB Objects

HealthThreshInfo  
healthSamplingInterval

---

## health statistics reset

Resets health statistics for the switch.

**health statistics reset**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command clears statistics for the entire switch. You cannot clear statistics for a module or port only.

### Examples

```
-> health statistics reset
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show health](#) Displays health statistics for the switch.

### MIB Objects

HealthThreshInfo  
healthSamplingReset

---

## show health threshold

Displays current health threshold settings.

**show health threshold** [**rx** | **txrx** | **memory** | **cpu** | **temperature**]

---

### Syntax Definitions

<b>rx</b>	Displays the current input (RX) traffic threshold.
<b>txrx</b>	Displays the current output/input (TX/RX) traffic threshold.
<b>memory</b>	Displays the current RAM memory usage threshold.
<b>cpu</b>	Displays the current CPU usage threshold.
<b>temperature</b>	Displays the current chassis temperature threshold.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Unless a specific resource type (i.e., **rx**, **txrx**, **memory**, **cpu**, or **temperature**) is specified, threshold information for *all* resources displays.
- To display only a specific threshold, enter the command, followed by the specific resource type (**rx**, **txrx**, **memory**, **cpu**, or **temperature**). For example, to display only the memory threshold, enter the following syntax: **show health threshold memory**.

### Examples

```
-> show health threshold
Rx Threshold           = 80
TxRx Threshold        = 80
Memory Threshold      = 80
CPU Threshold         = 80
Temperature Threshold = 50
```



**output definitions**

---

<b>Rx Threshold</b>	The current device input (RX) threshold. This value displays the maximum percentage of total bandwidth allowed for <i>incoming traffic</i> on the switch. The total bandwidth is defined as the Ethernet port capacity for all NI modules currently operating in the switch, in Mbps. For example, a chassis with 48 100Base-T Ethernet ports installed has a total bandwidth of 4800 Mbps. The default value is 80 percent and can be changed via the <a href="#">health threshold</a> command.
<b>TxRx Threshold</b>	The current device output/input (TX/RX) threshold. This value displays the maximum percentage of total bandwidth allowed for <i>all incoming and outgoing traffic</i> . As with the RX threshold described above, the total bandwidth is defined as the Ethernet port capacity for all the NI modules currently operating in the switch, in Mbps. The default value is 80 percent and can be changed via the <a href="#">health threshold</a> command.
<b>Memory Threshold</b>	Displays the current memory usage threshold. Memory usage refers to the total amount of RAM memory currently used by switch applications. The default value is 80 percent and can be changed via the <a href="#">health threshold</a> command.
<b>CPU Threshold</b>	Displays the current CPU usage threshold. CPU usage refers to the total amount of CPU processor capacity currently used by switch applications. The default value is 80 percent and can be changed via the <a href="#">health threshold</a> command.
<b>Temperature Threshold</b>	Displays the current chassis temperature threshold, in Celsius. The default value is 50 degrees Celsius and can be changed via the <a href="#">health threshold</a> command.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[health threshold](#) Configures thresholds for input traffic (RX), output/input traffic (TX/RX), memory usage, CPU usage, and chassis temperature.

**MIB Objects**

HealthThreshInfo

```
healthThreshDeviceRxLimit
healthThreshDeviceTxRxLimit
healthThreshDeviceTempLimit
healthThreshDeviceMemoryLimit
healthThreshDeviceCpuLimit
```

---

---

## show health interval

Displays the current health sampling interval.

```
show health interval
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the [health interval](#) command to set the sampling interval.

### Examples

```
-> show health interval  
Sampling Interval = 5
```

#### *output definitions*

---

<b>Sampling Interval</b>	Currently configured interval between health statistics checks (in seconds).
--------------------------	------------------------------------------------------------------------------

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[health interval](#) Configures the interval between health statistics checks.

### MIB Objects

```
HealthThreshInfo  
  healthSamplingInterval
```

---

## show health

Displays the health statistics for the switch. Statistics are displayed as percentages of total resource capacity and represent data taken from the last sampling interval.

**show health** [*slot/port*] [**statistics**]

---

### Syntax Definitions

*slot/port*

To view a specific slot, enter the slot number (e.g., 3). To view a specific port, enter the slot and port number (e.g., 3/1).

**statistics**

Optional command syntax. It displays the same information as the **show health** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If no slot/port information is specified, the aggregate health statistics for all ports is displayed.
- Use the [health statistics reset](#) command to reset health statistics for the switch.

### Examples

```
-> show health
* - current value exceeds threshold
```

Device	Limit	Curr	1 Min Avg	1 Hr Avg	1 Hr Max
Receive	80	01	01	01	01
Transmit/Receive	80	01	01	01	01
Memory	80	66	66	66	66
CPU	80	41	40	32	30

```
-> show health 4/3
* - current value exceeds threshold
```

Port 04/03	Limit	Curr	1 Min Avg	1 Hr Avg	1 Hr Max
Receive	80	01	01	01	01
Transmit/Receive	80	01	01	01	01

*output definitions*


---

<b>Receive</b>	Traffic received by the switch.
<b>Transmit/Receive</b>	Traffic transmitted and received by the switch.
<b>Memory</b>	Switch memory.
<b>CPU</b>	Switch CPU.
<b>Limit</b>	Currently configured device threshold levels (percentage of total available bandwidth).
<b>Curr</b>	Current device bandwidth usage.
<b>1 Min Avg</b>	Average device bandwidth usage over a 1-minute period.
<b>1 Hr Avg</b>	Average device bandwidth usage over a 1-hour period.
<b>1 Hr Max</b>	Maximum device bandwidth usage over a 1-hour period (i.e., the maximum of the 1 minute averages).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[health statistics reset](#)

Resets health statistics for the switch.

[show health all](#)

Displays health statistics for a specified resource on *all* NIs currently operating in the chassis.

**MIB Objects**

```
healthModuleTable
  healthModuleSlot
  healthModuleRxLatest
  healthModuleRx1MinAvg
  healthModuleRx1HrAvg
  healthModuleRx1HrMax
  healthModuleRxTxLatest
  healthModuleRxTx1MinAvg
  healthModuleRxTx1HrAvg
  healthModuleRxTx1HrMax
  healthModuleMemoryLatest
  healthModuleMemory1MinAvg
  healthModuleMemory1HrAvg
  healthModuleMemory1HrMax
  healthModuleCpuLatest
  healthModuleCpu1MinAvg
  healthModuleCpu1HrAvg
  healthModuleCpu1HrMax
```

---

## show health all

Displays health statistics for a specified resource on all *active NI modules* installed in the chassis.

**show health all {memory | cpu | rx | txrx}**

---

### Syntax Definitions

<b>memory</b>	Displays the RAM memory health statistics for all active NI modules in the switch.
<b>cpu</b>	Displays the CPU health statistics for all active NI modules.
<b>rx</b>	Displays the health statistics for traffic <i>received</i> on all active NI modules.
<b>txrx</b>	Displays the health statistics for traffic both <i>transmitted and received</i> on all active NI modules.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show health all memory
* - current value exceeds threshold
```

Memory	Limit	Curr	1 Min Avg	1 Hr Avg	1 Hr Max
01	80	40	40	40	40
02	80	40	40	40	40
03	80	40	40	40	40
04	80	40	40	40	40
05	80	40	40	40	40
06	80	40	40	40	40
07	80	40	40	40	40
13	80	40	40	40	40

*output definitions*


---

<b>Memory (Cpu, TXX, RX)</b>	A list of all currently-active NI modules (i.e., active slots) on the switch. The column header corresponds with the resource keyword entered. For example, if <b>show health all cpu</b> is entered, <b>Cpu</b> is used as the column header.
<b>Limit</b>	Current usage threshold for the specified resource type, on the corresponding slot (in percent). The usage threshold refers to the maximum amount of the resource's total bandwidth that can be used by switch applications before a notification is sent to the user. The default value for all resource types is 80 percent. This threshold can be changed via the <b>health threshold</b> command.
<b>Curr</b>	Current usage of the resource on the corresponding slot, in percent (i.e., the amount of the resource's total bandwidth actually being used by switch applications).
<b>1 Min Avg</b>	Average usage of the resource on the corresponding slot over a one minute period.
<b>1 Hr Avg</b>	Average usage of the resource on the corresponding slot over a one hour period.
<b>1 Hr Max</b>	The highest average hourly usage for the resource on the corresponding slot.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

**show health**

Displays the health statistics for the switch.

**health threshold**

Configures thresholds for input traffic (RX), output/input traffic (TX/RX), memory usage, CPU usage, and chassis temperature.

**MIB Objects**

```
healthModuleTable
  healthModuleSlot
  healthModuleRxLatest
  healthModuleRx1MinAvg
  healthModuleRx1HrAvg
  healthModuleRx1HrMax
  healthModuleRxTxLatest
  healthModuleRxTx1MinAvg
  healthModuleRxTx1HrAvg
  healthModuleRxTx1HrMax
  healthModuleMemoryLatest
  healthModuleMemory1MinAvg
  healthModuleMemory1HrAvg
  healthModuleMemory1HrMax
  healthModuleCpuLatest
  healthModuleCpu1MinAvg
  healthModuleCpu1HrAvg
  healthModuleCpu1HrMax
```

---

## show health slice

Displays the health statistics for a particular slice. The term *slice* refers to an amount of CPU time and RAM memory allotted for switch applications. By monitoring slice statistics on the switch, users can determine whether there are any potential usage issues with CPU and RAM memory that may affect switch multi-tasking.

**show health slice** *slot*

---

### Syntax Definitions

*slot* A specific physical slot number for which slice statistics are to be displayed (e.g., 3).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show health slice 13
Slot 13      slice
Resources    1
-----+-----
Memory      40
Cpu         21
```

### *output definitions*

---

<b>Slot</b>	The physical slot number for the corresponding slice.
<b>slice</b>	The on-board slice number (1–64).
<b>Memory</b>	The slice-level RAM memory utilization over the latest sample period, in percent (0–100).
<b>Cpu</b>	The slice-level CPU utilization over the latest sample period, in percent (0–100).

---

### Release History

Release 6.1; command was introduced.

### Related Commands

N/A

## **MIB Objects**

```
healthSliceTable
  healthSliceSlot
  healthSliceSlice
  healthSliceMemoryLatest
  healthSliceCpuLatest
```

---



## show health fabric

Displays the health statistics of a fabric for a particular slot or a range of slots.

**show health fabric** *slot 1[-slot2]*

---

### Syntax Definitions

*slot* A specific physical slot number for which fabric statistics are to be displayed (e.g., 3).

*slot2* Last fabric slot number in a range of slots you want to display.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show health fabric 3
* - current value exceeds threshold
```

```
Slot 03
Fabric          Limit  Curr  1 Min  1 Hr  1 Hr
                +-----+-----+-----+-----+-----+
                |         |         |         |         |         |
Receive
  Primary       80      00     00     00     00
  Secondary     80      00     00     00     00
Transmit/Receive
  Primary       80      00     00     00     00
  Secondary     80      00     00     00     00
```

### output definitions

---

<b>Slot</b>	The physical slot number for the corresponding fabric.
<b>Limit</b>	Currently configured device threshold levels (percentage of total available bandwidth or temperature measured in degrees Celsius).
<b>Curr</b>	Current device bandwidth usage or temperature (measured in degrees Celsius).
<b>1 Min Avg</b>	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-minute period.

*output definitions (continued)*

---

<b>1 Hr Avg</b>	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-hour period.
<b>1 Hr Max</b>	Maximum device bandwidth usage or temperature (measured in degrees Celsius) over a 1-hour period (i.e., the maximum of the 1 minute averages).

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

N/A

**MIB Objects**

```
healthFabricTable
  healthFabricSlot
  healthFabricPrimaryRxLatest
  healthFabricPrimaryRx1MinAvg
  healthFabricPrimaryRx1HrAvg
  healthFabricPrimaryRx1HrMax
  healthFabricPrimaryRxTxLatest
  healthFabricPrimaryRxTx1MinAvg
  healthFabricPrimaryRxTx1HrAvg
  healthFabricPrimaryRxTx1HrMax
  healthFabricSecondaryRxLatest
  healthFabricSecondaryRx1MinAvg
  healthFabricSecondaryRx1HrAvg
  healthFabricSecondaryRx1HrMax
  healthFabricSecondaryRxTxLatest
  healthFabricSecondaryRxTx1MinAvg
  healthFabricSecondaryRxTx1HrAvg
  healthFabricSecondaryRxTx1HrMax
```

---

# 53 CMM Commands

The Chassis Management Module (CMM) CLI commands allow you to manage switch software files in the working directory, the certified directory, and the running configuration.

MIB information for the CMM commands is as follows:

*Filename:* AlcatelIND1Chassis.mib  
*Module:* ALCATEL-IND1-CHASSIS-MIB

*Filename:* AlcatelIND1ConfigMgr.mib  
*Module:* ALCATEL-IND1-CONFIG-MGR-MIB DEFINITIONS

*Filename:* AlcatelIND1System\_mib  
*Module:* ALCATEL-IND1-SYSTEM-MIB

A summary of available commands is listed here:

---

**reload**  
**reload working**  
**reload issu**  
**write memory**  
**write memory flash-synchro**  
**copy working certified**  
**copy flash-synchro**  
**takeover**  
**show running-directory**  
**show reload**  
**show microcode**  
**show microcode history**  
**show microcode issu**  
**usb**  
**usb auto-copy**  
**usb disaster-recovery**  
**mount**  
**umount**  
**show usb statistics**

---

## reload

Reboots the CMM to its startup software configuration.

**reload** [**primary** | **secondary**] [**with-fabric**] [**in** [*hours:*] *minutes* | **at** *hour:minute* [*month day* | *day month*]]

**reload** [**primary** | **secondary**] [**with-fabric**] **cancel**

---

### Syntax Definitions

<b>primary</b>   <b>secondary</b>	Reboot the primary or secondary CMM to its startup software configuration. If the primary CMM is already running the startup version, a primary reboot will result in a secondary takeover.
<b>with-fabric</b>	Performs a complete CMM reload. This parameter is available only on OmniSwitch chassis-based series switches.
<b>in</b> [ <i>hours:</i> ] <i>minutes</i>	Optional syntax. Schedules a reload of the software to take effect in the specified minutes or hours and minutes within the next 24 hours.
<b>at</b> <i>hour:minute</i>	Optional syntax. Schedules a reload of the software to take place at the specified time using a 24-hour clock. If you do not specify the month and day, the reload takes place at the specified time on the current day provided the specified time is later than the time when the CLI command is issued. If the specified time is earlier than the current time, the reload will take place on the following day.
<i>month day</i>   <i>day month</i>	The name of the month and the number of the day for the scheduled reload. Specify a month name and the day number. It is unimportant if the month or day is first. See examples below for further explanation.
<b>cancel</b>	Cancels a pending time delayed reboot.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command causes the specified CMM to reboot. If no CMM is specified, the primary CMM reboots.
- The CPM, CFM and CPU of CMM can be reset independently.
- If a reload command is issued and the local/remote fabric module is in up state, only the CPM will be reset.
- If a reload command is issued and the local/remote fabric module is in a down state, then the complete CMM will be reloaded.

- If a reload command is issued, and another reload is currently scheduled, a message appears informing the user of the next reload time and asks for confirmation to change to the new reload time.
- If the switch has a redundant CMM and the primary CMM is rebooted, the switch will fail over to the secondary CMM. For more information on CMM failover, see “Managing CMM Directories” in the *OmniSwitch AOS Release 6 Switch Management Guide*.
- If the switch is part of a stack with three or more switches, the next switch in “idle” mode becomes the secondary CMM, and the original primary CMM becomes “idle.” For more information on stacks, see the appropriate *Hardware Users Guide*. The **cancel** keyword stops a pending reboot.
- This command can also be used on the secondary CMM.

## Examples

```
-> reload
-> reload primary
-> reload primary with-fabric
-> reload primary in 15:25
-> reload primary at 15:25 august 10
-> reload primary at 15:25 10 august
```

## Release History

Release 6.1; command was introduced.

## Related Commands

### [reload working](#)

Immediate primary CMM reboot to the working software configuration without secondary CMM takeover.

## MIB Objects

```
chasEntPhysicalTable
  csEntPhysicalIndex
  chasEntPhysAdminStatus
chasControlRedundantTable
  chasControlDelayedRebootTimer
```

---

## reload working

Immediately reboots the primary CMM from the working directory. There is no CMM fail over during this reboot, causing a loss of switch functionality during the reboot. All NIs reboot as well, including the secondary CMM.

**reload working** {**rollback-timeout** *minutes* / **no rollback-timeout**} [**in** [*hours:*] *minutes* | **at** *hour:minute*]

---

### Syntax Definitions

<b>rollback-timeout</b> <i>minutes</i>	Sets a timeout period, in minutes. The switch immediately reboots from the working directory and then at the end of this time period, automatically reboots again from the certified directory. The range is 1–15.
<b>no rollback-timeout</b>	Specifies no timeout to rollback. If the command is issued with this keyword, then the switch will continue to run from the working directory until manually rebooted.
<b>in</b> [ <i>hours:</i> ] <i>minutes</i>	Optional syntax. Schedules a reload of the working directory to take effect in the specified minutes or hours and minutes within the next 24 hours.
<b>at</b> <i>hour:minute</i>	Optional syntax. Schedules a reload of the working directory to take place at the specified time using a 24-hour clock. If you do not specify the month and day, the reload takes place at the specified time on the current day provided the specified time is later than the time when the CLI command is issued. If the specified time is earlier than the current time, the reload will take place on the following day.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used to reload the primary CMM from the working directory as opposed to the certified CMM. The working directory reload takes place immediately unless a time frame is set using the **in** or **at** keywords.
- The **in** or **at** keywords allow you to schedule a working reload sometime in the future. A schedule working reboot is called an **activate**.
- If a reload or an immediate working reload is initiated before a scheduled activate is enacted, a message appears displaying the number of seconds until the scheduled activate and if it should be overridden.
- If a timeout is set, the switch reboots again after the set number of minutes, from the certified directory. The reboot can be halted by issuing a cancel order as described in the **reload** command.

- If the switch is a part of a stack, using this command synchronizes the working directories of all the switches in the stack to the working directory of the primary CMM switch.

### Examples

```
-> reload working rollback-timeout 5
-> reload working no rollback-timeout
-> reload working no rollback-timeout in 50
-> reload working rollback-timeout 10 at 12:50
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**reload** Reboots the CMM to its startup software configuration.

### MIB Objects

```
chasControlModuleTable
  csEntPhysicalIndex
  chasControlActivateTimeout
```

---

## reload issu

Upgrades the system with the images stored in the /flash/issu directory with minimal disruption to the data traffic.

**reload issu** [*in* [*hours:*] *minutes* | *at* *hour:minute*]

---

### Syntax Definitions

<b>in</b> [ <i>hours:</i> ] <i>minutes</i>	Optional syntax. Schedules a reload of the primary CMM to take effect in the specified minutes or hours and minutes within the next 24 hours.
<b>at</b> <i>hour:minute</i>	Optional syntax. Schedules a reload of the primary CMM to take place at the specified time using a 24-hour clock.

### Defaults

By default, the switch starts copying the image files to the working directory of the primary CMM immediately after issuing the command if no time delay is specified.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- The switch must be running an In-Service Software Upgrade (ISSU) capable build, which is only those builds that are part of the ‘S##’ branch (for example, 6.4.1.###.S01).
- The primary and secondary CMMs should be fully synchronized, certified, redundant, and running an ISSU capable ‘S##’ build, such as 6.4.1.123.S01, to invoke the ISSU feature.
- Before using this command, create an ISSU directory on the switch flash (for example, /flash/issu), then download the “S###” image files into this directory.
- Image files used for the upgrade must be within the same ‘S##’ branch to perform an ISSU upgrade. For example, 6.4.1.###.S02 image files cannot be used to upgrade a switch running 6.4.1.###.S01.
- There are four image files that are ISSU capable: **Jbase.img**, **Jsecu.img**, **Jadvrout.img** and **Jos.img**.
- Admin user privileges are required to invoke the ISSU feature.
- A minimum of 25MB flash space is required on the switch to accommodate all the image files needed for the upgrade.
- Once the images are upgraded, use the **copy working certified flash-synchro** command to restore redundancy between the Primary and Secondary CMM.

### Examples

```
-> reload issu
-> reload issu in 45
-> reload issu at 09:25
```



## Release History

Release 6.4.1; command was introduced

## Related Commands

<a href="#">reload</a>	Reboots the CMM to its startup software configuration
<a href="#">reload working</a>	Immediate primary CMM reboot to the working software configuration without secondary CMM takeover.
<a href="#">show microcode issu</a>	Displays the microcode version information of the images in the ISSU directory.

## MIB Objects

```
chasControlModuleTable
  chasControlVersionMngt
  chasGlobalcontrolDelayedActivatetimer
```

---

## copy running-config working

Copies the running configuration (RAM) to the working directory.

[configure] copy running-config working

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used to copy the changes made using the CLI commands from the running configuration (RAM) to the working directory.
  - This command is only valid if the switch is running from the working directory. Use the [show running-directory](#) command to check from where the switch is running.
  - This command performs the same function as the [write memory](#) command.
- 

**Note.** The saved `boot.cfg` file will be overwritten if the [takeover](#) command is executed after the [write memory](#) commands, in an OmniSwitch set up with redundant CMMs.

---

### Examples

```
-> configure copy running-config working
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [write memory](#)

Copies the running primary RAM version of the CMM software to the working primary flash.

### [copy flash-synchro](#)

Copies the startup primary flash version of the CMM software to the startup secondary flash version of the CMM software.

## MIB Objects

chasControlModuleTable  
  csEntPhysicalIndex  
  chasControlVersionMngt

---

---

## write memory

Copies the running configuration (RAM) to the working directory.

**[configure] write memory**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used to copy the changes made using the CLI commands from the running configuration (RAM) to the working directory.
- This command is only valid if the switch is running from the working directory. Use the [show running-directory](#) command to check from where the switch is running.

---

**Note.** On an OmniSwitch set up with redundant CMMs, the saved **boot.cfg** file will be overwritten if the [takeover](#) command is executed after the **write memory** command.

---

### Examples

```
-> configure write memory
-> write memory
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[copy flash-synchro](#)

Copies the startup primary flash version of the CMM software to the startup secondary flash version of the CMM software.

### MIB Objects

```
configManager
  configWriteMemory
```

---

## write memory flash-synchro

Copies the running configuration (RAM) to the working directory, certifies the primary CMM and synchronizes the primary and secondary CMM.

**[configure] write memory flash-synchro**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is a combination of the ‘write memory’ and ‘copy working certified flash-synchro’ commands and does the following:
  - 1 Copies the running configuration (RAM) to the working directory.
  - 2 Overwrites the contents of the certified directory on the primary CMM with the contents of the working directory on the primary CMM.
  - 3 Synchronizes the primary and secondary CMMs.
- This command is only valid if the switch is running from the working directory. Use the [show running-directory](#) command to check from where the switch is running.

### Examples

```
-> write memory flash-synchro
```

### Release History

Release 6.3.4; command was introduced.

### Related Commands

[write memory](#)

Copies the running configuration (RAM) to the working directory.

[copy flash-synchro](#)

Copies the startup primary flash version of the CMM software to the startup secondary flash version of the CMM software.

## **MIB Objects**

configManager

configWriteMemory

---

## copy working certified

Copies the working directory version of the CMM software to the certified directory, on the primary CMM. This command also allows you to synchronize the primary and secondary CMMs.

[configure] copy working certified [flash-synchro]

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used to overwrite the contents of the certified directory with the contents of the working directory. This should only be done if the contents of the working directory have been verified as the best version of the CMM files.
- The **flash-synchro** keyword, when used with the **copy certified working** command, synchronizes the files between the primary and secondary CMMs by overwriting the contents of the secondary CMM certified directory with the contents of the primary CMM certified directory. If the switch is part of a stack, all switches in the stack are updated with the primary CMM files.
- In order for this command to work, the amount of free space in flash must equal the size of the files being copied. If there isn't enough free space, the copy attempt will fail and an error message is generated. Only image files, the boot.cfg file, and the certs.pem file should be kept in the working directory.
- This command will not work if the switch is running from the certified directory. To view where the switch is running from, see the [show running-directory](#) command.

### Examples

```
-> copy working certified  
-> copy working certified flash-synchro
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### **copy working certified**

Copies the running primary RAM version of the CMM software to the working primary flash. Or copy the startup primary flash version of the CMM software to the working primary flash.

### **copy flash-synchro**

Copies the startup primary flash version of the CMM software to the startup secondary flash version of the CMM software.

## MIB Objects

```
chasControlModuleTable  
  csEntPhysicalIndex  
  chasControlVersionMngt
```

---



## copy flash-synchro

Copies the certified directory version of the primary CMM software to the certified directory of the secondary CMM.

[configure] copy flash-synchro

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command is used to synchronize the certified directories of the primary and secondary CMMs. The two CMMs must be in synchronization if a fail over occurs, otherwise switch performance is lost.
- If the switch is part of a stack, all switches in the stack are updated with the primary CMM files.

### Examples

```
-> copy flash-synchro  
-> configure copy flash-synchro
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### [copy working certified](#)

Copies the working primary flash version of the CMM software to certified primary flash. Or copies the working primary flash version of the CMM software to startup secondary flash.

### MIB Objects

```
chasControlModuleTable  
  csEntPhysicalIndex  
  chasControlVersionMngt
```

---



## Examples

```
-> takeover  
-> takeover with-fabric
```

## Release History

Release 6.1; command was introduced.

## Related Command

**reload** Reboots the CMM to its startup software configuration.

## MIB Objects

```
chasEntPhysicalTable  
  csEntPhysicalIndex  
  chasEntPhysAdminStatus
```

---

## show running-directory

Shows the directory from where the switch was booted.

**show running-directory**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Once a switch has booted and is running, it will run either from the working or certified directory. If running from the certified, changes made to the running configuration using CLI commands cannot be saved. A switch must be running from the working directory in order to save the current running configuration.
- This command can also be used on the secondary CMM.

### Examples

The following is an example of the display on OmniSwitch 6850 Series switches:

```
-> show running-directory
```

```
CONFIGURATION STATUS
  Running CMM           : PRIMARY,
  CMM Mode              : DUAL CMMs,
  Current CMM Slot     : 1,
  Running configuration : WORKING,
  Certify/Restore Status : CERTIFY NEEDED
SYNCHRONIZATION STATUS
  Flash Between CMMs   : SYNCHRONIZED,
  Running Configuration : NOT AVAILABLE,
  Stacks Reload on Takeover: ALL STACKs (SW Activation)
```

#### *output definitions*

---

<b>Running CMM</b>	The CMM currently controlling the switch, either PRIMARY or SECONDARY.
<b>CMM Mode</b>	Displays whether the primary and secondary CMMs are synchronized. In the case that there is no secondary CMM, MONO-CMM-CHASSIS is shown.
<b>Current CMM Slot</b>	The slot number of the primary CMM.

*output definitions (continued)*

<b>Running Configuration</b>	Where the switch is running from, either WORKING or CERTIFIED. A switch running from the certified directory will not be able to manipulate files in the directory structure.
<b>Certify/Restore Status</b>	Indicates if the CM has been certified (i.e., the Working directory matches the Certified directory).
<b>Flash Between CMMs</b>	Displays whether the Working and Certified directories are the same.
<b>NIs Reload On Takeover Stacks Reload on Takeover</b>	Displays how many Network Interface (NI) modules or switches in a stack will be reloaded in the event of a management module takeover. Options include NONE, ALL, or a list of specific NIs. If there are <i>no</i> unsaved configuration changes <i>and</i> the flash directories on both the primary and secondary management modules have been synchronized via the <b>copy flash-synchro</b> command, no NIs will be reloaded if a management module takeover occurs. As a result, data flow is not interrupted on the NIs during the takeover. If a configuration change is made to one or more NI modules (e.g., a VLAN is configured on several different interfaces), and <i>the changes are not saved via the write memory</i> command, the corresponding NIs will automatically reload if a management module takeover occurs. Data flow on the affected NIs will be interrupted until the reload is complete. Note that the NIs will reload whether or not the flash synchronization status shows SYNCHRONIZED. This is because the unsaved changes have occurred in the running configuration (i.e., RAM), and have not been written to the flash directory's configuration file. In this case, a list of only the affected NIs displays in the table output (e.g., 1 6 9 12). If the flash directories on the primary and secondary management modules are <i>not synchronized</i> (e.g., a <b>copy flash-synchro</b> command has not been issued recently), all NIs will be reloaded automatically if a management module takeover occurs. Data flow will be interrupted on all NIs until the reload is complete.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>reload</b>	Reboots the CMM to its startup software configuration.
<b>write memory</b>	Copies the running configuration (RAM) to the working directory.
<b>copy flash-synchro</b>	Copies the certified directory version of the primary CMM software to the certified directory of the secondary CMM.

**MIB Objects**

```
chasControlModuleTable
  chasControlRunningVersion
  chasControlActivateTimeout
  chasControlVersionMngt
  chasControlDelayedActivateTimer
  chasControlCertifyStatus
```

`chasControlSynchronizationStatus`

---

## show reload

Shows the status of any time delayed reboot(s) that are pending on the switch.

**show reload** [status]

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- It is possible to preset a reboot on a CMM by using the **reload** command. If this is done, use the **show reload** command to see when the next scheduled reboot will occur.
- If the **reload working** command was used, and a rollback timeout was set, the time the rollback will occur is shown using the **show reload** command.
- This command can also be used on the secondary CMM.

### Examples

```
-> show reload status
Primary   Control Module Reload Status: No Reboot Scheduled,
Secondary Control Module Reload Status: No Reboot Scheduled
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**reload** Reboots the primary or secondary CMM to its startup software configuration.

**reload working** Immediate primary CMM reboot to the working software configuration without secondary CMM takeover.

## show microcode

Displays microcode versions installed on the switch.

**show microcode** [**working** | **certified** | **loaded**]

---

### Syntax Definitions

<b>working</b>	Specifies the switch's working directory; only microcode information from the working directory will be displayed.
<b>certified</b>	Specifies the switch's certified directory; only microcode information from the certified directory will be displayed.
<b>loaded</b>	Specifies that only loaded (i.e., currently-active) microcode versions will be displayed. Idle microcode versions will not be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If no additional parameters are entered (i.e., **working**, **certified**, or **loaded**), microcode information for the running configuration will be displayed.
- This command can also be used on the secondary CMM.

### Examples

```
-> show microcode
Package           Release           Size           Description
-----+-----+-----+-----
Jbase.img         6.1.1.403.R01    10520989      Alcatel-Lucent Base Software
Jos.img           6.1.1.403.R01    1828255       Alcatel-Lucent OS
Jadvrout.img      6.1.1.403.R01    1359435       Alcatel-Lucent Advanced Routing
```



*output definitions*

---

<b>Package</b>	File name.
<b>Release</b>	Version number.
<b>Size</b>	File size.
<b>Description</b>	File description.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show microcode history](#) Displays the archive history for microcode versions installed on the switch.

---

## show microcode history

Displays the archive history for microcode versions installed on the switch.

**show microcode history** [**working** | **certified**]

---

### Syntax Definitions

**working** The history for the working directory's microcode will be displayed.

**certified** The history for the certified directory's microcode will be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6850, 6850E, 6855, 9000E

### Usage Guidelines

If no additional parameters are entered (i.e., **working** or **certified**), the microcode history for the running directory will be displayed.

### Examples

```
-> show microcode history
Archive Created 8/27/05 23:45:00
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show microcode](#) Displays microcode versions installed on the switch.

---

## show microcode issu

Displays the microcode version information of the images in the ISSU directory of the flash memory.

**show microcode issu**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

N/A

### Examples

```
-> show microcode issu
  Package           Release           Size           Description
-----+-----+-----+-----
jos.img            6.4.1.733.S01    1854193        Alcatel-Lucent OS
jsecu.img          6.4.1.733.S01    472002         Alcatel-Lucent Security
jadvrout.img       6.4.1.733.S01    2649893        Alcatel-Lucent Advanced Routing
jbase.img          6.4.1.733.S01    14195061       Alcatel-Lucent Base Software
```

### *output definitions*

---

<b>Package</b>	File name.
<b>Release</b>	Version number.
<b>Size</b>	File size.
<b>Description</b>	File description.

---

### Release History

Release 6.4.1; command was introduced.

## Related Commands

<a href="#">reload issu</a>	Upgrades the working directory of the primary CMM with minimal disruption to the data traffic.
<a href="#">show microcode</a>	Displays microcode versions installed on the switch.
<a href="#">show microcode history</a>	Displays the archive history for microcode versions installed on the switch.

## MIB Objects

systemMicrocodeTable  
  systemMicrocodeEntry

---

## usb

Enables access to the device connected to the USB port.

**usb {enable | disable}**

---

### Syntax Definitions

N/A

### Defaults

---

parameter	default
enable / disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Must use an Alcatel-Lucent certified USB device.
- If a Alcatel-Lucent certified USB device is connected after enabling the USB interface, the device will be automatically mounted as **/uflash**.
- Once mounted, common file and directory commands can be used for file management.

### Examples

```
-> usb enable
-> cp /flash/working/boot.cfg /uflash/boot.cfg
-> ls /uflash
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

#### MIB Objects

##### usb auto-copy

Allows backup image files from the USB device to be automatically copied to the /flash/working directory on the switch immediately after the USB device is connected

```
systemServices
  systemServicesUsbEnable
```

---

## usb auto-copy

Upgrades the image files from the USB device to the */flash/working* directory on the switch immediately after the USB device is connected.

**usb auto-copy {enable | disable}**

---

### Syntax Definitions

N/A

### Defaults

parameter	default
enable / disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The USB device must contain the proper file structure and image files mentioned below and the USB root directory must contain a signature file named *aossignature*. The *aossignature* file can be a blank text file transferred to the switch.
- This operation will enable all of the image files from the */uflash/6850/working*, */uflash/6855/working*, */uflash/6400/working* or */uflash/9000E/working* directory, based upon the platform performing the operation, to be copied to the */flash/working* directory and then reboot the switch.
- If the auto-copy is successful, the auto-copy feature will be disabled before rebooting the switch and must be re-enabled by the administrator for the next auto-copy process to execute. This will prevent running the same auto-copy multiple times.

### Examples

```
-> usb auto-copy enable  
-> usb auto-copy disable
```

### Release History

Release 6.4.3; command was introduced.

## Related Commands

**usb**

Enables access to the device connected to the USB interface.

## MIB Objects

systemServices

systemServicesUsbAutoCopyEnable

---

## usb disaster-recovery

Enables the disaster-recovery access to the USB device connected to the USB port when the switch is unable to boot properly.

**usb disaster-recovery** {enable | disable}

---

### Syntax Definitions

N/A

### Defaults

parameter	default
enable / disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The USB device must contain the proper file structure and image files mentioned below.
- If miniboot is unable to load AOS from the os.img file then the disaster-recovery operation will begin. The disaster recovery operation will format the switch flash, copy all of the files from the */uflash/6850/certified*, */uflash/6855/certified*, */uflash/6400/certified*, or */uflash/9000E/certified* directory, based upon the platform performing the operation, to the */flash/certified* directory and reboot the switch.
- Disaster recovery should be run on a standalone unit so that it does not affect any other units in a stack.
- A minimum 6.4.3 version of uboot/miniboot is required.

### Examples

```
-> usb disaster-recovery enable
-> usb disaster-recovery disable
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

**usb** Enables access to the device connected to the USB interface.

### MIB Objects

```
systemServices
  systemServicesUsbDisasterRecoveryEnable
```

---





## umount

Unmounts the /uflash file system from AOS.

**umount /uflash**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command unmounts the USB drive and should be used prior to unplugging the USB drive to prevent possible data corruption.

### Examples

```
-> umount /uflash
```

### Release History

Release 6.4.3; command was introduced.

### Related Commands

[mount](#) Mounts the /uflash file system from AOS.

### MIB Objects

```
systemServicesAction  
  systemServicesArg1
```

---

## show usb statistics

Displays the status USB setting and features.

**show usb statistics**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show usb statistics
USB:                               Disabled
USB auto-copy:                     Enabled
USB disaster-recovery:             Disabled
/uflash is not mounted
```

### *output definitions*

---

<b>USB</b>	Status of USB device interface.
<b>USB auto-copy</b>	Status of USB auto-copy feature.
<b>USB disaster-recovery</b>	Status of USB auto-copy feature.
<b>/uflash</b>	Whether the USB device is mounted or unmounted.

---

### Release History

Release 6.4.3; command was introduced.

### Related Commands

<b>usb</b>	Enables access to the device connected to the USB interface.
<b>usb auto-copy</b>	Allows backup files from the USB device to be automatically copied to the /flash/working directory on the switch immediately after the USB device is connected.
<b>usb disaster-recovery</b>	Enables the disaster-recovery access to the USB device connected to the interface.

**MIB Objects**

systemServices

  systemServicesUsbEnable

  systemServicesUsbAutoCopyEnable

  systemServicesUsbDisasterRecoveryEnable

---

# 54 Chassis Management and Monitoring Commands

Chassis Management and Monitoring commands allow you to configure and view hardware-related operations on the switch. Topics include basic system information, as well as Network Interface (NI) module and chassis management.

---

**Additional Information.** Refer to your separate *Hardware Users Guide* for detailed information on chassis components, as well as managing and monitoring hardware-related functions.

---

MIB information for the Chassis Management and Monitoring commands is as follows:

*Filename:* AlcatelIND1Chassis.mib  
*Module:* ALCATEL-IND1-CHASSIS-MIB

*Filename:* AlcatelIND1System.MIB  
*Module:* ALCATEL-IND1-SYSTEM-MIB

*Filename:* AlcatelIND1StackManager.MIB  
*Module:* ALCATEL-IND1-STACK-MANAGER-MIB

A summary of available commands is listed here:

---

<b>Management Commands</b>	<code>system contact</code> <code>system name</code> <code>system location</code> <code>system date</code> <code>system time</code> <code>system time-and-date synchro</code> <code>system timezone</code> <code>system daylight savings time</code> <code>update</code> <code>update lanpower</code> <code>reload ni</code> <code>reload all</code> <code>reload pass-through</code> <code>power ni</code> <code>temp-threshold</code> <code>stack set slot</code> <code>stack clear slot</code> <code>hash-control</code>
<b>Monitoring Commands</b>	<code>show system</code> <code>show hardware info</code> <code>show chassis</code> <code>show cmm</code> <code>show ni</code> <code>show module</code> <code>show module long</code> <code>show module status</code> <code>show power</code> <code>show fan</code> <code>show temperature</code> <code>show stack topology</code> <code>show stack status</code> <code>show hash-control</code>
<b>Licensing Commands</b>	<code>license apply</code> <code>show license info</code> <code>show license file</code>

---

## system contact

Specifies the switch's administrative contact. An administrative contact is the person or department in charge of the switch. If a contact is specified, users can easily find the appropriate network administrator if they have questions or comments about the switch.

**system contact** *text\_string*

---

### Syntax Definitions

*text\_string*

The administrative contact being specified for the switch. The system contact can range from 1 to 254 characters in length. Text strings that include spaces must be enclosed in quotation marks. For example, **"Jean Smith Ext. 477 jsmith@company.com"**.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> system contact "Jean Smith Ext. 477 jsmith@company.com"  
-> system contact engineering-test@company.com
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">system name</a>	Modifies the switch's current system name.
<a href="#">system location</a>	Specifies the switch's current physical location.
<a href="#">show system</a>	Displays the basic system information for the switch.

### MIB Objects

system  
    systemContact

---

## system name

Modifies the switch's current system name. The system name can be any simple, user-defined text description for the switch.

**system name** *text\_string*

---

### Syntax Definitions

*text\_string*

The new system name. The system name can range from 1 to 255 characters in length. Text strings that include spaces must be enclosed in quotation marks. For example, "**OmniSwitch 6850**".

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> system name "OmniSwitch 6850"  
-> system name OS-6850
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[system contact](#)

Specifies the switch's administrative contact (e.g., an individual or a department).

[system location](#)

Specifies the switch's current physical location.

[show system](#)

Displays the basic system information for the switch.

### MIB Objects

system

systemName

---



## system location

Specifies the switch's current physical location. If you need to determine the switch's location from a remote site, entering a system location can be very useful.

**system location** *text\_string*

---

### Syntax Definitions

*text\_string*

The switch's physical location. For example, **TestLab**. The system location can range from 1 to 254 characters in length. Text strings that include spaces must be enclosed in quotation marks. For example, **"NMS Test Lab"**.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

N/A

### Examples

```
-> system location "NMS Test Lab"  
-> system location TestLab
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                |                                                                                      |
|--------------------------------|--------------------------------------------------------------------------------------|
| <a href="#">system contact</a> | Specifies the switch's administrative contact (e.g., an individual or a department). |
| <a href="#">system name</a>    | Modifies the switch's current system name.                                           |
| <a href="#">show system</a>    | Displays the basic system information for the switch.                                |

### MIB Objects

```
system  
  systemLocation
```

---

## system date

Displays or modifies the switch's current system date.

**system date** [*mm/dd/yyyy*]

---

### Syntax Definitions

*mm/dd/yyyy*

The new date being specified for the system. Enter the date in the following format: *mm/dd/yyyy*, where *mm* is the month, *dd* is the day, and *yyyy* is the year. For example, **08/08/2005**.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If you do not specify a new system date in the command line, the current system date will be displayed.
- For more information on setting time zone parameters (e.g., Daylight Savings Time), refer to the [system timezone command on page 54-9](#).

### Examples

```
-> system date 08/08/2005
-> system date
08/08/2005
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[system time](#)

Displays or modifies the switch's current system time.

[system timezone](#)

Displays or modifies the time zone for the switch.

### MIB Objects

systemServices

systemServicesDate

---

## system time

Displays or modifies the switch's current system time.

**system time** [*hh:mm:ss*]

---

### Syntax Definitions

*hh:mm:ss*

The new time being specified for the system. To set this value, enter the current time in 24-hour format, where *hh* is the hour, *mm* is the minutes, and *ss* is the seconds. For example, **14:30:00**.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

If you do not specify a new system time in the command line, the current system time will be displayed.

### Examples

```
-> system time 14:30:00
-> system time
15:48:08
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[system date](#)

Displays or modifies the switch's current system date.

[system timezone](#)

Displays or modifies the time zone for the switch.

### MIB Objects

systemServices

systemServicesTime

---

## system time-and-date synchro

Synchronizes the time and date settings between primary and secondary CMMs.

**system time-and-date synchro**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- The **system time-and-date synchro** command applies only to switches with redundant CMM configurations.
- Synchronizing date and time settings is an important step in providing effective CMM failover for switches in redundant configurations. Be sure to periodically synchronize the primary and secondary CMMs using this command.
- For detailed redundancy information on OmniSwitch chassis-based switches refer to the “Chassis Management Module (CMM)” chapter in the *Hardware Users Guide* and “Managing CMM Directory Content” in the *OmniSwitch AOS Release 6 Switch Management Guide*. For stackable switches, refer to “Managing Stacks” in addition to “Managing CMM Directory Content”.

### Examples

```
-> system time-and-date synchro
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### [copy flash-synchro](#)

Copies the certified directory version of the primary CMM software to the certified directory of the secondary CMM.

### MIB Objects

systemServices

---

## system timezone

Displays or modifies the time zone for the switch.

**system timezone** [*timezone\_abbrev* | *offset\_value* | *time\_notation*]

---

### Syntax Definitions

*timezone\_abbrev*

Specifies a time zone for the switch and sets the system clock to run on UTC. Refer to the table below for a list of supported time zone abbreviations. If you specify a time zone abbreviation, the hours offset from UTC will be automatically calculated by the switch.

*offset\_value*

Specifies the number of hours offset from UTC. Values may range from -13 through +12. The switch automatically enables UTC. However, if you do not want your system clock to run on UTC, simply enter the offset +0 for the system time zone. This sets UTC to run on local time.

*time\_notation*

Specifies a non-integer time-notation offset for areas that are offset from UTC by increments of 15, 30, or 45 minutes (e.g., 05:30).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- To display the current time zone for the switch, enter the syntax **system timezone**.
- When Daylight Saving Time (DST)—also referred to as *summertime*—is enabled, the clock automatically sets up default DST parameters for the local time zone.
- Refer to the table below for a list of supported time zone abbreviations.

Abbreviation	Name	Hours from UTC	DST Start	DST End	DST Change
nzst	New Zealand	+12:00	1st Sunday in Oct. at 2:00 a.m.	3rd Sunday in Mar. at 3:00 a.m.	1:00
zp11	No standard name	+11:00	No default	No default	No default
aest	Australia East	+10:00	Last Sunday in Oct. at 2:00 a.m.	Last Sunday in Mar. at 3:00 a.m.	1:00
gst	Guam	+10:00	No default	No default	No default
acst	Australia Central Time	+09:30	Last Sunday in Oct. at 2:00 a.m.	Last Sunday in Mar. at 3:00 a.m.	1:00
jst	Japan	+09:00	No default	No default	No default
kst	Korea	+09:00	No default	No default	No default
awst	Australia West	+08:00	No default	No default	No default

Abbreviation	Name	Hours from UTC	DST Start	DST End	DST Change
zp8	China; Manila, Philippines	+08:00	No default	No default	No default
zp7	Bangkok	+07:00	No default	No default	No default
zp6	No standard name	+06:00	No default	No default	No default
zp5	No standard name	+05:00	No default	No default	No default
zp4	No standard name	+04:00	No default	No default	No default
msk	Moscow	+03:00	Last Sunday in Mar. at 2:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
eet	Eastern Europe	+02:00	Last Sunday in Mar. at 2:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
cet	Central Europe	+01:00	Last Sunday in Mar. at 2:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
met	Middle Europe	+01:00	Last Sunday in Mar. at 2:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
bst	British Standard Time	+00:00	Last Sunday in Mar. at 1:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
wet	Western Europe	+00:00	Last Sunday in Mar. at 1:00 a.m.	Last Sunday in Oct. at 3:00 a.m.	1:00
gmt	Greenwich Mean Time	+00:00	No default	No default	No default
wat	West Africa	-01:00	No default	No default	No default
zm2	No standard name	-02:00	No default	No default	No default
zm3	No standard name	-03:00	No default	No default	No default
nst	Newfoundland	-03:30	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
ast	Atlantic Standard Time	-04:00	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
est	Eastern Standard Time	-05:00	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
cst	Central Standard Time	-06:00	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
mst	Mountain Standard Time	-07:00	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
pst	Pacific Standard Time	-08:00	2nd Sunday in Mar. at 2:00 a.m.	1st Sunday in Nov. at 2:00 a.m.	1:00
akst	Alaska	-09:00	1st Sunday in Apr. at 2:00 a.m.	Last Sunday in Oct. at 2:00 a.m.	1:00
hst	Hawaii	-10:00	No default	No default	No default
zml1	No standard name	-11:00	No default	No default	No default

## Examples

```
-> system timezone mst
-> system timezone -7
-> system timezone +0
-> system timezone +12
-> system timezone 12
-> system timezone 05:30
-> system timezone 00:00 hour from UTC
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">system date</a>	Displays or modifies the switch's current system date.
<a href="#">system time</a>	Displays or modifies the switch's current system time.

## MIB Objects

```
systemServices
  systemServicesTimezone
  systemServicesTimezoneStartWeek
  systemServicesTimezoneStartDay
  systemServicesTimezoneStartMonth
  systemServicesTimezoneStartTime
  systemServicesTimezoneOffset
  systemServicesTimezoneEndWeek
  systemServicesTimezoneEndDay
  systemServicesTimezoneEndMonth
  systemServicesTimezoneEndTime
  systemServicesEnabledDST
```

---

## system daylight savings time

Enables or disabled Daylight Savings Time (DST) on the switch.

```
system daylight savings time [{enable | disable} | start {week} {day} in {month} at {hh:mm} end {week}
{day} in {month} at {hh:mm} [by min]]
```

---

### Syntax Definitions

<b>enable</b>	Enables DST. The switch clock will automatically adjust for DST as specified by one of the default time zone or by the specifications set with the system daylight savings time start command.
<b>disable</b>	Disables DST. The switch clock will not change for DST.
<b>start</b>	For non-default time zone, you can specify the <i>week</i> , <i>day</i> , <i>month</i> , and <i>hour</i> for DST to start. (You must also specify the <i>week</i> , <i>day</i> , <i>month</i> , and <i>hour</i> for DST to end.)
<b>end</b>	For non-default time zone, if you specify the week, day, month, and hour for DST to end, you must also specify the <i>week</i> , <i>day</i> , <i>month</i> , and <i>hour</i> for DST to end.
<i>week</i>	Indicate whether first, second, third, fourth, or last.
<i>day</i>	Indicate whether Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, or Saturday.
<i>month</i>	Indicate whether January, February, March, April, May, June, July, August, September, October, November, or December.
<i>hh:mm</i>	Use two digits between 00 and 23 to indicate hour. Use two digits between 00 and 59 to indicate minutes. Use as for a 24 hour clock.
<b>by min</b>	Use two digits to indicate the number of minutes your switch clock will be offset for DST. The range is from 00 to 50.

### Defaults

- By default, DST is disabled.
- Unless a different value is set with the **by** syntax, the system clock will offset one hour for DST.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- If your timezone shows a default value in the DST Start and DST End columns of the “Time Zone and DST Information Table” found in Chapter 2, “Managing System Files,” of the *OmniSwitch AOS Release 6 Switch Management Guide*, you do not need to set a start and end time. Your switch clock will automatically adjust for DST as shown in the table.



- You must enable DST whether you use a default DST timezone or if you specify your offset using the **daylight savings time start** syntax.
- Setting the start and end date and time for DST is only supported when a custom timezone is configured.

## Examples

```
-> system daylight savings time enable
-> system daylight savings time disable
-> system daylight savings time start first Sunday in May at 23:00 end last Sunday
in November at 10:00
-> system daylight savings time start first Sunday in May at 23:00 end last Sunday
in November at 10:00 by 45
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">system time</a>	Displays or modifies the switch's current system time.
<a href="#">system timezone</a>	Displays or modifies the timezone for the switch.
<a href="#">system date</a>	Displays or modifies the switch's current system date.

## MIB Objects

```
systemServices
  systemServicesTimezone
  systemServicesEnableDST
```

---

## update

Updates the versions of Uboot, FPGA, BootROM, or Miniboot. Refer to the Release Notes and/or any available Upgrade Instructions for the new release before performing this type of update on the switch.

**update** {uboot {cmm | ni {all | slot}} uboot-miniboot | fpga cmm | bootrom {all | slot} | [default | backup] miniboot [all | slot] }

---

### Syntax Definitions

<b>uboot</b>	Updates the uboot version.
<b>cmm</b>	Specifies that the update is performed for the Chassis Management Module (CMM). <i>Not supported on OmniSwitch 6850 switches</i>
<b>ni</b>	Specifies that the update is performed for the Network Interface (NI) Module.
<b>all</b>	Specifies that the update is performed for all slots within a chassis or all switches within a stack.
<i>slot</i>	Specifies the number of the NI module within a chassis or the switch number within a stack for which the update is performed.
<b>uboot-miniboot</b>	Updates the uboot <i>and</i> the miniboot version on all available slots within a chassis or on all available switches within a stack.
<b>fpga</b>	Updates the FPGA version. <i>Not supported on OmniSwitch 6850 switches.</i>
<b>miniboot</b>	Updates the miniboot version.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- On OmniSwitch chassis-based switches, the *slot* parameter is not allowed with the **cmm** parameter.
- Note that when performing an update, it is important that the correct update file is used and that the file is located in the **/flash** directory on the switch. Specifying the wrong file may impact the operation of the switch.
- A different update file is required depending on the type of switch and the type of update. The following table provides a list of the required update files:

OmniSwitch	Update Type	Update File
6400	Uboot	kuboot.bin
	Miniboot	gminiboot.uboot

OmniSwitch	Update Type	Update File
	Uboot and Miniboot	kuboot.bin gminiboot.uboot
	FPGA	Gfpga.upgrade_kit
6850	Uboot	kuboot.bin
	Uboot and Miniboot	kuboot.bin kminiboot.uboot
	Miniboot	kminiboot.uboot
6855	Uboot	kuboot.bin
	Miniboot	k2lminiboot.uboot
	Uboot and Miniboot	kuboot.bin k2lminiboot.uboot
	FPGA	K2lfpga.upgrade_kit
9000E	Uboot	uboot.bin
	Uboot and Miniboot	uboot.bin miniboot.uboot
	FPGA	Jfpga.upgrade_kit
	Miniboot	miniboot.uboot

## Examples

```
OS6850-> update uboot 3
OS6850-> update uboot-miniboot
OS6850-> update miniboot all
```

```
OS6855-> update uboot 1
OS6855-> update uboot-miniboot
OS6855-> update miniboot all
```

```
OS6400-> update uboot 2
OS6400-> update uboot-miniboot
OS6400-> update fpga cmm
OS6400-> update miniboot 3
```

## Release History

Release 6.1.1; command was introduced.

Release 6.1.2; *slot* and **bootrom** parameters were added.

Release 6.1.3; **uboot** support for OmniSwitch 6850 added; **uboot-miniboot** parameter added, *file\_path* parameter deprecated.

## Related Commands

### [reload all](#)

Reloads all the NIs and CMMs in a chassis.

## MIB Objects

systemServices

    systemServicesArg1

    systemServicesAction

---

## update lanpower

Uploads new firmware to the POE controller. Please contact your Alcatel-Lucent support representative before using this command.

**update lanpower** {*lanpower\_num* | **all**}

---

### Syntax Definitions

<i>lanpower_num</i>	The POE unit number to update.
<b>all</b>	Updates all POE units in the switch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

N/A

### Examples

```
-> update lanpower 3  
-> update lanpower all
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<a href="#">update</a>	Updates the versions of Uboot, FPGA, BootROM, or Miniboot.
------------------------	------------------------------------------------------------

---

## reload ni

Reloads (i.e., reboots) a specified Network Interface (NI) module.

**reload ni** [*slot*] *number*

---

### Syntax Definitions

<b>slot</b>	Optional command syntax.
<i>number</i>	Slot (i.e., switch) number within a stack that represents the NI module to be reloaded.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- On OmniSwitch chassis based switches, the **reload ni** command reboots only the specified NI. Other modules installed in the chassis, including primary and secondary CMMs, are not affected
- On OmniSwitch stackable series switches, the **reload ni** command reboots only the specified switch. However, if you use this command on a switch that has a primary CMM role in a stack, it will no longer be primary. Instead, it will be secondary in a two-switch stack and idle in a stack consisting of three or more switches.

### Examples

```
-> reload ni slot 2
-> reload ni 2
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>reload all</b>	Reloads all the NIs and CMMs in a chassis.
<b>power ni</b>	Turns the power on or off for a specified Network Interface (NI) module.
<b>show ni</b>	Shows the hardware information and the current status for Network Interface (NI) modules currently running in the chassis.

## MIB Objects

```
chasEntPhysicalTable  
  chasEntPhysAdminStatus  
  reset
```

---

## reload all

Reloads (i.e., reboots) all the Network Interfaces (NIs) and Chassis Management Module (CMMs) in an OmniSwitch chassis, a standalone switch, or all the switches in an OmniSwitch stack.

**reload all** [**in** [*hours:*] *minutes* | **at** *hour:minute* [*month day* / *day month*]]

**reload all cancel**

---

### Syntax Definitions

**in** [*hours:*] *minutes*

Optional syntax. Schedules a reload of all modules to take effect in the specified minutes or hours and minutes within the next 24 hours.

**at** *hour:minute*

Optional syntax. Schedules a reload of all modules to take place at the specified time using a 24-hour clock. If you do not specify the month and day, the reload takes place at the specified time on the current day provided the specified time is later than the time when the CLI command is issued. If the specified time is earlier than the current time, the reload will take place on the following day.

*month day* / *day month*

The name of the month and the number of the day for the scheduled reload. Specify a month name and the day number. It is unimportant if the month or day is first. See examples below for further explanation.

**cancel**

Cancels a pending time delayed reload.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

N/A

### Examples

```
-> reload all
```

### Release History

Release 6.1; command was introduced.



## Related Commands

<b>reload ni</b>	Reloads a specific NI module.
<b>power ni</b>	Turns the power on or off for a specified Network Interface (NI) module.
<b>show ni</b>	Shows the hardware information and current status for Network Interface (NI) modules currently running in the chassis.

## MIB Objects

```
chasEntPhysicalTable  
  chasEntPhysAdminStatus  
  reset
```

---

## reload pass-through

Reloads (i.e., reboots) a switch in a stackable configuration which has been forced into the pass-through mode. The pass-through mode is a state in which a switch has been assigned a slot number that is not available in the current stacked configuration. When a switch is in the pass-through mode, its Ethernet ports are brought down (i.e, they cannot pass traffic). However, its stacking ports are fully functional and can pass traffic through to other switches in the stack; in this way, pass-through mode provides a mechanism to prevent the stack ring from being broken.

---

**Note.** If a switch is forced into the pass-through mode, the rest of the virtual chassis (i.e., stack) will not be disrupted. Any elements in the stack *not* operating in pass-through mode continue to operate normally.

---

**reload pass-through** *slot-number*

---

### Syntax Definitions

*slot-number*

The virtual chassis slot number of the switch currently in the pass-through mode (1001–1008). For more information on pass-through slot numbering, refer to the “Usage Guidelines” section below.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- Switches in the pass-through mode are given distinct slot numbers. These slot numbers are *not* related to their position in the stack. Instead, they are assigned the prefix “100,” followed by the numerical order in which they were forced into pass-through. In other words, if only one switch in a stack is forced into the pass-through mode, it is given the slot number 1001. If multiple switches in a stack are forced into pass-through, the first switch in pass-through is given the slot number 1001, the second switch is given the slot number 1002, the third switch is given the slot number 1003, etc.
- Before issuing the **reload pass-through** command, be sure that the corresponding switch has been given a unique *saved slot* number. The saved slot number is the slot number the switch will assume after it has been rebooted. If the saved slot number is not unique, the switch will simply return to pass-through mode. To view the current and saved slot numbers for all switches in a stack, use the [show stack topology](#) command. To assign a unique saved slot number to a switch before rebooting, use the [stack set slot](#) command.

### Examples

```
-> reload pass-through 1001
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show stack topology](#)

Displays the current operating topology of switches within a stack.

[stack set slot](#)

Assigns a new saved slot number to a switch in a stacked configuration.

## MIB Objects

alaStackMgrChassisTable

    alaStackMgrSlotNINumber

    alaStackMgrCommandAction

    reloadPassThru

---

## power ni

Turns the power on or off for a specified Network Interface (NI) module.

**power ni** [slot] *slot-number*

**no power ni** [slot] *slot-number*

---

### Syntax Definitions

<b>slot</b>	Optional command syntax.
<i>slot-number</i>	The chassis slot number containing the NI module being powered on or off.

### Defaults

N/A

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use the **no** form of this command to power off an NI module.
- This command is not supported on OmniSwitch stackable switches.

### Examples

```
-> no power ni 1  
-> power ni 1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">reload ni</a>	Reloads (i.e., reboots) a specified Network Interface (NI) module.
<a href="#">show ni</a>	Shows the hardware information and current status for Network Interface (NI) modules currently running in the chassis.

### MIB Objects

```
chasEntPhysicalTable  
  chasEntPhysAdminStatus  
  powerOn  
  powerOff
```

---

## temp-threshold

Sets the warning temperature threshold for the switch.

**temp-threshold** *temp slot slot-number*

---

### Syntax Definitions

<i>temp</i>	The new temperature threshold value, in Celsius.
<i>slot-number</i>	The chassis slot number for which the warning temperature threshold is set. <i>This parameter is supported only on stackable switches.</i>

### Defaults

Refer to the appropriate *Hardware Users Guide* for platform specific temperature values.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- Use the [show temperature](#) command to display the current value for the temperature warning threshold.
- Do not use the [show health threshold](#) command as it does not display temperature threshold information.

### Examples

```
-> temp-threshold 45
-> temp-threshold 55 slot 2
```

### Release History

Release 6.1; command was introduced.

Release 6.1.5; **slot** parameter added.

### Related Commands

[show temperature](#) Displays the current operating chassis ambient temperature, as well as current temperature threshold settings.

### MIB Objects

```
chasChassisTable
  chasTempThreshold
```

---

## stack set slot

Sets the *saved slot* number or mode for stackable configuration switches. The saved slot number is the slot position the switch will assume following a reboot. The **stack set slot** command also provides syntax for immediately rebooting the corresponding switch.

**stack set slot** *slot-number* {**saved-mode** {**OS6850E** / **OS6850**} | **saved-slot** *slot-number* [**reload**]}

---

### Syntax Definitions

<i>slot-number</i>	The current slot position used by the switch (1–8; 1001–1008). Note that the valid slot number range also includes slot positions 1001 through 1008, reserved for switches in pass-through mode.
<b>OS6850E</b> / <b>OS6850</b>	The stacking mode of the OS6850E.
<i>saved-slot-number</i>	The new (i.e., saved) slot number (1–8). The saved slot number is the slot position the switch will assume following a reboot.
<b>reload</b>	Optional command syntax. When <b>reload</b> is entered in the command line, a confirmation prompt is issued. If the user approves the reload, the corresponding switch will be rebooted immediately and the new (i.e., saved) slot number will take effect when the switch comes back up—barring any pass-through mode conditions, such as duplicate slot numbers. This parameter is not supported when changing the mode.

### Defaults

parameter	default
<b>saved-mode</b> (Only supported on OS6850E Models)	6850

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- When the **stack set slot** command is issued, the new saved slot value is written to the **boot.slot.cfg** file. This file is located in the switch's /flash directory and is used when assigning a slot number for the switch during the boot process.
- In order to avoid duplicate slot numbers within the virtual chassis—which can force one or more switches into pass-through mode—be sure that the saved slot number being configured is not already being used by another switch in the stack. To view the saved slot numbers currently assigned, use the **show stack topology** command. For detailed information on assigning saved slot numbers, as well as information on pass-through mode, refer to the *Hardware Users Guide*.
- Changing the mode is only supported on OS6850E models. Mode must be set to **OS6580** when stacking with OS6580 switches and **OS6850E** when stacking with OS6855-U24X switches.

## Examples

```
-> stack set slot 2 saved-slot 3
-> stack set slot 1001 saved-slot 4 reload
-> stack set slot 1 saved-mode 6850E
```

## Release History

Release 6.1; command was introduced.

Release 6.4.4; **saved-mode** parameter was added.

## Related Commands

- |                                     |                                                                                                 |
|-------------------------------------|-------------------------------------------------------------------------------------------------|
| <a href="#">stack clear slot</a>    | Clears the current saved slot information for a switch within a stackable switch configuration. |
| <a href="#">show stack topology</a> | Displays the current operating topology of switches within a stack.                             |

## MIB Objects

```
alaStackMgrChassisTable
  alaStackMgrSlotNINumber
  alaStackMgrSavedSlotNINumber
  alaStackMgrCommandAction
  alaStackMgrCommandStatus
```

---

## stack clear slot

Clears the current saved slot information for a switch within a stacked configuration. When the saved slot information has been cleared via the **stack clear slot** command, the corresponding switch will automatically be assigned a unique slot number following a reboot.

**stack clear slot** *slot-number*

---

### Syntax Definitions

*slot-number*

The current slot position used by the switch (1–8; 1001–1008). Note that the valid slot number range also includes slot positions 1001 through 1008, reserved for switches in pass-through mode.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- When the **stack clear slot** command is issued, the **boot.slot.cfg** file is immediately removed from the switch's /flash directory. As a result, no slot assignment information will be found the next time the switch is booted. Because the switch's slot will be considered *undefined* during the boot process, the switch is automatically assigned a unique slot number.
- Primary and secondary management modules *cannot* be forced into pass-through mode using the **stack clear slot** command. If the user attempts to force the secondary management module into pass-through, the secondary switch will reboot and assume idle status when it comes back up. Meanwhile, an idle switch within the stack is selected and rebooted; when it comes up it assumes the secondary role.

### Examples

```
-> stack clear slot 1002  
-> stack clear slot 3
```

### Release History

Release 6.1; command was introduced.



## Related Commands

- [stack set slot](#) Sets the saved slot number for switches in a stacked configuration.
- [show stack topology](#) Displays the current operating topology of switches within a stack.

## MIB Objects

alaStackMgrChassisTable  
    alaStackMgrSlotNINumber  
    alaStackMgrSavedSlotNINumber  
    alaStackMgrCommandAction  
    alaStackMgrCommandStatus

---

## show system

Displays basic system information for the switch. Information includes a user-defined system description, name, administrative contact, and location, as well as object ID, up time, and system services.

**show system**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

This command may be used when logged into the switch that performs either the primary or secondary CMM role in a stack.

### Examples

```
-> show system
System:
  Description: Alcatel-Lucent OS9800-CMM 6.4.3.63.R02 April 21, 2010.,
  Object ID:   1.3.6.1.4.1.6486.800.1.1.2.1.6.1.2,
  Up Time:    0 days 5 hours 20 minutes and 49 seconds,
  Contact:    Alcatel-Lucent, www.alcatel-lucent.com/enterprise/en,
  Name:       OmniSwitch 9000E,
  Location:   NMS_LABORATORY,
  Services:   72,
  Date & Time: THU JUN 2 2010 16:21:30 (PST)
```

```
Flash Space:
  Primary CMM:
    Available (bytes): 31266816,
    Comments          : None
```

### *output definitions*

---

<b>System Description</b>	The description for the current system. This description shows the current software version and the system date.
<b>System Object ID</b>	The SNMP object identifier for the switch.
<b>System Up Time</b>	The amount of time the switch has been running since the last system reboot.
<b>System Contact</b>	An user-defined administrative contact for the switch. This field is modified using the <a href="#">system contact</a> command.
<b>System Name</b>	A user-defined text description for the switch. This field is modified using the <a href="#">system name</a> command.

*output definitions (continued)*

---

<b>System Location</b>	The user-defined physical location of the switch. This field is modified using the <b>system location</b> command.
<b>System Services</b>	The number of current system services.
<b>System Date &amp; Time</b>	The current system date and time. This field is modified using the <b>system date</b> and <b>system time</b> commands.
<b>Flash Space: Primary CMM: Available (bytes)</b>	The available flash memory space available on the switch's <i>primary</i> management module.
<b>Flash Space: Primary CMM: Comments</b>	Comments regarding the available flash memory space available on the switch's primary management module, if applicable.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>system contact</b>	Specifies the switch's administrative contact (e.g., an individual or a department).
<b>system name</b>	Modifies the switch's current system name.
<b>system location</b>	Specifies the switch's current physical location.

**MIB Objects**

```
system
  systemContact
  systemName
  systemLocation
```

---

## show hardware info

Displays the current system hardware information. Includes CPU, flash, RAM, NVRAM battery, jumper positions, BootROM, and miniboot and FPGA information.

**show hardware info**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

This command may be used when logged into the switch that performs either as the primary or secondary CMM role in a stack.

### Examples

```
-> show hardware info
CPU Type                : PowerPC 8245,
Flash Manufacturer      : TOSHIBA,
Flash size              : 67108864 bytes (64 MB),
RAM Manufacturer        : (null),
RAM size                : 268435456 bytes (256 MB),
NVRAM Battery OK ?     : YES,
BootROM Version         : 6.1.2.20.R02 ,
Backup Miniboot Version : 6.1.2.20.R02,
Default Miniboot Version : 6.1.2.20.R02,
Product ID Register     : 54
Hardware Revision Register : 00
CPLD Revision Register  : 06
XFP Module ID           : 02
```

#### *output definitions*

---

<b>CPU Type</b>	The manufacturer and model number of the CPU used on the CMM.
<b>Flash Manufacturer</b>	The manufacturer of the flash memory used on the CMM.
<b>Flash size</b>	The total amount of flash memory (i.e., file space) on the CMM. This field specifies the total flash memory size only and does not indicate the amount of memory free or memory used.
<b>RAM Manufacturer</b>	The manufacturer of the RAM memory used on the CMM.
<b>RAM size</b>	The total amount of RAM memory on the CMM. This field specifies the total RAM memory only and does not indicate the amount of memory free or memory used.

*output definitions (continued)*

---

<b>NVRAM Battery OK</b>	The current status of the NVRAM battery. If the battery is OK, YES is displayed in this field. If the battery charge becomes low, NO is displayed in this field.
<b>BootROM Version</b>	The current BootROM version.
<b>Backup Miniboot Version</b>	The current backup miniboot version.
<b>Default Miniboot Version</b>	The current default miniboot version.
<b>Product ID Register</b>	The register number of the product ID.
<b>Hardware Revision Register</b>	The register number of the hardware revision.
<b>CPLD Revision Register</b>	The register number of the CPLD revision.
<b>XFP Module ID</b>	The ID number of the XFP module.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

- [show chassis](#) Displays the basic configuration and status information for the switch chassis.
- [show cmm](#) Displays the basic hardware and status information for CMM modules running in the chassis.

**MIB Objects**

```
systemHardware
  systemHardwareBootCpuType
  systemHardwareFlashMfg
  systemHardwareFlashSize
  systemHardwareMemoryMfg
  systemHardwareMemorySize
  systemHardwareNVRAMBatteryLow
  systemHardwareJumperInterruptBoot
  systemHardwareJumperForceUartDefaults
  systemHardwareJumperRunExtendedMemoryDiagnostics
  systemHardwareJumperSpare
  systemHardwareBootRomVersion
  systemHardwareBackupMiniBootVersion
  systemHardwareDefaultMiniBootVersion
  systemHardwareFpgaVersionTable
  systemHardwareFpgaVersionEntry
  systemHardwareFpgaVersionIndex
```

---

## show chassis

Displays the basic configuration and status information for the switch chassis.

**show chassis** [*number*]

---

### Syntax Definitions

*number* Specifies the slot (i.e., switch) number within a stack of switches. The valid range of slot numbers is 1–8, depending on the size of the stack.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- This command may be used when logged into either the primary or secondary CMM.
- The *number* parameter is not an option when using this command on a standalone switch or chassis.

### Examples

```
-> show chassis
```

```
Chassis 1
  Model Name:           OS6850-48,
  Description:          10/100/1000,
  Part Number:          902274-10,
  Hardware Revision:    002,
  Serial Number:        E23L9052,
  Manufacture Date:     JUN 09 2004,
  Admin Status:         POWER ON,
  Operational Status:   UP,
  Number Of Resets:     115
```

```
Chassis 2
  Model Name:           OS6850-48,
  Description:          10/100/1000,
  Part Number:          902274-10,
  Hardware Revision:    004,
  Serial Number:        432L0008,
  Manufacture Date:     SEP 08 2004,
  Admin Status:         POWER ON,
  Operational Status:   UP,
  Number Of Resets:     115
```

```
Chassis 3
  Model Name:          OS6850-48,
  Description:         10/100/1000,
  Part Number:         902274-10,
  Hardware Revision:   002,
  Serial Number:       E23L9037,
  Manufacture Date:    JUN 09 2004,
  Admin Status:        POWER ON,
  Operational Status:  UP,
  Number Of Resets:    115
```

### *output definitions*

---

<b>Model Name</b>	The factory-set model name for the switch. This field cannot be modified.
<b>Description</b>	The factory-set description for the switch. This field cannot be modified.
<b>Part Number</b>	The Alcatel-Lucent part number for the chassis.
<b>Hardware Revision</b>	The hardware revision level for the chassis.
<b>Serial Number</b>	The Alcatel-Lucent serial number for the chassis.
<b>Manufacture Date</b>	The date the chassis was manufactured.
<b>Admin Status</b>	The current power status of the chassis. Because chassis information is obtained from a running CMM, the value will always be POWER ON.
<b>Operational Status</b>	The current operational status of the chassis.
<b>Number of Resets</b>	The number of times the CMM has been reset (i.e., reloaded or rebooted) since the last cold boot of the switch.

---

## **Release History**

Release 6.1; command was introduced.

## **Related Commands**

<a href="#">show hardware info</a>	Displays the current system hardware information.
<a href="#">show power</a>	Displays the hardware information and current status for chassis power supplies.
<a href="#">show fan</a>	Displays the current operating status of chassis fans.

## **MIB Objects**

```
chasChassisTable
  chasFreeSlots
  chasPowerLeft
```

---

## show cmm

Displays basic hardware and status information for the CMM modules in a standalone switch or the switches that perform the CMM role running in a stack.

**show cmm** [*number*]

---

### Syntax Definitions

*number* Specifies the CMM slot number within a standalone switch or the CMM switch number within a stack switches.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- On OmniSwitch chassis-based switches, a CMM installed in the left CMM slot position is defined as CMM-A. A CMM installed in the right position is CMM-B. CMM modules on these switches are made up of two subcomponents: the fabric board and the processor board. The fabric board is CMM subcomponent 1; the processor board is subcomponent 2.
- On OmniSwitch chassis-based switches, a CMM installed in the top CMM slot position is defined as CMM-A. A CMM installed in the bottom position is CMM-B.
- On OmniSwitch chassis-based switches, CMM information is displayed separately for each subcomponent. For example, on OmniSwitch 9000E switches, CMM-A-1 refers to the fabric board of a CMM installed in the left position; on OmniSwitch 9000E switches CMM-A-2 refers to the processor board of the same CMM.
- If a switch, which performs a secondary CMM role is installed and runs in a stack, the hardware and status information for both the switches that perform the primary and secondary CMM role will be displayed.
- This command may be used when logged into the switch that performs either the primary or secondary CMM role in a stack.



## Examples

```
-> show cmm
CMM in slot 1
  Model Name:                OS6850-U24,
  Description:               10/100/1000,
  Part Number:               902271-10,
  Hardware Revision:         002,
  Serial Number:             E23L9059,
  Manufacture Date:          JUN 08 2004,
  Firmware Version:          N/A,
  Admin Status:              POWER ON,
  Operational Status:        UP,
  Power Consumption:         0,
  Power Control Checksum:    0x0,
  MAC Address:               00:d0:95:a3:e5:09,
```

### *output definitions*

---

<b>Model Name</b>	The model name of the switch. Note that on OmniSwitch chassis-based switches, CMM modules are made up of two major subcomponents: the fabric board and the processor board. Fabric boards are denoted as OS9*00-CMM and processor boards are denoted as CMM-PROC. Information for each board is displayed separately.
<b>Description</b>	A factory-defined description of the associated board (e.g., BBUS Bridge or PROCESSOR).
<b>Part Number</b>	The Alcatel-Lucent part number for the board.
<b>Hardware Revision</b>	The hardware revision level for the board.
<b>Serial Number</b>	The Alcatel-Lucent serial number for the board.
<b>Manufacture Date</b>	The date the board was manufactured.
<b>Firmware Version</b>	The firmware version for the board's ASICs.
<b>Admin Status</b>	The current power status of the CMM. Because information is obtained from a running CMM, the value will always be POWER ON.
<b>Operational Status</b>	The current operational status of the CMM.
<b>Power Consumption</b>	The current power consumption for the CMM.
<b>Power Control Checksum</b>	The current power control checksum for the corresponding CMM.
<b>MAC Address</b>	The MAC address assigned to the chassis. This base chassis MAC address is a unique identifier for the switch and is stored on an EEPROM card in the chassis. It is not tied to the CMM. Therefore, it will not change if the CMM is replaced or becomes secondary. The MAC address is used by the Chassis MAC Server (CMS) for allocation to various applications. Refer to the "Managing MAC Addresses and Ranges" chapter of the <i>OmniSwitch AOS Release 6 Switch Management Guide</i> for more information.

---

## Release History

Release 6.1; command was introduced.

**Related Commands**

<b>show chassis</b>	Displays the basic configuration and status information for the switch chassis.
<b>show ni</b>	Displays the basic hardware and status information for Network Interface (NI) modules currently installed in the switch.
<b>show module</b>	Displays the basic information for either a specified module or all the modules installed in the chassis.
<b>show module long</b>	Displays the detailed information for either a specified module or all modules installed in the chassis.
<b>show module status</b>	Displays the basic status information for either a specified module or all modules installed in the chassis.
<b>show system</b>	Displays the status and configuration of Switch Fabric Modules (SFMs) on OmniSwitch chassis-based switches.

---



*output definitions*


---

<b>Model Name</b>	The NI's module name. For example, OS9-GNI-C24 indicates a twenty four-port 10/100/1000BaseT Ethernet module.
<b>Description</b>	A general description of the NI. For example, 24pt 10/100/1000BaseT Mod indicates a twenty four-port 10/100/1000BaseT Ethernet module.
<b>Part Number</b>	The Alcatel-Lucent part number for the NI.
<b>Hardware Revision</b>	The hardware revision level for the NI.
<b>Serial Number</b>	The Alcatel-Lucent serial number for the NI's printed circuit board (PCB).
<b>Manufacture Date</b>	The date the NI was manufactured.
<b>Firmware Version</b>	The firmware version for the NI's ASICs.
<b>Admin Status</b>	The current power status of the NI. Options include POWER ON or POWER OFF.
<b>Operational Status</b>	The operational status of the NI. Options include UP or DOWN. The operational status can be DOWN while the power status is on, indicating a possible software issue.
<b>Power Consumption</b>	The current power consumption for the CMM.
<b>Power Control Checksum</b>	The current power control checksum for the corresponding NI.
<b>MAC Address</b>	The MAC address assigned to the NI.
<b>ASIC - Physical</b>	General information regarding the NI module's ASICs.
<b>CPLD - Physical</b>	General information regarding the CPLD.
<b>UBOOT Version</b>	UBOOT version of the NI.
<b>UBOOT-miniboot Version</b>	UBOOT-miniboot version of the NI.
<b>POE SW Version</b>	POE software version of the NI (POE modules only).
<b>C20L Upgd FailCount</b>	The number of failed upgrade attempts (C20L modules that have attempted to be upgraded only).

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; fields added.

## Related Commands

<b>reload ni</b>	Reloads (i.e., reboots) a specified Network Interface (NI) module.
<b>power ni</b>	Turns the power on or off for a specified Network Interface (NI) module.
<b>show module</b>	Displays the basic information for either a specified module or all modules installed in the chassis.
<b>show module long</b>	Displays the detailed information for either a specified module or all modules installed in the chassis.
<b>show module status</b>	Displays the basic status information for either a specified module or all modules installed in the chassis.

## MIB Objects

chasEntPhysOperStatus

---

## show module

Displays the basic information for either a specified module or all modules installed in a standalone switch chassis or a stack. Modules include switches performing the primary and secondary CMM roles and Network Interface (NI) in a stack.

**show module** [*number*]

---

### Syntax Definitions

*number*                      The slot number for a specific module installed in a standalone switch chassis or the switch number within a stack. If no slot number is specified, information for all modules is displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

This command may be used when logged into the switch that performs either the primary or secondary CMM role in a stack.

### Examples

-> show module

Slot	Part-Number	Serial #	HW Rev	Mfg Date	Model Name
CMM-1	902271-10	E23L9059	002	JUN 08 2004	OS6850
NI-1	902271-10	E23L9059	002	JUN 08 2004	OS6850

### output definitions

---

<b>Slot</b>	The chassis slot position of the module. For detailed slot numbering information, refer to the “Chassis and Power Supplies” chapter of the <i>Hardware User Manual</i> . Refer to <a href="#">page 54-36</a> for additional information on CMM location callouts.
<b>Part-Number</b>	The Alcatel-Lucent part number for the module.
<b>Serial #</b>	The Alcatel-Lucent serial number for the module.
<b>Rev</b>	The hardware revision level for the module.
<b>Date</b>	The date the module was manufactured.
<b>Model Name</b>	The descriptive name for the module. For example, OS9-GNI-U24 indicates a twenty four-port Gigabit Ethernet module.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

### [show module long](#)

Displays the detailed information for either a specified module or all modules installed in the chassis.

### [show module status](#)

Displays the basic status information for either a specified module or all modules installed in the chassis.

---





```
Part Number:          902271-10,
Hardware Revision:    002,
Serial Number:       E23L9059,
Manufacture Date:    JUN 08 2004,
Firmware Version:    N/A,
Admin Status:        POWER ON,
Operational Status:  UP,
Power Consumption:   200,
Power Control Checksum: 0x0,
MAC Address:         00:d0:95:a3:e5:0b,
ASIC - Physical 1 (hex): BCM5695_A1,
ASIC - Physical 2 (hex): BCM5695_A1,
ASIC - Physical 3 (hex): BCM5670_A1
CPLD - Physical 1 (hex): 0006/00
```

### *output definitions*

---

<b>Model Name</b>	The NI's module name. For example, OS9-GNI-C24 indicates a twenty four-port 10/100/1000BaseT Ethernet module.
<b>Description</b>	A general description of the NI. For example, 24pt 10/100/1000BaseT Mod indicates a twenty four-port 10/100/1000BaseT Ethernet module.
<b>Part Number</b>	The Alcatel-Lucent part number for the NI.
<b>Hardware Revision</b>	The hardware revision level for the NI.
<b>Serial Number</b>	The Alcatel-Lucent serial number for the NI's printed circuit board (PCB).
<b>Manufacture Date</b>	The date the NI was manufactured.
<b>Firmware Version</b>	The firmware version for NI's ASICs.
<b>Admin Status</b>	The current power status of the NI. Options include POWER ON or POWER OFF.
<b>Operational Status</b>	The operational status of the NI. Options include UP or DOWN. The operational status can be DOWN while the power status is on, indicating a possible software issue.
<b>Power Control Checksum</b>	The current power control checksum for the corresponding NI.
<b>MAC Address</b>	The MAC address assigned to the NI.
<b>ASIC - Physical</b>	General information regarding the NI's ASICs.
<b>CPLD - Physical</b>	General information regarding the CPLD.

---

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

- show module** Displays the basic information for either a specified module or all modules installed in the chassis.
- show module status** Displays the basic status information for either a specified module or all modules installed in the chassis.
-



*output definitions (continued)*

---

<b>Firmware Rev</b>	The firmware version for module's ASICs.
<b>MAC</b>	For the CMM, the base chassis MAC address is displayed. For detailed information on this base chassis MAC address, refer to the "Managing MAC Addresses and Ranges" chapter of the <i>OmniSwitch AOS Release 6 Switch Management Guide</i> . For NI modules, the MAC address for the corresponding NI is displayed.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">show module</a>	Displays the basic information for either a specified module or all the modules installed in the chassis.
<a href="#">show module long</a>	Displays the detailed information for either a specified module or all the modules installed in the chassis.

---

## show power

Displays the hardware information and current status for chassis power supplies.

**show power** [**supply**] [*number*]

---

### Syntax Definitions

<b>supply</b>	Optional command syntax.
<i>number</i>	The single-digit number for a specific power supply installed in the chassis. If no power supply number is specified, information for all power supplies is displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- When the **show power** command is entered on stackable switches, information is displayed only for power supplies that are installed in the chassis *and powered on*. If a power supply is present in a power supply bay, but the power supply is unplugged or its on/off switch is in the off position, the power supply is not listed in the command output.
- On OmniSwitch chassis-based switches, power supplies are numbered from top to bottom. For example, a power supply installed in the top position in the chassis is Power Supply 1, or PS-1.
- On OmniSwitch chassis-based switches, power supplies are numbered from left to right. For detailed slot numbering information, see the “Chassis and Power Supplies” chapter of your *Hardware Users Guide*.

### Examples

```
-> show power
Slot  PS   Wattage  Type  Status  Location
-----+-----+-----+-----+-----
      1     600    AC   UP     Internal
      2     600    AC   UP     Internal
      3     --     --   --     --
      4     600    IP   UP     External
      5     600    IP   UP     External
      6     600    IP   UP     External
      7     600    IP   UP     External
```

```
-> show power 5
Module in slot PS-5
(Power Shelf slot 5)
  Model Name:          OS-IPS-600A,
  Description:        ILPS AC,
  Part Number:        902252-10,
```

```
Hardware Revision:      A01 ,
Serial Number:         E51P4078 ,
Manufacture Date:      JAN 07 2005 ,
Operational Status:    UP ,
Power Provision:       600
```

*output definitions*

---

<b>Model Name</b>	The power supply's model number.
<b>Description</b>	A description of the associated power supply. This field will reflect the model name in most cases.
<b>Part Number</b>	The Alcatel-Lucent part number for the power supply.
<b>Hardware Revision</b>	The hardware revision level for the power supply.
<b>Serial Number</b>	The Alcatel-Lucent serial number for the power supply.
<b>Manufacture Date</b>	The date the power supply was manufactured.
<b>Type</b>	The type of power supply. Options include AC or IP.
<b>Location</b>	The location of the power supply. Options include Internal or External.
<b>Operational Status</b>	The operational status of the power supply. Options include UP or DOWN.
<b>Power Provision</b>	The number of Watts used by this power supply.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[show chassis](#) Displays the basic configuration and status information for the switch chassis.

---

## show fan

Displays the current operating status of chassis fans.

**show fan** [*number*]

---

### Syntax Definitions

*number*

Specifies the switch (slot) number of the chassis for stackable switches or a fan number for chassis-based switches.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 9000E

### Usage Guidelines

- On chassis-based switches if no fan number is specified the status of all fans is displayed.
- On stackable switches if no switch number is specified the status of all fans for all switches is displayed.

### Examples

```
-> show fan
Chassis Fan  Status
-----+-----+-----
  1         1  Running
  1         2  Running
  1         3  Running
  2         1  Running
  2         2  Running
  2         3  Running
```

#### *output definitions*

---

<b>Chassis</b>	The number of the switch in a stack.
<b>Fan</b>	The fan number describing the fan position.
<b>Status</b>	The current operational status of the corresponding fan.

---

### Release History

Release 6.1; command was introduced.

## **Related Commands**

### **show temperature**

Displays the current operating chassis ambient temperature, as well as current temperature threshold settings.

---

## show temperature

Displays the current operating chassis ambient temperature, as well as current temperature threshold settings.

**show temperature** [*number*]

---

### Syntax Definitions

*number* Specifies the slot (i.e., switch) number within the stack. The valid range of slot numbers is 1–8, depending on the size of the stack.

### Defaults

If a slot number is not specified with this command on an OmniSwitch stackable switch, temperature information for all switches operating in the stack is displayed by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

The *number* parameter is not an option when using this command on a single-chassis, standalone switch, such as the OmniSwitch 9000E.

### Examples

```
-> show temperature
```

```
Temperature for chassis 1
  Hardware Board Temperature (deg C)           = 41,
  Temperature Upper Threshold Range (deg C)    = 15 to 80,
  Temperature Upper Threshold (deg C)         = 57,
  Temperature Status                           = UNDER THRESHOLD,
  Temperature Danger Threshold (deg C)        = 80

Temperature for chassis 2
  Hardware Board Temperature (deg C)           = 40,
  Temperature Upper Threshold Range (deg C)    = 15 to 80,
  Temperature Upper Threshold (deg C)         = 57,
  Temperature Status                           = UNDER THRESHOLD,
  Temperature Danger Threshold (deg C)        = 80

Temperature for chassis 3
  Hardware Board Temperature (deg C)           = 40,
  Temperature Upper Threshold Range (deg C)    = 15 to 80,
  Temperature Upper Threshold (deg C)         = 57,
  Temperature Status                           = UNDER THRESHOLD,
  Temperature Danger Threshold (deg C)        = 80
```



*output definitions*

---

<b>Hardware Board Temperature</b>	The current chassis temperature as determined by the built-in temperature sensor. The temperature is displayed in degrees Celsius. This temperature is checked against the upper threshold value. If the threshold is exceeded, a warning is sent to the user.
<b>Temperature Upper Threshold Range</b>	The supported threshold range when specifying a threshold for the switch via the <b>temp-threshold</b> command.
<b>Temperature Upper Threshold</b>	The warning temperature threshold, in degrees Celsius. If the switch reaches or exceeds this temperature, the primary switch or CMM's TEMP LED displays amber and a warning is sent to the user. For information on changing the upper threshold value, refer to the <b>temp-threshold</b> command on page 54-25.
<b>Temperature Status</b>	The current threshold status of the switch. Displays whether the switch is UNDER THRESHOLD or OVER THRESHOLD. If the status is OVER THRESHOLD, the primary CMM's TEMP LED displays amber and a warning is sent to the user.
<b>Temperature Danger Threshold</b>	The factory-defined danger threshold. This field is not configurable. If the chassis temperature reaches this value the switch will power off all Network Interface (NI) modules until the temperature conditions (e.g., chassis air flow obstruction or ambient room temperature) have been addressed.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>temp-threshold</b>	Sets the chassis warning temperature threshold.
<b>show fan</b>	Shows the hardware information and current status for the chassis fans.

**MIB Objects**

```
chasChassisTable
  chasHardwareBoardTemp
  chasTempRange
  chasTempThreshold
  chasDangerTempThreshold
```

---

## show stack topology

Displays the current operating topology of switches within a stack.

**show stack topology** [*slot-number*]

---

### Syntax Definitions

*slot-number*

Optional syntax specifying a single slot number within the stack (1–8). When a slot number is specified, topology information for only the corresponding slot displays.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

- The OS6850E must be in the correct mode depending on which model it is being stacked with.

### Examples

-> show stack topology

NI	Role	State	Saved Slot	Link A State	Link A Remote NI	Link A Remote Port	Link B State	Link B Remote NI	Link B Remote Port
1	PRIMARY	RUNNING	1	UP	3	StackB	UP	2	StackA
2	IDLE	RUNNING	2	UP	1	StackB	UP	3	StackA
3	SECONDARY	RUNNING	3	UP	2	StackB	UP	1	StackA

### output definitions

#### NI

The current slot position for each switch in the virtual chassis (i.e., stacked configuration). Note that the order of the slot numbers does not necessarily correspond with the physical positions of switches within the stack. In other words, slot position 1 may not be the uppermost (top) switch in the stack. To manually assign these slot numbers via the CLI, use the [stack set slot](#) command.

#### Role

The current management role of the corresponding switch within the stack. Options include PRIMARY (the switch is the primary management module in the stack; standalone switches also display this role), SECONDARY (the switch is the secondary—or backup—management module in the stack), IDLE (the switch does not have a management role but is operating normally as a network interface module within the stack), PASS-THRU (the switch is operating in pass-through mode), UNDEFINED (the switch's current role is not known).

*output definitions (continued)*

---

<b>State</b>	The current operational state of the corresponding switch. Options include RUNNING (the switch is up and operating normally), DUP-SLOT (the switch has a duplicate saved slot number or incorrect mode and has automatically entered pass-through mode), INC-SLOT (the switch is in the incorrect mode and has automatically entered pass-through mode), CLR-SLOT (the switch has been manually “cleared” via the <b>stack clear slot</b> command and is now in pass-through mode), OUT-SLOT (the current stacked configuration already has eight switches and therefore cannot accommodate this switch), OUT-TOK (there are not enough unused tokens remaining in the current stacked configuration to accommodate this switch), UNKNOWN (the switch’s current state is not known).
<b>Saved Slot</b>	The designated saved slot number for the corresponding switch. The saved slot number is the slot position the switch will assume following a reboot. A value of zero (0) indicates that the switch has been “cleared” and, as a result, is designated for pass-through mode. To assign saved slot numbers, use the <b>stack set slot</b> command. To clear a switch and designate it for pass-through mode, use the <b>stack clear slot</b> command.
<b>Link A State</b>	The current status of the stacking cable link at the switch’s stacking port A. Options include UP, DOWN, or UNKNOWN.
<b>Link A Remote NI</b>	The slot number of the switch to which stacking cable A’s <i>remote end</i> is connected. In other words, if a switch in slot position 1 displays a Link A Remote NI value of 3, this indicates that the stacking cable plugged into slot 1 stacking port A is connected to the <i>slot 3</i> switch. If no stacking cable link exists, the value 0 displays.
<b>Link A Remote Port</b>	The specific stacking port to which stacking cable A’s <i>remote end</i> is connected. Options include StackA, StackB, and 0. If stacking cable A’s remote end is connected to stacking port B on the other switch, the value displays StackB. If no stacking cable link exists, the value 0 displays.
<b>Link B State</b>	The current status of the stacking cable link at the switch’s stacking port B. Options include UP, DOWN, or UNKNOWN.
<b>Link B Remote NI</b>	The slot number of the switch to which stacking cable B’s <i>remote end</i> is connected. In other words, if a switch in slot position 6 displays a Link A Remote NI value of 7, this indicates that the stacking cable plugged into slot 6 stacking port B is connected to the <i>slot 7</i> switch.
<b>Link B Remote Port</b>	The specific stacking port to which stacking cable B’s <i>remote end</i> is connected. Options include StackA, StackB, and 0. If stacking cable B’s remote end is connected to stacking port B on the other switch, the value displays StackB. If no stacking cable link exists, the value 0 displays.

---

**Release History**

Release 6.1; command was introduced.

Release 6.4.4; INC-SLOT output parameter was added.

## Related Commands

- show stack status** Displays the current redundant stacking cable status and token availability for a stacked configuration.
- stack clear slot** Sets the *saved slot* number or mode for stackable configuration switches.

## MIB Objects

```
alaStackMgrChassisTable  
  alaStackMgrSlotNINumber  
  alaStackMgrSlotCMMNumber  
  alaStackMgrChasRole  
  alaStackMgrLocalLinkStateA  
  alaStackMgrRemoteNISlotA  
  alaStackMgrRemoteLinkA  
  alaStackMgrLocalLinkStateB  
  alaStackMgrRemoteNISlotB  
  alaStackMgrRemoteLinkB  
  alaStackMgrChasState  
  alaStackMgrSavedSlotNINumber  
  alaStackMgrCommandAction  
  alaStackMgrCommandStatus
```

---

## show stack status

Displays the current redundant stacking cable status and token availability for a stacked configuration.

**show stack status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855

### Usage Guidelines

N/A

### Examples

```
-> show stack status
```

```
Redundant cable status : present  
Tokens used            : 8  
Tokens available       : 24
```

### *output definitions*

---

<b>Redundant cable status</b>	Indicates whether a redundant stacking cable is currently installed. Options include <b>present</b> and <b>not present</b> . To provide added resiliency and redundancy, it is strongly recommended that a redundant stacking cable is connected from the top switch in the stack to the bottom switch in the stack at all times. For more information on stack redundancy, refer to the <i>Hardware Users Guide</i> .
<b>Tokens used</b>	The number of tokens used in the current stacked configuration. Each virtual chassis (also referred to as a stacked configuration) is allocated a number of tokens per stack. If a switch is added to a stack in which there are not enough tokens available, the incoming switch is automatically placed in pass-through mode. For detailed information on stack-related topics, including tokens and pass-through mode, refer to the <i>Hardware Users Guide</i> .
<b>Tokens available</b>	The number of remaining tokens for any incoming switches in a stack.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

**show stack topology**      Displays the current operating topology of switches within a stack.

## MIB Objects

alaStackMgrStackStatus  
alaStackMgrTokensUsed  
alaStackMgrTokensAvailable

---

## hash-control

Configures the hash control method on the switch. Depending upon this configuration, hashing algorithm used by various applications for packet forwarding will be affected.

**hash-control {brief | extended [udp-tcp-port] | load-balance non-ucast {enable | disable}}**

**hash-control extended no udp-tcp-port**

---

### Syntax Definitions

<b>brief</b>	Sets hashing to brief mode.
<b>extended</b>	Sets hashing to extended mode.
<b>udp-tcp-port</b>	Sets extending hashing to use UDP/TCP ports.
<b>enable   disable</b>	Enables or disables the the load balancing of non-unicast traffic on a link aggregate.

### Defaults

---

<b>parameter</b>	<b>default</b>
<b>hash-control</b> (6400/6850/6855)	brief
<b>hash-control</b> (9000E)	extended
<b>udp-tcp-port</b>	disabled
<b>non-ucast</b>	disabled

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E.

### Usage Guidelines

- Disabling TCP-UDP port hashing is recommended when Server Load Balancing (SLB) is configured, because SLB dynamically assigns ports.
- The hash control setting also impacts the fabric load balancing for Chassis based products. It is recommended not to set brief hashing mode on Chassis based products.
- Changing the hash control mode affects the hashing algorithm for Link Aggregation, Server Load Balancing and EMCP.
- The hashing mode must be set to extended to enable UDP/TCP port hashing.
- Enabling or disabling the **load-balance non-ucast** option applies to all link aggregates. When this option is disabled (the default), link aggregation will only load balance unicast packets; all non-unicast packets are sent through the primary port of the link aggregate.
- When the **load-balance non-ucast** option is enabled, all non-unicast traffic (broadcast, L2 multicast, L3 multicast, and unknown unicast) is load balanced over the link aggregate.

## Examples

```
-> hash-control brief
-> hash-control extended
-> hash-control extended udp-tcp-port
-> hash-control extended no udp-tcp-port
-> hash-control load-balance non-ucast enable
-> hash-control load-balance non-ucast disable
```

## Release History

Release 6.4.2; command was introduced.

Release 6.4.3; **load-balance non-ucast** parameter was added.

## Related Commands

[show hash-control](#) Displays the current hash control setting for the switch.

## MIB Objects

```
alaChasHashMode
alaChasUdpTcpPortMode
alachasNonUHashControl
```

---



## show hash-control

Displays the current hash control settings for the switch.

**show hash-control [non-ucast]**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show hash-control
Hash Mode      = brief,
Udp-Tcp-Port  = disabled
-> show hash-control non-ucast
Non-ucast Hash Status = Enabled,
```

#### *output definitions*

---

<b>Hash Mode</b>	The current hash mode.
<b>Udp-Tcp-Port</b>	Status of UDP/TCP hashing.
<b>Non-ucast Hash Status</b>	Status of Non-ucast hash status.

---

### Release History

Release 6.4.2; command was introduced.  
Release 6.4.3; **non-ucast** parameter was added.

### Related Commands

[hash-control](#) Configures the hash mode of the switch..

### MIB Objects

```
alaChasHashMode
alaChasUdpTcpPortMode
alachasNonUHashControl
```

---

## license apply

Activates the license for licensed protocols on the switch.

**license apply**

---

### Syntax Definitions

NA

### Defaults

By default licensed protocols are not activated on the switch.

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Currently, MPLS is the only licensed feature on an OmniSwitch.
- Ensure the license file *lmLicense.dat* is placed in the **/flash** directory of the primary CMM.
- When the **license apply** command is issued, the switch displays a message to ensure the installation. Enter 'Y' to apply the license and reboot the switch.
- Use [show license file](#) command to verify the installed license.

### Examples

```
-> license apply
The switch will reboot after the license is applied.
Are you sure you want to proceed(Y/N)?
Y
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

<a href="#">show license info</a>	Displays all the licensed applications installed on the switch.
<a href="#">show license file</a>	Displays the license file information of the switch.

### MIB Objects

aluLicenseManagerApplyLicense

---

## show license info

Displays all the licensed applications installed on the switch.

**show license info**

---

### Syntax Definitions

NA

### Defaults

NA

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use this command to verify which licenses are installed on the switch.
- The number of days remaining is determined only by the switch up time. If a switch is turned off the Time Remaining is not decremented.

### Examples

```
->show license info
Application      License Type
-----+-----
MPLS             Permanent
```

### *output definitions*

---

<b>Application</b>	Displays the name of the licensed applications installed on the switch.
<b>Type</b>	The type of license.

---

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show license file](#) Displays the license file information of the switch.

### MIB Objects

```
aluLicenseManagerInfoTable
aluLicenseedApplication
aluLicenseType
```

---

## show license file

Displays the information contained in the license file.

**show license file**

---

### Syntax Definitions

NA

### Defaults

NA

### Platforms Supported

OmniSwitch 9000E

### Usage Guidelines

- Use this command to display the contents of the *lmLicense.dat* license file.
- The *lmLicense.dat* file can contain licenses for other switches.

### Examples

```
-> show license file
MAC Address          Application
-----+-----
00:d0:95:d5:e6:01    MPLS
00:d0:95:d5:e6:0a    MPLS
00:d0:95:d5:e6:0b    MPLS
00:d0:95:d5:e6:0c*   MPLS
```

\* - indicates entry applicable for local switch

#### *output definitions*

---

<b>MAC Address</b>	Displays the base MAC address of the switch. An asterisk indicates the MAC address of the local switch.
<b>Application</b>	Displays the name of the licensed application.

---

### Release History

Release 6.4.2; command was introduced.

## Related Commands

**show license info**                      Displays all the licensed applications installed on the switch.

## MIB Objects

```
aluLicenseManagerFileInfoTable  
aluSwitchMacAddress  
aluLicensedFileApplication
```

---



# 55 Chassis MAC Server (CMS) Commands

The Chassis MAC Server (CMS) manages MAC addresses on the switch. The MAC addresses managed via the CMS are used as identifiers for the following functions:

- Base chassis MAC address
- Ethernet Management Port (EMP)
- VLAN router ports

Similar to IP addresses, MAC addresses are assigned by the Internet Assigned Numbers Authority (IANA) and distributed to users in sequential blocks. A sequential block of MAC addresses is referred to as a MAC address *range*.

The MAC address range is stored on the switch's EEPROM. The switch supports one MAC address range only. By default, this MAC address range contains thirty-two (32) factory-installed, contiguous MAC addresses. Users may add additional MAC addresses; the maximum capacity for the switch's default range is 256 MAC addresses.

In stackable switches, CMS is responsible for sharing the base MAC address of the primary switch with all the other switches in the stack. This helps the secondary switch to retain the same MAC address during takeover. This is called MAC Address Retention.

---

**Note.** MAC Retention is supported on the OmniSwitch 6850 Series and OmniSwitch 6400 Series switches.

---

MIB information for the Chassis MAC Server commands is as follows:

*Filename:* AlcatelIND1MacServer.MIB  
*Module:* Alcatel-IND1-MAC-SERVER-MIB

A summary of the available commands is listed here:

---

[mac-range eeprom](#)  
[mac-retention status](#)  
[mac-retention dup-mac-trap](#)  
[mac release](#)  
[show mac-range](#)  
[show mac-range alloc](#)  
[show mac-retention status](#)

---

## mac-range eeprom

Modifies the default MAC range on the switch's EEPROM.

---

**Note.** Use caution when modifying the default MAC range. Improper use of this command can disable your system and adversely affect your network. Contact Alcatel-Lucent Customer Support for further assistance.

---

**mac-range eeprom** *start\_mac\_address count*

---

### Syntax Definitions

<i>start_mac_address</i>	The first MAC address in the modified range. Enter the MAC address in the following format: <b>xx:xx:xx:xx:xx:xx</b> , where <b>x</b> is a hex value (0–f).
<i>count</i>	Specifies the number of MAC addresses in the range (1–256).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Because the factory-installed 32 MAC addresses are sufficient for most network configurations, this command should only be used by qualified network administrators for special network requirements.
- After modifying a MAC address range by using the **mac-range eeprom** command, you must reboot the switch. Otherwise, MAC addresses for existing VLAN router ports will not be allocated properly.
- All MAC addresses in a range must be contiguous (i.e., there cannot be any gaps in the sequence of MAC addresses).

### Examples

```
-> mac-range eeprom 00:20:da:23:45:35 32
```

### Release History

Release 6.1; command was introduced.



## Related Commands

[show mac-range](#)

Displays the MAC range table.

## MIB Objects

chasMacAddressRangeTable

  chasMacRangeIndex

  chasGlobalLocal

  chasMacAddressStart

  chasMacAddressCount

---

---

## mac-retention status

Enables or disables the MAC retention status.

**mac-retention status {enable | disable}**

---

### Syntax Definitions

**enable** Enables the administrative status of MAC retention.  
**disable** Disables the administrative status of MAC retention.

### Defaults

Parameter	Status
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X

### Usage Guidelines

- When MAC retention is enabled, the stack uses the MAC address of the primary switch even after it has failed.
- When the administrative status of MAC retention is enabled, the stack performance is enhanced.

### Examples

```
-> mac-retention status enable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show mac-retention status](#) Displays the MAC retention status.

### MIB Objects

```
chasmacaddrretentionobjects  
  chasmacaddrretentionstatus
```

---

## mac-retention dup-mac-trap

Enables or disables the duplicate MAC address trap status.

**mac-retention dup-mac-trap {enable | disable}**

---

### Syntax Definitions

**enable** Enables the duplicate MAC address trap status.  
**disable** Disables the duplicate MAC address trap status.

### Defaults

Parameter	Status
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X

### Usage Guidelines

If the old primary switch is not detected and included in the stack within a pre-defined time period, an SNMP trap will be generated.

### Examples

```
-> mac-retention dup-mac-trap enable
```

### Release History

Release 6.2.1; command was introduced.

### Related Commands

[show mac-retention status](#) Displays the MAC retention status.

### MIB Objects

chasMacAddrRetentionObjects  
chasPossibleDuplicateMacTrapStatus

---

## mac release

Releases the MAC address currently being used as the primary base MAC address.

**mac release**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X

### Usage Guidelines

The MAC address is released only if the address has not been derived from the EEPROM (i.e., it should be a retained MAC address of the old primary switch).

### Examples

```
-> mac release
```

### Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **mac-retention** keyword was replaced with the **mac** keyword.

### Related Commands

N/A

### MIB Objects

chasMacAddrRetentionObjects

chasMacAddrRetentionStatus

---



## Related Commands

### **mac-range eeprom**

Modifies the default MAC range on the switch's EEPROM.

## MIB Objects

```
chasMacAddressRangeTable
  chasMacRangeIndex
  chasGlobalLocal
  chasMacAddressStart
  chasMacAddressCount
  chasMacRowStatus
```

---

## show mac-range alloc

Displays all allocated addresses from the MAC range table.

**show mac-range** [*index*] **alloc**

---

### Syntax Definitions

*index* Identifies the MAC range by referring to its position in the MAC range table. Currently, index position 1 only is supported.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If you are assigning VLAN router ports while the switch is in *single MAC router mode*, all VLAN router ports will use the base chassis MAC address (ID value 0).

### Examples

```
-> show mac-range alloc
Range      Mac Address          Application      Id
-----+-----+-----+-----
01         00:d0:95:6b:09:40 CHASSIS         0
01         00:d0:95:6b:09:41 802.1X         0
01         00:d0:95:6b:09:5f CHASSIS         1
```

#### *output definitions*

---

<b>Range</b>	The MAC range's index number. The index number refers to the position of the range in the MAC range table. Values may range from 1–20. MAC ranges are divided by index number into four distinct categories. Refer to <a href="#">page 55-7</a> for more information.
<b>Mac Address</b>	Current MAC address allocated for a specific application.

*output definitions (continued)*

---

<b>Application</b>	The application for which the allocated MAC address is being used. Current options include <b>VLAN</b> , <b>802.1X</b> , and <b>CHASSIS</b> . <b>VLAN</b> refers to MAC addresses allocated to VLAN router ports in multiple MAC router mode. <b>CHASSIS</b> refers to MAC addresses used for the base chassis MAC address and the Ethernet Management Port (EMP).
<b>Id</b>	An ID number used to identify an allocated MAC address. ID numbers are used for the base chassis MAC address and Ethernet Management Port (EMP), as well as VLAN router ports. The ID value 0 is reserved for the switch's base chassis MAC address. The ID value 1 is reserved for the EMP MAC address. Router ports assigned to VLANs 2 through 4094 are given corresponding MAC IDs. For example, a router port configured on VLAN 44 receives an allocated MAC ID of 44. Because default VLAN 1 router ports use the base chassis MAC address by default, any router port configured on VLAN 1 is assigned the ID value 0.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

[mac-range eeprom](#)      Modifies the default MAC range on the switch's EEPROM.

**MIB Objects**

ChasMacAddressAllocTable  
  chasAppId  
  chasObjectId  
  chasAllocMacRangeIndex  
  chasAllocMacAddress

---



## show mac-retention status

Displays the MAC retention status.

**show mac-retention status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X

### Usage Guidelines

- If the administrative status of MAC retention is not configured, it will be displayed as disabled by default.
- If the administrative status of the duplicate MAC address trap is not configured, it will be displayed as disabled by default.
- If the source of the currently used MAC address is not configured, it will be displayed as EEPROM by default.

### Examples

```
-> show mac-retention status
```

```
MAC RETENTION STATUS
```

```
=====
```

```
Admin State           : Enabled
Trap admin state      : Enabled
Current MAC address   : 00:0a:0b:0c:0d:0e
MAC address source    : Retained
Topology Status       : Ring present
```

#### *output definitions*

---

<b>Admin State</b>	Displays the administrative status of MAC retention ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Trap admin state</b>	Displays the administrative status of the duplicate MAC address trap ( <b>Enabled</b> or <b>Disabled</b> ).
<b>Current MAC address</b>	Displays the MAC address currently used by the switch.
<b>MAC address source</b>	Displays the source of the currently used MAC address. Options include <b>EEPROM</b> and <b>Retained</b> .
<b>Topology Status</b>	Displays the topology status of the stack. Options include <b>Ring present</b> and <b>Ring Not Present</b> .

---

## Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **EEPROM MAC Address** field was deleted.

## Related Commands

**mac-retention status** Enables or disables the MAC retention status.

**mac-retention dup-mac-trap** Enables or disables the duplicate MAC address trap status.

## MIB Objects

chasMacAddrRetentionObjects

chasMacAddrRetentionStatus

chasPossibleDuplicateMacTrapStatus

chasRingStatus

chasBaseMacAddrSource

chasBaseMacAddr

---

# 56 Network Time Protocol Commands

The Network Time Protocol (NTP) is used to synchronize the time of a computer client or server to another server or reference time source, such as a radio or satellite receiver. It provides client time accuracies within a millisecond on LANs, and up to a few tens of millisecond on WANs. Typical NTP configurations utilize multiple redundant servers and diverse network paths in order to achieve high accuracy and reliability.

It is important for networks to maintain accurate time synchronization between network nodes. The standard timescale used by most nations of the world is based on a combination of Universal Coordinated Time (UTC) (representing the Earth's rotation about its axis) and the Gregorian Calendar (representing the Earth's rotation about the Sun). UTC time is disseminated by various means, including radio and satellite navigation systems, telephone modems, and portable clocks.

The MIB information for NTP is as follows:

*Filename:* AlcatelIND1Ntp.mib  
*Module:* alcatelIND1NTPMIB

A summary of available commands is listed here:

---

- [ntp server](#)
- [ntp server synchronized](#)
- [ntp server unsynchronized](#)
- [ntp client](#)
- [ntp src-ip preferred](#)
- [ntp broadcast-client](#)
- [ntp broadcast-delay](#)
- [ntp key](#)
- [ntp key load](#)
- [ntp authenticate](#)
- [ntp master](#)
- [ntp interface](#)
- [ntp max-associations](#)
- [ntp broadcast](#)
- [ntp peer](#)
- [show ntp status](#)
- [show ntp client](#)
- [show ntp client server-list](#)
- [show ntp server client-list](#)
- [show ntp server status](#)
- [show ntp keys](#)
- [show ntp peers](#)
- [show ntp server disabled-interfaces](#)

---

## ntp server

Specifies an NTP server from which the switch will receive updates.

**ntp server** {*ip\_address*} [**key** *keyid*] [**minpoll** *poll*] [**version** *version*] [**prefer**]

**no ntp server** {*ip\_address*}

---

### Syntax Definitions

<i>ip_address</i>	The IP address of the NTP server to be added or deleted to the client's server list.
<i>key id</i>	The key identification number that corresponds to the specified NTP server. The value ranges from 1 to 65534.
<i>poll</i>	It specifies the minimum polling interval for NTP message. This number is determined by raising 2 to the power of the number entered. Therefore, if 4 were entered, the minimum poll time would be 16 seconds ( $2^4 = 16$ ). The maximum poll interval is fixed at 10 (1,024 s). The minimum poll interval defaults to 6 (64 s), but can be decreased by the minpoll option to a lower limit of 4 (16 s), or increase to the maximum limit of 10.
<i>version</i>	The version of NTP being used. This will be 1, 2, 3, or 4.
<b>prefer</b>	Marks this server as the preferred server. A preferred server's timestamp will be used before another server.

### Defaults

Parameter	Default
<i>version</i>	4
<i>exponent</i>	6
<b>prefer</b>	not preferred

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to clear an NTP server from the list of configured servers.
- To configure NTP in the client mode you must first define the NTP servers. Up to 3 NTP servers may be defined.
- Either an IP address or domain name for the specified server can be entered.
- The NTP key identification is an integer. It corresponds to an MD5 authentication key contained in an authentication file (.txt) located on the server. This file must be on both the server and the local switch, and match, for authentication to work. Enter the key identification using the **key** keyword if the server is set to MD5 authentication.

- An authentication key is composed of a 32-bit integer and 32-byte string of characters. The integer format is hexadecimal. For an NTP message to be authenticated the NTP client authentication key must match the key configured at the NTP server. This means the authentication keys must be distributed in advance of configuring the NTP client. If authentication is disabled but authentication key is present, the association will still be unauthenticated.
- Use the **version** keyword to set the correct version of NTP.
- Use the **minpoll** keyword to set the minimum poll time for the server. This number is determined by raising 2 to the power of the number entered. Therefore, if 4 were entered, the minimum poll time would be 16 seconds ( $2^4 = 16$ ). The client will poll the server for a time update when the **minpoll** time is exceeded.

## Examples

```
-> ntp server 1.1.1.1
-> ntp server spartacus
-> ntp server 1.1.1.1 key 1
-> ntp server 1.1.1.1 version 4
-> ntp server spartacus minpoll 5
-> no ntp server 1.1.1.1
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**ntp client** Enables or disables NTP operation on the switch.

## MIB Objects

```
alaNtpConfig
  alaNtpPeerAddressType
  alaNtpPeerType
  alaNtpPeerAuth
  alaNtpPeerMinpoll
  alaNtpPeerVersion
  alaNtpPeerPrefer
  alaNtpPeerAddress
```

---

## ntp server synchronized

Enables an NTP client to invoke tests for NTP server synchronization as specified by the NTP protocol.

**ntp server synchronized**

---

### Syntax Definitions

N/A

### Defaults

By default, NTP synchronization is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The NTP protocol discards the NTP servers that are unsynchronized. However, the unsynchronized NTP servers are used as network time sources.

### Examples

```
-> ntp server synchronized
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

#### [ntp server unsynchronized](#)

Disables an NTP client from invoking tests for NTP server synchronization. This allows the NTP client to synchronize with unsynchronized NTP servers in the network.

### MIB Objects

alaNtpConfig

alaNtpPeerTests

---

## ntp server unsynchronized

Disables an NTP client from invoking tests for NTP server synchronization. This allows the NTP client to synchronize with unsynchronized NTP servers in the network.

**ntp server unsynchronized**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

When NTP peer synchronization tests are disabled, the NTP client is able to synchronize with either an NTP peer that is not synchronized with an atomic clock or a network of NTP servers that will finally synchronize with an atomic clock.

### Examples

```
-> ntp server unsynchronized
```

### Release History

Release 6.1.5; command was introduced.

### Related Commands

[ntp server synchronized](#) Enables an NTP client to invoke tests for NTP server synchronization as specified by the NTP protocol.

### MIB Objects

alaNtpConfig  
alaNtpPeerTests

---

## ntp client

Enables or disables NTP time synchronization discipline.

**ntp client** {enable | disable}

---

### Syntax Definitions

<b>enable</b>	Enables NTP.
<b>disable</b>	Disables NTP.

### Defaults

NTP protocol is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to enable or disable NTP. Before NTP can be enabled, an NTP server must be specified using the [ntp server](#) command. Up to 3 NTP servers may be defined.
- It is not necessary to specify an NTP server if the NTP client will only receive time updates from NTP broadcast servers.

### Examples

```
-> ntp client enable  
-> ntp client disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ntp server](#) Specifies an NTP server from which the switch will receive updates.

### MIB Objects

alaNtpEnable

---



## ntp src-ip preferred

Configures the source IP address field of the NTP source

**ntp src-ip preferred** {**default** | **no-loopback0** | *ip\_address*}

**no ntp src-ip preferred**

---

### Syntax Definitions

<b>default</b>	The Loopback0 address, if configured, will be used for the source IP address field. If no loopback0 is configured, the vlan configured IP interface on the switch will be used.
<b>no-loopback0</b>	The Loopback0 address should not be used for the source IP address field and the first available IP address on the switch should be used for this field. It takes the vlan configured IP even if the loopback0 is configured on the switch.
<i>ip_address</i>	The IP address to be used in the source IP field.

### Defaults

By default, the NTP source ip preferred setting is set to the **default** parameter.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When configuring a specific IP address, that address must already exist on the switch.
- Use the **no** form of this command to clear a specific IP address and change the behavior back to default.

### Examples

```
-> ntp src-ip preferred 192.168.10.1
-> ntp src-ip preferred no-loopback0
-> ntp src-ip preferred default
```

### Release History

Release 6.3.4; command was introduced

Release 6.4.3; command was deprecated, use [ip managed-interface](#).

**Related Commands****ntp server**

Specifies an NTP server from which the switch will receive updates.

**MIB Objects**

alaNtpSrcIp  
alaNtpSrcIpConfig

---

## ntp broadcast-client

Enables or disables the NTP client to receive time updates from NTP broadcast servers.

**ntp broadcast {enable | disable}**

---

### Syntax Definitions

**enable** Enables the client broadcast mode.

**disable** Disables the client broadcast mode.

### Defaults

Broadcast mode is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Broadcast mode is intended for operation on networks with numerous workstations and where the highest accuracy is not required. In a typical scenario, one or more time servers on the network broadcast NTP messages that are received by NTP hosts. Correct time is determined from this NTP message based on a pre-configured latency or broadcast delay in the order of a few milliseconds.
- In order to configure NTP in broadcast client mode, it is required to define the network server to client broadcast delay.

### Examples

```
-> ntp broadcast-client enable  
-> ntp broadcast-client disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**ntp broadcast-delay** Sets the broadcast delay time in microseconds.

### MIB Objects

alaNtpBroadcastEnable

---

## ntp broadcast-delay

Sets the broadcast delay time in microseconds of received NTP broadcast messages.

**ntp broadcast-delay** *microseconds*

---

### Syntax Definitions

*microseconds*                      The number of microseconds for the broadcast delay.

### Defaults

parameter	default
<i>microseconds</i>	4000

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

When running in the NTP client broadcast mode, a broadcast delay must be set. The broadcast delay is the number of microseconds added to the timestamp received from a broadcast NTP server.

### Examples

```
-> ntp broadcast-delay 1000
-> ntp broadcast-delay 10000
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[ntp broadcast-client](#)                      Enables or disables the client's broadcast mode.

### MIB Objects

alaNtpBroadcastDelay

---

## ntp key

Labels the specified authentication key identification as trusted or untrusted.

**ntp key** *key* [**trusted** | **untrusted**]

---

### Syntax Definitions

<i>key</i>	The key number matching an NTP server.
<b>trusted</b>	Signifies that the specified key is trusted and can be used for authentication.
<b>untrusted</b>	Signifies that the specified key is not trusted and cannot be used for authentication. Synchronization will not occur with an untrusted authentication key.

### Defaults

By default, all authentication key are untrusted.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Authentication keys are stored in a key file and loaded into memory when the switch boots. The keys loaded into memory are not trusted until this command is used. The location of the file containing set of generated authentication keys is `/flash/network/ntp.keys`.
- Once the keys are loaded into software (on boot up of the switch), they must be activated by being labeled as trusted. A trusted key will authenticate with a server that requires authentication as long as the key matches the server key.
- New keys must be added manually to the key file. A newly added key will not be loaded into the switch software until the **ntp key load** command is issued, or the switch is rebooted.
- An authentication key is composed of a 32-bit integer and 32-byte string of characters. The integer format is hexadecimal. For an NTP message to be authenticated the NTP client authentication key must match the key configured at the NTP server. This means the authentication keys must be distributed in advance of configuring the NTP client. If authentication is disabled but authentication key is present, the association will still be unauthenticated.
- By default all keys read from the `ntp.conf` key file are untrusted therefore keys must be set to 'trusted' status to allow NTP to use the key for authentication.

### Examples

```
-> ntp key 5 trusted
-> ntp key 2 untrusted
```

## Release History

Release 6.1; command was introduced.

## Related Commands

- ntp key** Sets the public key the switch uses when authenticating with the specified NTP server.
- ntp client** Enables or disables NTP operation on the switch.

## MIB Objects

```
alaNtpAccessKeyIdTable  
  alaNtpAccessKeyIdKeyId  
  alaNtpAccessKeyIdTrust
```

---

## ntp key load

Loads the current key file into memory.

**ntp key load**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command reloads the key file into the switch memory. This allows for new keys in the key file to be added to the list of keys the switch can use for authentication.
- Newly added keys must be labeled as **trusted** with the **ntp key** command before being used for authentication.
- By default, all authentication keys are untrusted therefore reloading a key file will change any current trusted keys to untrusted status.
- The file ntp.keys is used during the establishment of a set of authentication keys that are used by the NTP protocol. The location of this file is fixed in directory /flash/network.

### Examples

```
-> ntp key load
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                   |                                                                                 |
|-------------------|---------------------------------------------------------------------------------|
| <b>ntp key</b>    | Labels the specified authentication key identification as trusted or untrusted. |
| <b>ntp server</b> | Specifies an NTP server from which this switch will receive updates.            |

### MIB Objects

alaNtpAccessRereadkeyFile

---

---

## ntp authenticate

Enables or disables the authentication on a configured NTP server.

**ntp authenticate {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables authentication for NTP server.
<b>disable</b>	Disables authentication for NTP server.

### Defaults

By default, NTP authentication is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to enable or disable authentication for NTP server.
- Before NTP authentication is enabled, NTP operation should be enabled by using [ntp client](#) command.
- Before enabling the NTP operation, NTP server must be specified using the [ntp server](#) command.

### Examples

```
-> ntp authenticate enable
-> ntp authenticate disable
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show ntp status](#) Displays the information about the current NTP status.

### MIB Objects

alaNtpAuthenticate

---



## ntp master

Specifies the stratum value for unsynchronized switch to act as an authoritative NTP source.

**ntp master** *{stratum-number}*

---

### Syntax Definitions

*stratum-number* Integer value ranging from 2 to 16

### Defaults

Parameter	Default
<i>stratum-number</i>	16

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to synchronize improved clocks with lower strata value if any of the trustworthy NTP sources comes up.
- Use default value of 16 if switch is not synchronized with itself.
- When the switch is synchronized, the stratum number should correspond to peer/server.

### Examples

```
-> ntp master 4
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show ntp status](#) Displays current NTP status.

### MIB Objects

alaNtpConfig  
alaNtpSysStratum

---

## ntp interface

Enables or Disables NTP server functionality for an interface.

**ntp interface** {*interface-ip*} {**enable** | **disable**}

---

### Syntax Definitions

<i>interface-ip</i>	IP address of an interface on which NTP server functionality is to be disabled.
<b>enable</b>	Enables NTP server functionality on an interface.
<b>disable</b>	Disables NTP sever functionality on an interface.

### Defaults

By default, NTP server functionality is enabled on all the interfaces.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to enable or disable the incoming NTP request.
- Disabling the NTP server functionality drops the NTP request on an interface and synchronization information is not sent out.

### Examples

```
-> ntp interface 10.10.10.1 disable  
-> ntp interface 10.10.10.1 enable
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show ntp status](#) Displays current NTP status.

### MIB Objects

```
alaNtpAccessRestrictedTable  
  alaNtpAccessRestrictedIpAddress
```

---

## ntp max-associations

Configures the maximum number of associations on the switch.

**ntp max-associations** *{number}*

---

### Syntax Definitions

*number* Maximum no of client/server and peer associations. Integer value ranging from 0 to 64.

### Defaults

By default, 32 associations are allowed on the switch.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to restrict the number of client/server and peer association.
- The command can be used to change the default value of 32 to any value between 0 to 64.
- The command protects the switch from overwhelming with the NTP requests. When the limit is reached, trap is sent to indicate the switch.

### Examples

```
-> ntp max-associations 20
```

### Release History

Release 6.4.2; command was introduced.

### Related Commands

[show ntp status](#) Displays current NTP status.

### MIB Objects

alaNtpConfig  
alaNtpMaxAssociation

---

## ntp broadcast

Enables NTP to broadcast synchronized information to all the clients in the subnet in the configured interval.

**ntp broadcast** {*broadcast-addr*} [**version** *version*] [**minpoll** *poll interval*]

**no ntp broadcast** {*broadcast-addr*}

---

### Syntax Definitions

<i>broadcast-addr</i>	Subnet for which broadcast updates are regularly sent.
<i>version</i>	NTP version on which the broadcast updates are sent out on the subnet for the clients. Value is 3 or 4.
<i>poll interval</i>	Polling interval for NTP broadcast message. This value is measured in seconds.

### Defaults

Parameter	Default
<i>version</i>	4
<i>poll interval</i>	6

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to configure NTP to act in broadcast server mode.
- Use the **no** form of this command to remove the configured broadcast servers. This also disables NTP synchronization information being sent for that broadcast subset.
- The NTP broadcast address needs to be defined to enable NTP broadcast mode. A maximum of 3 broadcast addresses can be configured.
- Use the **version** keyword to set the correct version of NTP.
- Use the **minpoll** keyword to set the minimum poll time for the server. This number is determined by raising 2 to the power of the number entered.

### Examples

```
-> ntp broadcast 10.145.59.255 version 4 minpoll 5
-> no ntp broadcast 10.145.59.255
```

### Release History

Release 6.4.2; command was introduced.

## Related Commands

- |                                      |                                                  |
|--------------------------------------|--------------------------------------------------|
| <a href="#">ntp broadcast-client</a> | Enables or disables the client's broadcast mode. |
| <a href="#">ntp broadcast-delay</a>  | Sets the broadcast delay time in microseconds    |

## MIB Objects

```
alaNtpPeerTable  
  alaNtpPeerType  
  alaNtpPeerVersion  
  alaNtpPeerMinpoll
```

---

## ntp peer

Configures NTP to operate in the symmetric active peering mode. This also enables the establishment of an active symmetric association with the specified remote peer.

**ntp peer** {*ip-address*} [**key** *keyid*] [**version** *version*] [**minpoll** *poll interval*]

**no ntp peer** {*ip-address*}

---

### Syntax Definitions

<i>ip-address</i>	IP address of the remote peer.
<i>key-id</i>	Authentication key for the remote peer.
<i>version</i>	NTP packet version to be used for the peer association.
<i>poll interval</i>	Polling interval for NTP broadcast message. Poll interval which when expires, packets will be sent to the peer.

### Defaults

Parameter	Default
<i>version</i>	4
<i>poll interval</i>	6

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use **no** form of this command to remove the peers that are configured to act in symmetric active mode. This command deletes the symmetric active association with the remote peer.
- Use the **version** keyword to set the correct version of NTP.
- Use the **minpoll** keyword to set the minimum poll time for the server. This number is determined by raising 2 to the power of the number entered.
- The command should not be used for b(Broadcast), m(Multicast) or r(Reference clock address 127.127.x.x)
- *ip-address* is the mandatory parameter to be entered in the command while key id is the optional parameter. If key id is not specified, then peering will not be authenticated.

### Examples

```
-> ntp peer 172.18.16.112
-> no ntp peer 172.18.16.112
```

## Release History

Release 6.4.2; command was introduced.

## Related Commands

[show ntp peers](#) Displays current NTP peer association.

## MIB Objects

```
alaNtpPeerTable  
  alaNtpPeerType  
  alaNtpPeerAuth  
  alaNtpPeerVersion  
  alaNtpPeerMinpoll
```

---

## show ntp status

Displays the information about the current NTP status.

**show ntp status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command displays the information about the status of NTP, which is configured along with other global configuration. See the Examples section for more information.
- If the source IP Configuration is done in default or no-loopback0 then the source ip-address will not be displayed in the output of the **show ntp status** command.

### Example

```
-> show ntp status
Current time           : Tue APR 29 2003   18:48:01 (UTC),
Last NTP update       : Tue APR 29 2003   18:44:15 (UTC),
Server reference:     : 0.0.0.0,
Client mode            : enabled,
Broadcast client mode : disabled,
Broadcast mode delay (microseconds) : 4000,
Server qualification  : synchronized,
Stratum                : 16,
Max-Associations       : 32,
Authentication        : disabled,
Source IP Configuration : Preferred,
Source IP              : 10.145.15.15
```

### *output definitions*

---

<b>Current time</b>	The current time for the NTP client.
<b>Last NTP update</b>	The time of the last synchronization with an NTP server.
<b>Client mode</b>	Whether the NTP client software is enabled or disabled.
<b>Broadcast client mode</b>	What NTP mode the client is running in, either client or broadcast.
<b>Broadcast delay</b>	The number of microseconds in the advertised broadcast delay time. This field is absent if the client broadcast mode is disabled.



<b>server qualification</b>	Server qualification status.
<b>Stratum</b>	The stratum of the server. The stratum number is the number of hops from a UTC time source.
<b>Max-Association</b>	Maximum association on the switch that restricts the number of client/server and peer association
<b>Authentication</b>	Whether Authentication is enabled or disabled
<b>Source IP Configuration</b>	Source IP Configuration type which is configured.
<b>Source IP</b>	Source IP address for NTP that send updates to clients.

---

## Release History

Release 6.4.2; command was introduced.

## Related Command

<a href="#">ntp client</a>	Enables or disables NTP operation on the switch.
<a href="#">ntp server</a>	Specifies an NTP server from which the switch will receive updates
<a href="#">ntp server synchronized</a>	Enables an NTP client to invoke tests for NTP server synchronization as specified by the NTP protocol.
<a href="#">ntp max-associations</a>	Configures the maximum number of associations on the switch.
<a href="#">ntp master</a>	Specifies the stratum value for unsynchronized switch
<a href="#">ntp broadcast-client</a>	Enables or disables the client's broadcast mode.
<a href="#">show ntp client</a>	Displays information about the current client NTP configuration.
<a href="#">show ntp client server-list</a>	Displays a list of the servers with which the NTP client synchronizes
<a href="#">show ntp server client-list</a>	Displays the basic server information for a specific NTP server or a list of NTP servers

## MIB Objects

```
alaNtpPeerListTable  
  alaNtpPeerShowOriginateTime  
  alaNtpPeerShowTransmitTime  
  alaNtpEnable  
  alaNtpBroadcastEnable  
  alaNtpBroadcastDelay  
  alaNtpPeerTests  
  alaNtpPeerStratum  
  alaNtpPeerTests  
  alaNtpAuthenticate  
  alaNtpSrcIpConfig  
  alaNtpSrcTp
```

---

## show ntp client

Displays information about the current client NTP configuration.

**show ntp client**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays the current configuration parameters for the NTP client. The display is slightly different depending on what has been configured on the client. See the Examples section for more information.

### Examples

```
-> show ntp client
Current time           : SAT APR 16 2005 00:19:02 (UTC)
Last NTP update       : SAT APR 16 2005 00:06:45 (UTC)
Client mode           : enabled
Broadcast client mode : disabled
Broadcast delay (microseconds): 4000
```

#### *output definitions*

---

<b>Current time</b>	The current time for the NTP client.
<b>Last NTP update</b>	The time of the last synchronization with an NTP server.
<b>Client mode</b>	Whether the NTP client software is enabled or disabled.
<b>Broadcast client mode</b>	What NTP mode the client is running in, either client or broadcast.
<b>Broadcast delay</b>	The number of microseconds in the advertised broadcast delay time. This field is absent if the client broadcast mode is disabled.
<b>Server Qualification</b>	Indicates whether they server must be synchronized or not.

---

### Release History

Release 6.1; command was introduced.

### **Related Command**

**ntp client**

Enables or disables NTP operation on the switch.

### **MIB Objects**

alaNtpLocalInfo

---

## show ntp client server-list

Displays a list of the servers with which the NTP client synchronizes.

```
show ntp client server-list
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to display tabular information on the current NTP client to server association status.

### Examples

```
-> show ntp client server-list
IP Address      Ver  Key  St    Delay    Offset    Disp
=====+====+=====+====+=====+=====+=====
*198.206.181.70  4    0   2     0.167    0.323    0.016
=198.206.181.123 4    0  16     0.000    0.000    0.000
```

### *output definitions*

---

<b>IP Address</b>	The server IP address. "+" indicates an active peer "-" indicates a pasive peer "=" indicates a client "*" indicates current system peer "^" indicates a broadcast server "\" indicates a broadcast client
<b>Ver</b>	The version of NTP the server is using. Versions 3 and 4 are valid.
<b>Key</b>	The NTP server's public key. This must be accurate and the same as the NTP server, or the client switch will not be able to synchronize with the NTP server. A zero (0) means there is no key entered.
<b>St</b>	The stratum of the server.
<b>Delay</b>	The delay received from the server in its timestamp.
<b>Offset</b>	The offset received from the server in its timestamp.
<b>Disp</b>	The dispersion value received from the server in its timestamp.

---

## **Release History**

Release 6.1; command was introduced.

## **Related Command**

[ntp client](#)

Enables or disables NTP operation on the switch.

## **MIB Objects**

alaNtpPeerListTable

---

## show ntp server client-list

Displays the information about the current NTP clients connected to the server.

**show ntp server client-list**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to display the tabular information on the current NTP client connected to the server (switch).

### Examples

```
-> show ntp server client-list
IP Address      Ver      Key
-----+-----+-----
172.23.0.201    4        0
10.255.24.121   4        0
```

#### *output definitions*

---

<b>IP Address</b>	The client IP address.
<b>Ver</b>	The version of NTP the server is using. Versions 3 and 4 are valid.
<b>Key</b>	The NTP server's public key. This must be accurate and the same as the NTP server or the client switch will not be able to synchronize with the NTP server. A zero (0) means there is no key entered.

---

### Release History

Release 6.4.2; command was introduced.

## Related Command

**show ntp status**

Displays information about the current client NTP configuration

**ntp client**

Enables or disables NTP operation on the switch.

## MIB Objects

```
alaNtpClientListTable  
  alaNtpPeerListAddress  
  alaNtpPeerVersion  
  alaNtpPeerAuth
```

---

## show ntp server status

Displays the basic server information for a specific NTP server or a list of NTP servers.

**show ntp server status** [*ip\_address*]

---

### Syntax Definitions

*ip\_address*                      The IP address of the NTP server to be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command displays information on the status of any or all configured NTP servers/peers.
- To display a specific server, enter the command with the server's IP address. To display all servers, enter the command with no server IP address.

### Examples

```
-> show ntp server status
IP address      = 172.18.16.147,
Host mode       = server,
Peer mode       = unspec,
Prefer          = no,
Version         = 4,
Key             = 0,
Stratum         = 16,
Minpoll         = 4 (16 seconds),
Maxpoll         = 10 (1024 seconds),
Delay           = 0.000 seconds,
Offset          = 0.000 seconds,
Dispersion      = 0.000 seconds
Root distance   = 0.000,
Precision       = -6,
Reference IP    = 0.0.0.0,
Status          = not configured,
Uptime count    = 28250 seconds,
Reachability    = 0,
Unreachable count = 5,
Stats reset count = 27829 seconds,
Packets sent    = 0,
Packets received = 0,
Duplicate packets = 0,
Bogus origin    = 0,
Bad authentication = 0,
Bad dispersion  = 0
```



```
IP address      = 172.18.16.147,  
Host mode      = server,  
Peer mode     = unspec,  
Prefer        = no,  
Version       = 4,  
Key           = 0,  
Stratum       = 16,  
Minpoll      = 4 (16 seconds),  
Maxpoll      = 10 (1024 seconds),  
Delay        = 0.000 seconds,  
Offset       = 0.000 seconds,  
Dispersion   = 0.000 seconds  
Root distance = 0.000,  
Precision    = -6,  
Reference IP  = 0.0.0.0,  
Status       = not configured,  
Uptime count = 28250 seconds,  
Reachability = 0,  
Unreachable count = 16,  
Stats reset count = 26812 seconds,  
Packets sent = 0,  
Packets received = 0,  
Duplicate packets = 0,  
Bogus origin = 0,  
Bad authentication = 0,  
Bad dispersion = 0
```

```
-> show ntp server status 198.206.181.139  
IP address      = 198.206.181.139,  
Host mode      = client,  
Peer mode     = server,  
Prefer        = no,  
Version       = 4,  
Key           = 0,  
Stratum       = 2,  
Minpoll      = 6 (64 seconds),  
Maxpoll      = 10 (1024 seconds),  
Delay        = 0.016 seconds,  
Offset       = -180.232 seconds,  
Dispersion   = 7.945 seconds  
Root distance = 0.026,  
Precision    = -14,  
Reference IP  = 209.81.9.7,  
Status       = configured : reachable : rejected,  
Uptime count = 1742 seconds,  
Reachability = 1,  
Unreachable count = 0,  
Stats reset count = 1680 seconds,  
Packets sent = 1,  
Packets received = 1,  
Duplicate packets = 0,  
Bogus origin = 0,  
Bad authentication = 0,  
Bad dispersion = 0,  
Last Event    = peer changed to reachable,
```

*output definitions*


---

<b>IP address</b>	The server IP address.
<b>Host mode</b>	The host mode of this remote association.
<b>Peer mode</b>	The peer mode of this remote association.
<b>Prefer</b>	Whether this server is a preferred server or not. A preferred server is used to synchronize the client before a non-preferred server.
<b>Version</b>	The version of NTP the server is using. Versions 3 and 4 are valid.
<b>Key</b>	The NTP server's public key. This must be accurate and the same as the NTP server, or the client switch will not be able to synchronize with the NTP server. A zero (0) means there is no key entered.
<b>Stratum</b>	The stratum of the server. The stratum number is the number of hops from a UTC time source.
<b>Minpoll</b>	The minimum poll time. The client will poll the server for a time update every time this limit has been exceeded.
<b>Maxpoll</b>	The maximum poll time.
<b>Delay</b>	The delay received from the server in its timestamp.
<b>Offset</b>	The offset received from the server in its timestamp.
<b>Dispersion</b>	The dispersion value received from the server in its timestamp.
<b>Root distance</b>	The total round trip delay (in seconds) to the primary reference source.
<b>Precision</b>	The advertised precision of this association.
<b>Reference IP</b>	The IP address identifying the peer's primary reference source.
<b>Status</b>	The peer selection and association status.
<b>Uptime count</b>	The time period (in seconds) during which the local NTP server was associated with the switch.
<b>Reachability</b>	The reachability status of the peer.
<b>Unreachable count</b>	Number of times the NTP entity was unreachable.
<b>Stats reset count</b>	The time delay (in seconds) since the last time the local NTP server was restarted.
<b>Packets sent</b>	Number of packets sent.
<b>Packets received</b>	Number of packets received.
<b>Duplicate packets</b>	Number of duplicated packets received.
<b>Bogus origin</b>	Number of bogus packets.
<b>Bad authentication</b>	Number of NTP packets rejected for not meeting the authentication standards.
<b>Bad dispersion</b>	Number of bad dispersions.
<b>Last Event</b>	The last event.

---

**Release History**

Release 6.1; command was introduced.

Release 6.1.5; fields added.

### **Related Command**

**ntp client**

Enables or disables NTP operation on the switch.

### **MIB Objects**

alaNtpPeerListTable

alaNtpPeerShowStatus

---

## show ntp keys

Displays information about all authentication keys.

```
show ntp keys
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays the information on the current set of trusted authentication keys.

### Examples

```
-> show ntp keys
Key      Status
=====+=====
1        untrusted
2        untrusted
3        trusted
4        trusted
5        untrusted
6        untrusted
7        trusted
8        trusted
```

### *output definitions*

---

<b>Key</b>	The key number corresponding to a key in the key file.
<b>Status</b>	Whether the key is trusted or untrusted.

---

### Release History

Release 6.1; command was introduced.

### **Related Command**

- |                     |                                                                                 |
|---------------------|---------------------------------------------------------------------------------|
| <b>ntp key</b>      | Labels the specified authentication key identification as trusted or untrusted. |
| <b>ntp key load</b> | Loads the current key file into memory.                                         |

### **MIB Objects**

alaNtpAccessKeyIdTable

---

## show ntp peers

Displays the information about the current status on the NTP peer association.

**show ntp peers**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use this command to display the tabular information on the current NTP peer association status.

### Examples

```
-> show ntp peers
IP Address      Ver    Key    St    Delay    Offset    Disp
-----+-----+-----+-----+-----+-----+-----
172.23.0.202   4      0     3     0.300    0.404    0.0024
10.255.24.120  4      0     3     0.016    0.250    0.0017
```

#### *output definitions*

---

<b>IP Address</b>	Peer IP Address
<b>Ver</b>	The version of NTP the server is using. Versions 3 and 4 are valid.
<b>Key</b>	The NTP server's public key. This must be accurate and the same as the NTP server or the client switch will not be able to synchronize with the NTP server. A zero (0) means there is no key entered.
<b>St</b>	The stratum of the server.
<b>Delay</b>	The delay received from the server in its timestamp.
<b>Offset</b>	The offset received from the server in its timestamp.
<b>Disp</b>	The dispersion value received from the server in its timestamp.

---

### Release History

Release 6.4.2; command was introduced.

## Related Command

<a href="#">ntp client</a>	Enables or disables NTP operation on the switch.
<a href="#">show ntp status</a>	Displays the information about the current NTP status.
<a href="#">show ntp server status</a>	Displays the basic server information for a specific NTP server or a list of NTP servers.

## MIB Objects

```
alaNtpPeerListTable  
  alaNtpPeerListAddress  
  alaNtpPeerVersion  
  alaNtpPeerAuth  
  alaNtpPeerStratum  
  alaNtpPeerListDelay  
  alaNtpPeerShowOffset  
  alaNtpPeerListDispersion
```

---

## show ntp server disabled-interfaces

Displays the ip addresses of the interfaces on which NTP server is not enabled.

**show ntp server disabled-interfaces**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command displays ip interfaces on which currently NTP server functionality is disabled.

### Examples

```
-> show ntp server disabled-interfaces
IP Address
-----
172.23.0.202
10.255.24.120
```

### *output definitions*

IP Address	Peer IP Address
------------	-----------------

### Release History

Release 6.4.2; command was introduced.

### Related Command

[show ntp status](#)

Displays the information about the current NTP status.

[show ntp server status](#)

Displays the basic server information for a specific NTP server or a list of NTP servers.

### MIB Objects

alaNtpAccessRestrictedTable  
alaNtpPeerListAddress

---



# 57 Session Management Commands

Session Management commands are used to monitor and configure operator sessions including FTP, Telnet, HTTP (WebView), console, Secure Shell, and Secure Shell FTP on the switch. (See the SNMP Commands chapter for SNMP session commands.) Maximum number of concurrent sessions allowed:

Session	Maximum Number of Sessions
Telnet(v4 or v6)	4
FTP(v4 or v6)	4
SSH + SFTP(v4 or v6 secure sessions)	8
HTTP	4
Total Sessions	20
SNMP	50

MIB information for commands in this chapter are as follows:

*Filename:* AlcatelInd1SessionMgr.mib  
*Module:* AlcatelIND1SessionMgrMIB

*Filename:* AlcatelIND1AAA.mib  
*Module:* Alcatel-IND1-AAA-MIB

*Filename:* AlcatelIND1System.mib  
*Module:* Alcatel-IND1ConfigMgr.mib

*Filename:* AlcatelIND1Ssh.mib  
*Module:* ALCATEL-IND1-SSH-MIB

A summary of the available commands is listed here:

---

- session login-attempt**
- session login-timeout**
- session banner**
- session timeout**
- session prompt**
- session xon-xoff**
- prompt**
- show prefix**
- alias**
- show alias**
- user profile save**
- user profile reset**
- history size**
- show history**
- !**
- command-log**
- kill**
- exit**
- who**
- whoami**
- show session config**
- show session xon-xoff**
- more size**
- more**
- show more**
- telnet**
- telnet6**
- ssh**
- ssh6**
- ssh enforce pubkey-auth**
- show ssh config**
- show command-log**
- show command-log status**

---

## session login-attempt

Sets or resets the number of times a user can attempt unsuccessfully to log into the switch before the TCP connection is closed.

**session login-attempt** *integer*

---

### Syntax Definitions

*integer*                      The number of times the user can attempt to log in to the switch before the TCP connection is closed. Valid range is 1 to 10.

### Defaults

Default is 3 login attempts.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> session login-attempt 5
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- |                                       |                                                                                                                                                                                              |
|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">show session config</a>   | Displays Session Manager information such as banner file name, session timeout value, and default prompt value.                                                                              |
| <a href="#">session login-timeout</a> | Sets or resets the amount of time the user can take to accomplish a successful login to the switch.                                                                                          |
| <a href="#">session timeout</a>       | Configures the inactivity timer for a CLI, HTTP (including Web-View), or FTP interface. When the switch detects no user activity for this period of time, the user is logged off the switch. |

### MIB Objects

sessionMgr  
    sessionLoginAttempt

---

---

## session login-timeout

Sets or resets the amount of time the user can take to accomplish a successful login to the switch. If the timeout period is exceeded, the TCP connection is closed by the switch.

**session login-timeout** *seconds*

---

### Syntax Definitions

*seconds*                      The number of seconds the switch allows for the user to accomplish a successful login. Valid range is from 5 to 600 seconds.

### Defaults

Login timeout default is 55 seconds.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> session login-timeout 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show session config</a>	Displays Session Manager information such as banner file name, session timeout value, default prompt value, login timer, and login attempt number.
<a href="#">session login-attempt</a>	Sets or resets the number of times a user can attempt unsuccessfully to log into the switch before the TCP connection is closed.
<a href="#">session timeout</a>	Configures the inactivity timer for a CLI, HTTP (including Web-View), or FTP interface. When the switch detects no user activity for this period of time, the user is logged off the switch.

### MIB Objects

sessionMgr  
    sessionLoginTimeout

---

## session banner

Sets or resets the file name of the user-defined banner. The banner is a welcome banner that appears after the user successfully logs onto the switch.

**session banner** {cli | ftp | http} *file\_name*

**session banner no** {cli | ftp | http}

---

### Syntax Definitions

<b>cli</b>	Creates/modifies the CLI banner file name.
<b>ftp</b>	Creates/modifies the FTP banner file name.
<b>http</b>	Creates/modifies the HTTP banner file name.
<i>file_name</i>	Banner file name including the path from the switch's /flash directory. The maximum length of the filename and path is 255 characters.

### Defaults

- A default banner is included in one of the switch's image files. It is automatically displayed at login so no configuration is needed.
- The user has the option of defining a custom supplementary banner or of using the default banner.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **session banner no** command is used to disable a user defined session banner file from displaying when you log onto the switch. The text file containing the custom banner will remain on the switch until you remove it with the **rm** command.
- The **session banner** command is used to configure or modify the banner file *name*. You must use a text editor to edit the file containing the banner text.

### Examples

```
-> session banner cli/switch/banner.txt
```

### Release History

Release 6.1; command was introduced.  
Release 6.1.3; **http** keyword was added.

**Related Commands****show session config**

Displays Session Manager information such as banner file name, session timeout value, and default prompt value.

**MIB Objects**

SessionConfigTable

  SessionType

  SessionBannerFileName

---

## session timeout

Configures the inactivity timer for a CLI, HTTP (including WebView), or FTP interface. When the switch detects no user activity for this period of time, the user is logged off the switch.

`session timeout {cli | http | ftp} minutes`

---

### Syntax Definitions

<code>cli</code>	Sets the inactivity timeout for CLI sessions.
<code>http</code>	Sets the inactivity timeout for HTTP sessions.
<code>ftp</code>	Sets the inactivity timeout for FTP sessions.
<code>minutes</code>	Inactivity timeout value (in minutes). Valid range 1 to 596523.

### Defaults

---

<b>parameter</b>	<b>default</b>
<code>minutes</code>	4

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The inactivity timer value may be different for each type of interface, such as CLI (Console, Telnet), HTTP (including WebView), and FTP.
- If you change the timer, the new value does not affect current sessions; the new timer is applied to new sessions only.

### Examples

```
-> session timeout cli 5
```

### Release History

Release 6.1; command was introduced.

## Related Commands

### [show session config](#)

Displays Session Manager information, such as banner file name, session timeout value, and default prompt value.

## MIB Objects

SessionConfigTable

  SessionType

  SessionInactivityTimerValue

---



## session prompt

Configures the default CLI prompt for console and Telnet sessions. The prompt is the symbol and/or text that appears on the screen in front of the cursor.

**session prompt default** [*string*]

---

### Syntax Definitions

*string* Prompt string.

### Defaults

parameter	default
<i>string</i>	->

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The maximum prompt string length is 31 characters.
- The new prompt will not take effect until you log off and back onto the switch.

### Examples

```
-> session prompt default -->
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[show session config](#) Displays Session Manager information such as banner file name, session timeout value, and default prompt value.

### MIB Objects

SessionConfigTable  
  SessionType  
  sessionDefaultPromptString

---

---

## session xon-xoff

Enables/disables the XON-XOFF protocol on the console port.

**session xon-xoff** {enable | disable}

---

### Syntax Definitions

*enable* Enables XON-XOFF on the console port.

*disable* Disables XON-XOFF on the console port.

### Defaults

parameter	default
enable / disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The switch may interpret noise from an RS232 line as Control-S (XOFF). If the **session console xon-xoff** command is enabled, traffic to the console port may be stopped.

### Examples

```
-> session xon-xoff enable
-> session xon-xoff disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show session xon-xoff** Displays whether the console port is enabled or disabled for XON-XOFF.

### MIB Objects

sessionXonXoffEnable

---

## prompt

This command defines the CLI prompt.

**prompt** [**user**] [**time**] [**date**] [**string** *string*] [**prefix**]

**no prompt**

---

### Syntax Definitions

<b>user</b>	The name of the current user is displayed as part of the CLI prompt.
<b>time</b>	The current system time is displayed as part of the CLI prompt.
<b>date</b>	The current system date is displayed as part of the CLI prompt.
<i>string</i>	You can specify a text string as the prompt. Prompts specified with this parameter are limited to four characters.
<b>prefix</b>	The current prefix (if any) is displayed as part of the CLI prompt. Prefixes are stored for command families that support the prefix recognition feature. See Usage Guidelines.

### Defaults

The default prompt is the arrow (->, or dash greater-than).

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to remove the CLI prompt.
- Prefixes are stored for command families that support the prefix recognition feature. These command families include AAA, Interface, Link Aggregation, QoS, Spanning Tree, and VLAN Management. Other command families do not store a prefix.
- To set the CLI prompt back to the arrow (->), enter the **prompt string ->** (prompt string dash greater-than) syntax.

### Examples

```
-> prompt user
-> prompt user time date
-> prompt prefix
-> prompt string 12->
-> prompt prefix ->
```

### Release History

Release 6.1; command was introduced.

**Related Commands****show prefix**

Shows the command prefix (if any) currently stored by the CLI. Prefixes are stored for command families that support the prefix recognition feature.

**MIB Objects**

N/A

---

## show prefix

Shows the command prefix (if any) currently stored by the CLI. Prefixes are stored for command families that support the prefix recognition feature.

show prefix

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Prefixes are stored for command families that support the prefix recognition feature. These command families include AAA, Interface, Link Aggregation, QoS, Spanning Tree, and VLAN Management. Other command families do not store a prefix.

### Examples

```
-> show prefix
```

### Release History

Release 6.1; command was introduced.

### Related Commands

#### **prompt**

This command defines the format of the CLI prompt. The prompt can be defined to include the command prefix.

### MIB Objects

N/A

---

## alias

Defines substitute command text for the switch's CLI command keywords.

**alias** *alias command\_name*

---

### Syntax Definitions

*alias* Text string that defines the new CLI command name (alias) that you will use to replace an old CLI command name.

*command\_name* The old CLI command name being replaced by your alias.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Alias commands are stored until the user session ends. To save alias settings, you must execute the **user profile save** command. Otherwise, once you log off the switch, substitute commands configured with the **alias** command are destroyed.
- You can eliminate excess typing by reducing the number of characters required for a command. For instance, the group syntax can be defined as gp.
- You can change unfamiliar command words into familiar words or patterns. For instance, if you prefer the term “privilege” to the term “attribute” with reference to a login account’s read/write capabilities, you can change the CLI command from attrib to privileges.
- To reset commands set with alias back to their factory default, use the **user profile reset** command.

### Examples

```
-> alias gp group
-> alias privilege attrib
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show alias](#)

Lists all current commands defined by the use of the **alias** CLI command.

[user profile reset](#)

Resets the alias, prompt, and more values to their factory defaults.

## MIB Objects

N/A

---

## show alias

Displays all current commands defined by the use of the **alias** CLI command.

**show alias**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

The following will display where the alias **gp** was defined to replace the **group** command, and the alias **privilege** was defined to replace the **attrib** command.

```
-> show alias
gp:          group
privilege:  attrib
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**alias** Defines substitute command text for the switch's CLI command keywords.

### MIB Objects

N/A

---



## user profile save

Saves the user account settings for aliases, prompts, and the more mode screen setting. These settings will be automatically loaded when the user account logs on.

user profile save

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to save alias definitions, prompt definitions, and more mode screen settings for use in future login sessions for the current user account.
- If you do not use the **user profile save**, **alias**, **prompt**, and **more size** commands, settings are lost when the user account logs off.
- Use the **user profile reset** command to set the alias, prompt, and more size values to their factory defaults.

### Examples

```
-> user profile save
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">alias</a>	Defines substitute command text for the switch's CLI command keywords.
<a href="#">prompt</a>	Defines substitute command text for the switch's CLI command keywords.
<a href="#">more size</a>	Specifies the number of lines that your console screen will display.
<a href="#">user profile reset</a>	Resets the alias, prompt and more values to their factory defaults.

### MIB Objects

N/A

---

## user profile reset

Resets the alias, prompt, and more values to their factory defaults.

user profile reset

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> user profile reset
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">alias</a>	Defines substitute command text for the switch's CLI command keywords.
<a href="#">prompt</a>	Defines substitute command text for the switch's CLI command keywords.
<a href="#">more size</a>	Specifies the number of lines that your console screen will display.
<a href="#">user profile save</a>	Saves the user account settings for aliases, prompts and the more screen.

### MIB Objects

N/A

---

## history size

Sets the number of commands that will be stored in the CLI's history buffer.

**history size** *number*

---

### Syntax Definitions

*number*

Enter an integer between 1 and 500. The history buffer can store up to 500 commands.

### Defaults

By default, the history buffer size is set to 100 commands.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> history size 10
```

### Release History

Release 6.1; command was introduced.

Release 6.1.5; history buffer size increased to 500.

### Related Commands

[show history](#)

Displays commands that you have recently issued to the switch. The commands are displayed in a numbered list.

!

Recalls commands listed in the history buffer and displays them at the CLI prompt.

### MIB Objects

N/A

---

## show history

Displays commands that you have recently issued to the switch. The commands are displayed in a numbered list.

**show history [parameters]**

---

### Syntax Definitions

**parameters** When this syntax is used, the CLI displays the history buffer size, the current number of commands in the history buffer, and the index range of the commands.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show history
1 show cmm
2 show fan
3 show sensor
4 show temp
5 show time
6 show arp
7 clear arp
8 show prefix
```

```
-> show history parameters
History size: 10
Current Size: 7
Index Range: 1-7
```

#### *output definitions*

---

<b>History Size</b>	The size of the history buffer.
<b>Current Size</b>	The number of commands currently stored in the history buffer for this session.
<b>Index Range</b>	The index range of the commands for this CLI session currently stored in the history buffer.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### history size

Sets the number of commands that will be stored in the CLI's history buffer.

!

Recalls commands listed in the history buffer and displays them at the CLI prompt.

## MIB Objects

N/A

---

**!**

Recalls commands listed in the history buffer and displays them at the CLI prompt.

!**{ | n**}

---

**Syntax Definitions**

<b>!</b>	Recalls the last command listed in the history buffer and displays that command at the CLI prompt.
<i>n</i>	Identifies a single command in the history buffer by number and displays that command at the CLI prompt.

**Defaults**

N/A

**Platforms Supported**

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

**Usage Guidelines**

- You can use the **show history** command to list all commands in the history buffer, then use the **!*n*** syntax to issue a single command from the list.
- When you use **!*n*** or **!!** to recall a command in the history buffer list, you must press the Enter key to execute the command.

**Examples**

```
-> show history
1* show cmm
2 show fan
3 show sensor
4 show temp
5 show time
6 show arp
7 clear arp
```

**Release History**

Release 6.1; command was introduced.

## Related Commands

### [history size](#)

Sets the number of commands that will be stored in the CLI's history buffer.

### [show history](#)

Displays commands you have recently issued to the switch. The commands are displayed in a numbered list.

## MIB Objects

N/A

---

## command-log

Enables or disables command logging on the switch. When command logging is enabled, a **command.log** is automatically created; this file stores a comprehensive CLI command history for all active sessions since the function was *first* enabled.

**command-log** {enable | disable}

---

### Syntax Definitions

<b>enable</b>	Creates a file called <b>command.log</b> in the switch's <b>/flash</b> directory. Any configuration commands entered on the command line will be recorded to this file until command logging is disabled.
<b>disable</b>	Disables logging of current session commands to the <b>command.log</b> file.

### Defaults

---

parameter	default
enable   disable	disable

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The maximum log file size is 66,402 bytes; the file may hold up to 100 commands.

### Examples

```
-> command-log enable
-> command-log disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">show command-log</a>	Displays the contents of the <b>command.log</b> file.
<a href="#">show command-log status</a>	Shows the current status of the command logging function (i.e., enabled or disabled).

### MIB Objects

sessionCliCommandLogEnable

---



# kill

Kills an active session. The command takes effect immediately.

**kill** *session\_number*

---

## Syntax Definitions

*session\_number*                      Number of the session you want to kill.

## Defaults

N/A

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Use the **who** command to obtain the session number variable.
- You cannot kill your own session.
- You cannot kill a connected session where the user has not yet completed the login process. These sessions appear with username “(at login)” when displayed with the **who** command.

## Examples

```
-> kill 3
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**who**                                      Displays all active login sessions (e.g., Console, Telnet, FTP, HTTP, Secure Shell, and Secure Shell FTP).

## MIB Objects

```
SessionMgr  
  sessionIndex  
  sessionRowStatus
```

---

## exit

Ends the current CLI session. If the CLI session to the switch was via Telnet, the connection is closed.

exit

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

If changes were made using the CLI and have not been saved with the **reload issu** command, a warning message appears asking to confirm the user exit. To save changes, enter **N** at the warning prompt and use the **reload issu** command.

### Examples

```
-> exit
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**kill** Kills an active session. The command takes effect immediately.

### MIB Objects

```
SessionMgr  
  sessionIndex  
  sessionRowStatus
```

---

# whoami

Displays the current user session.

**whoami**

---

## Syntax Definitions

N/A

## Defaults

N/A

## Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

Use the **who** command to display all sessions on the switch.

## Examples

```
-> whoami
Session number = 5
  User name     = admin,
  Access type   = telnet,
  Access port   = NI,
  IP address    = 121.251.17.76,
  Read-only domains = None,
  Read-only families = ,
  Read-Write domains = All ,
  Read-Write families = ,
  End-User profile =
```

### *output definitions*

---

<b>Session Number</b>	The session number assigned to the user.
<b>User name</b>	User name.
<b>Access type</b>	Type of access protocol used to connect to the switch.
<b>Access port</b>	Switch port used for access during this session.
<b>Ip Address</b>	User IP address.
<b>Read-only domains</b>	The command domains available with the user's read-only access. See the table beginning on <a href="#">page 57-28</a> for a listing of valid domains.
<b>Read-only families</b>	The command families available with the user's read-only access. See the table beginning on <a href="#">page 57-28</a> for a listing of valid families.
<b>Read-Write domains</b>	The command domains available with the user's read-write access. See the table beginning on <a href="#">page 57-28</a> for a listing of valid domains.

*output definitions*

<b>Read-Write families</b>	The command families available with the user's read-write access. See the table beginning on <a href="#">page 57-28</a> for a listing of valid families.
<b>End-User Profile</b>	The name of an end-user profile associated with the user.

Possible values for command domains and families are listed here:

<b>domain</b>	<b>families</b>
domain-admin	file image bootrom telnet reset dshell debug
domain-system	system aip snmp rmon webmgt config
domain-physical	chassis module interface pmm flood health
domain-network	ip rip ospf bgp vrrp iprm ipx ipmr ipms
domain-layer2	vlan bridge stp 802.1q linkagg ip-helper
domain-service	ldap dhcp dns
domain-policy	qos policy slb
domain-security	session binding avlan aaa

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<b>who</b>	Displays all active login sessions (e.g., Console, Telnet, FTP, HTTP, Secure Shell, and Secure Shell FTP).
<b>kill</b>	Kills another user's session.

## **MIB Objects**

### SessionActive

- sessionIndex
- sessionAccessType
- sessionPhysicalPort
- sessionUserName
- sessionUserReadPrivileges
- sessionUserWritePrivileges
- sessionUserProfileNumber
- sessionUserIpAddress
- sessionRowStatus

---

## who

Displays all active login sessions (e.g., Console, Telnet, FTP, HTTP, Secure Shell, and Secure Shell FTP).

**who**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

You can identify your current login session by using IP address.

### Examples

```

-> who
Session number = 0
  User name    = (at login),
  Access type  = console,
  Access port  = Local,
  IP address   = 0.0.0.0,
  Read-only domains = None,
  Read-only families = ,
  Read-Write domains = None,
  Read-Write families = ,
  End-User profile =
Session number = 5
  User name    = admin,
  Access type  = telnet,
  Access port  = NI,
  IP address   = 128.251.17.176,
  Read-only domains = None,
  Read-only families = ,
  Read-Write domains = All ,
  Read-Write families = ,
  End-User profile =

```

### *output definitions*

---

<b>Session Number</b>	The session number assigned to the user.
<b>User name</b>	User name.
<b>Access type</b>	Type of access protocol used to connect to the switch.
<b>Access port</b>	Switch port used for access during this session.

### *output definitions (continued)*

---

<b>Ip Address</b>	User IP address.
<b>Read-only domains</b>	The command domains available with the user's read-only access. See the table beginning on <a href="#">page 57-31</a> for a listing of valid domains.
<b>Read-only families</b>	The command families available with the user's read-only access. See the table beginning on <a href="#">page 57-31</a> for a listing of valid families.
<b>Read-Write domains</b>	The command domains available with the user's read-write access. See the table beginning on <a href="#">page 57-31</a> for a listing of valid domains.
<b>Read-Write families</b>	The command families available with the user's read-write access. See the table beginning on <a href="#">page 57-31</a> for a listing of valid families.
<b>End-User Profile</b>	The name of an end-user profile associated with the user.

---

Possible values for command domains and families are listed here:

<b>domain</b>	<b>families</b>
domain-admin	file image bootrom telnet reset dshell debug
domain-system	system aip snmp rmon webmgt config
domain-physical	chassis module interface pmm flood health
domain-network	ip rip ospf bgp vrrp iprm ipx ipmr ipms
domain-layer2	vlan bridge stp 802.1q linkagg ip-helper
domain-service	ldap dhcp dns
domain-policy	qos policy slb
domain-security	session binding avlan aaa

## **Release History**

Release 6.1; command was introduced.

## **Related Commands**

<a href="#">whoami</a>	Displays current user session.
<a href="#">kill</a>	Kills another user's session.

## **MIB Objects**

SessionActive

```
sessionIndex  
sessionAccessType  
sessionPhysicalPort  
sessionUserName  
sessionUserReadPrivileges  
sessionUserWritePrivileges  
sessionUserProfileNumber  
sessionUserIpAddress  
sessionRowStatus
```

---

## show session config

Displays session manager configuration information (e.g., default prompt, banner file name, inactivity timer, login timer, and login attempts).

**show session config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the configuration commands detailed in this section to modify any of the values displayed.

### Examples

```
-> show session config
```

```
Cli Default Prompt           = ->
Cli Banner File Name        = ,
Cli Inactivity Timer in minutes = 60
Ftp Banner File Name        = ,
Ftp Inactivity Timer in minutes = 60
Http Inactivity Timer in minutes = 60
Login Timer in seconds       = 60
Maximum number of Login Attempts = 2
```

#### *output definitions*

---

<b>Cli Default Prompt</b>	Default prompt displayed for CLI sessions.
<b>Cli Banner File Name</b>	Name of the file that contains the banner information that will appear during a CLI session.
<b>Cli Inactivity Timer in minutes</b>	Inactivity timer value (in minutes) for CLI sessions. The user is logged off when this value is exceeded.
<b>Ftp Banner File Name</b>	Name of the file that contains the banner information that will appear during an FTP session.
<b>Ftp Inactivity Timer in minutes</b>	Inactivity timer value (in minutes) for FTP sessions. The user is logged off when this value is exceeded.
<b>Http Inactivity Timer in minutes</b>	Inactivity timer value (in minutes) for HTTP (including WebView) sessions. The user is logged off when this value is exceeded.



*output definitions (continued)*

---

<b>Login Timer in seconds</b>	The amount of time the user can take to accomplish a successful login to the switch. If the timeout period is exceeded, the TCP connection is closed by the switch.
<b>Maximum number of Login Attempts</b>	The number of times a user can attempt unsuccessfully to log into the switch before the TCP connection is closed.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">session prompt</a>	Configures the default CLI prompt for console and Telnet sessions.
<a href="#">session banner</a>	Sets the file name of the user-defined banner.
<a href="#">session timeout</a>	Configures the inactivity timer for a CLI, HTTP (including Web-View), or FTP interface.
<a href="#">session login-attempt</a>	Sets the number of times a user can attempt to log into the switch unsuccessfully before the TCP connection is closed.
<a href="#">session login-timeout</a>	Sets the amount of time the user can take to accomplish a successful login to the switch.

## MIB Objects

SessionConfigTable  
  sessionType  
  sessionBannerFileName  
  sessionInactivityTimerValue  
  sessionDefaultPromptString

---

## show session xon-xoff

Displays whether the console port is enabled or disabled for XON-XOFF.

```
show session xon-xoff
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

The switch may interpret noise from an RS232 line as Control-S (XOFF). If the console port is enabled for XON-XOFF (through the [session xon-xoff](#) command), traffic to the console port may be stopped.

### Examples

```
-> show session xon-xoff
XON-XOFF Enabled
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[session xon-xoff](#) Enables/disables the XON-XOFF protocol on the console port.

### MIB Objects

```
sessionXonXoffEnable
```

---

## more size

Specifies the number of lines that your console screen will display.

**more size** *lines*

---

### Syntax Definitions

*lines* Specify the number of lines for your console to display.

### Defaults

parameter	default
<i>lines</i>	128

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- If the display from the switch contains more lines than specified with this command, the switch will display only the number of lines specified. The last line on your console will display as follows:  

```
More? [next screen <sp>, next line <cr>, filter pattern </>, quit </>]
```
- To display more lines, press the spacebar to show another full screen, press Enter to show the next line, or press q to quit the display and return to the system prompt.

### Examples

```
-> more size 12  
-> more size 30
```

### Release History

Release 6.1; command was introduced.

### Related Commands

- [more](#) Enables the more mode for your console screen display.
- [show more](#) Shows the enable status of the more mode along with the number of lines specified for the screen display.

### MIB Objects

SystemServices  
  systemServicesArg1  
  systemServicesAction

---

## more

Enables the more mode for your console screen display.

**more**

**no more**

---

### Syntax Definitions

N/A

### Defaults

Disabled

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command enables the **more** mode where your console screen display is determined by the value set with the **more size** command.

### Examples

```
-> more
-> no more
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<b>show more</b>	Shows the number of TTY lines and columns to be displayed.
<b>more size</b>	Specifies the number of lines that your console screen will display.

### MIB Objects

```
SystemServices
  systemServicesArg1
  systemServicesAction
```

---

## show more

Shows the enable status of the more mode along with the number of lines specified for the screen display.

`show more`

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command shows the enable status of the **more** mode.
- The number of lines displayed is the value set with the **more size** command.

### Examples

```
-> show more
```

The more feature is enabled and the number of line is set to 12

### Release History

Release 6.1; command was introduced.

### Related Commands

**more**

Enables the more mode for your console screen display.

**more size**

Specifies the number of lines that your console screen will display.

### MIB Objects

SystemServices

systemServicesArg1

systemServicesAction

---

## telnet

Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.

```
telnet {host_name | ip_address} [port port]
```

---

### Syntax Definitions

<i>host_name</i>	Specifies the host name for the Telnet session.
<i>ip_address</i>	Specifies the IP address for the Telnet session.
<i>port</i>	The Telnet port on the destination device. Valid range is from 1024 to 65535.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To abort a Telnet session, enter **CTRL + ]** and then **CTRL + D**. Refer to your switch's User Manual for more information on using Telnet.
- Refer to the table on [page 57-1](#) for number of sessions supported.

### Examples

```
-> telnet 172.17.6.228
Trying 172.17.6.228...
Connected to 172.17.6.228.
Escape character is '^]'.

```

### Release History

Release 6.1; command was introduced.

## Related Commands

### telnet6

Invokes a Telnetv6 session. A Telnetv6 session is used to connect to a remote system or device over an IPv6 network

### ssh

Invokes the Secure Shell on the switch. A Secure Shell is used to make a secured connection to a remote system or device.

## MIB Objects

SystemServices

systemServicesArg1

systemServicesAction

---

## telnet6

Invokes a Telnetv6 session. A Telnetv6 session is used to connect to a remote system or device over an IPv6 network.

```
telnet6 {ipv6_address | hostname} [if_name] [port port]
```

---

### Syntax Definitions

<i>ipv6_address</i>	Specifies the IPv6 address for the Telnetv6 server.
<i>hostname</i>	Specifies the hostname for the Telnetv6 server.
<i>if_name</i>	The name of the interface used to reach the Telnetv6 server, if the target has been specified using the link-local address.
<i>port</i>	The Telnet port on the destination device. Valid range is from 1024 to 65535.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- To abort a Telnet session, enter **CTRL + ]** and then **CTRL + D**. Refer to your switch's User Manual for more information on using Telnet.
- If the session is invoked using the server's link-local address, the source interface name must be provided.
- Refer to the table on [page 57-1](#) for number of sessions supported.

### Examples

```
-> telnet6 fe80::a00:20ff:fea8:8961 intf1
-> telnet6 ::1
-> telnet6 Sun.com
```

### Release History

Release 6.3.1; command was introduced.



## Related Commands

### telnet

Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.

### ssh6

Invokes Secure Shellv6 on the switch. Secure Shellv6 is used to make a secured connection to an SSHv6 server.

## MIB Objects

SystemServices

systemServicesArg1

systemServicesAction

---

## ssh

Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.

```
ssh {host_name | ip_address / enable / disable}
```

---

### Syntax Definitions

<i>host_name</i>	Specifies the host name for Secure Shell.
<i>ip_address</i>	Specifies the IP address for Secure Shell.
<b>enable</b>	Administratively enables Secure Shell on the switch.
<b>disable</b>	Administratively disables Secure Shell on the switch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and password for the specified host.
- Refer to the table on [page 57-1](#) for number of sessions supported.

### Examples

```
-> ssh enable
-> ssh 172.155.11.211
login as:
```

### Release History

Release 6.1; command was introduced.  
Release 6.1.3; **enable** and **disable** parameters added.

## Related Commands

<a href="#">telnet</a>	Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.
<a href="#">sftp</a>	Starts an SFTP session. An SFTP session provides a secure file transfer method.
<a href="#">ssh6</a>	Invokes Secure Shellv6 on the switch. Secure Shellv6 is used to make a secured connection to an SSHv6 server.
<a href="#">show ssh config</a>	Displays the status of Secure Shell, SCP/SFTP on the switch.

## MIB Objects

```
aaaAcctSatable  
  aaacsInterface  
alaSshConfigGroup  
  alaSshAdminStatus
```

---

## ssh6

Invokes Secure Shellv6 on the switch. Secure Shellv6 is used to make a secured connection to an SSHv6 server.

```
ssh6 {ipv6_address | hostname} [if_name]
```

---

### Syntax Definitions

<i>ipv6_address</i>	Specifies the IPv6 address for Secure Shell.
<i>hostname</i>	Specifies the host name for Secure Shell.
<i>if_name</i>	The name of the interface used to reach the sshv6 server, if the target has been specified using the link-local address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and password for the specified host.
- If the session is invoked using the server's link-local address, the source interface name must be provided.
- Refer to the table on [page 57-1](#) for number of sessions supported.

### Examples

```
-> ssh6 fe80::a00:20ff:fea8:8961 int1
-> ssh6 ::1
-> ssh6 Sun.com
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

<a href="#">telnet6</a>	Invokes a Telnetv6 session. A Telnetv6 session is used to connect to a remote system or device over an IPv6 network
<a href="#">sftp6</a>	Starts an SFTPv6 session. An SFTPv6 session provides a secure file transfer method.
<a href="#">ssh</a>	Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.
<a href="#">show ssh config</a>	Displays the status of Secure Shell, SCP/SFTP on the switch.

## MIB Objects

```
aaaAcctSatable  
  aaacsInterface  
alaSshConfigGroup  
  alaSshAdminStatus
```

---

## ssh enforce pubkey-auth

Enables or disables Secure Shell public key and password authentication. When enabled, password authentication is not allowed.

**ssh enforce pubkey-auth {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enforces only SSH public key authentication.
<b>disable</b>	Enforces both SSH public key and password authentication.

### Defaults

parameter	default
enable   disable	disable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Note that if a public key file (i.e., **thomas\_dsa.pub**) exists in the **flash/network/pub** directory on the switch, public key authentication is used even if this method of authentication is disabled using this command. Rename, move, or delete the public key file to ensure that public key authentication is disabled.

### Examples

```
-> ssh enforce pubkey-auth enable
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

<b>telnet</b>	Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.
<b>sftp</b>	Starts an SFTP session. An SFTP session provides a secure file transfer method.

### MIB Objects

alaSshConfigGroup  
 alaSshPubKeyEnforceAdminStatus

---

## show ssh config

Displays the status of Secure Shell, SCP/SFTP on the switch.

**show ssh config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ssh config
SSH = Enabled
SCP/SFTP = Enabled
Public Key Authentication Enforced = False
```

### *output definitions*

---

<b>SSH</b>	Displays the SSH status ( <b>enabled</b> or <b>disabled</b> ).
<b>SCP/SFTP</b>	Displays the SCP/SFTP status ( <b>enabled</b> or <b>disabled</b> ).
<b>Public Key Authentication Enforced</b>	Displays whether the Public Key Authentication is enforced. Options include <b>true</b> or <b>false</b> .

---

### Release History

Release 6.1.3; command was introduced.

## Related Commands

### ssh

Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.

### ftp6

Enables or disables secure copy (SCP) and secure FTP (SFTP) at the same time on the switch.

## MIB Objects

alaSshConfigGroup

alaSshAdminStatus

alaScpSftpAdminStatus

alaSshPubKeyEnforceAdminStatus

---



## show command-log

Displays the contents of the **command.log** file. This file contains a record of all CLI commands executed on the switch since the command logging function was enabled. For more information on enabling and disabling command logging, refer to [page 57-24](#).

**show command-log**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **show command-log** command lists CLI commands in the *descending order*. In other words, the most recent commands are listed first. In the example below, the **command-log enable** syntax is the *least recent* command logged; the **ip interface Marketing address 17.11.5.2 vlan 255** syntax is the *most recent*.
- By default, command logging is disabled. To enable command logging on the switch, use the **command-log** command.
- As mentioned above, command history is archived to the **command.log** file. If this file is removed, the command history will no longer be available. In addition, the **command.log** file has a 66,402 byte capacity. This capacity allows up to 100 commands; if the maximum capacity is reached, only the 100 most recent commands display.

### Examples

```
-> show command-log
Command : ip interface Marketing address 17.11.5.2 vlan 255
  UserName : admin
  Date      : FRI JAN 09 00:20:01
  Ip Addr   : 128.251.19.240
  Result    : SUCCESS

Command : ip interface "Distribution" 11.255.14.102 vlan 500 local-proxy-arp
  UserName : admin
  Date      : FRI JAN 09 00:19:44
  Ip Addr   : 128.251.19.240
  Result    : ERROR: Ip Address must not belong to IP VLAN 44 subnet

Command : command-log enable
  UserName : admin
  Date      : FRI JAN 09 00:18:49
  Ip Addr   : 128.251.19.240
  Result    : SUCCESS
```

*output definitions*

---

<b>Command</b>	The exact syntax of the command, as entered by the user.
<b>UserName</b>	The name of the user session that entered the command. For more information on different user session names, refer to the <a href="#">user command on page 36-49</a> , or the “Managing Switch User Accounts” chapter in the <i>OmniSwitch AOS Release 6 Switch Management Guide</i> .
<b>Date</b>	The date and time, down to the second, when the command was entered.
<b>IpAddr</b>	The IP address of the terminal from which the command was entered.
<b>Result</b>	The outcome of the command entry. Options include <b>SUCCESS</b> and <b>ERROR</b> . For erroneous command entries, the same error details presented by the switch at the time the command was entered are also displayed in the log file.

---

**Release History**

Release 6.1; command was introduced.

**Related Commands**

<a href="#">command-log</a>	Enables or disables command logging on the switch.
<a href="#">show command-log status</a>	Shows the current status of the command logging function (i.e., enabled or disabled).

**MIB Objects**

`sessionCliCommandLogEnable`

---

## show command-log status

Shows the current status of the command logging function (i.e., enabled or disabled). For more information on enabling and disabling command logging, refer to the [command-log command on page 57-24](#).

**show command-log status**

---

### Syntax Definitions

N/A

### Defaults

Command logging is disabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show command-log status
CLI command logging : Enable
```

### *output definitions*

---

<b>CLI command logging</b>	The current status of command logging on the switch. Options include <b>Disable</b> and <b>Enable</b> . Disable indicates that the command logging function is currently disabled (default). Enable indicates that the command logging function has been enabled via the <a href="#">command-log</a> command. For more information, refer to <a href="#">page 57-24</a> .
----------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">command-log</a>	Enables or disables command logging on the switch.
<a href="#">show ssh config</a>	Displays the contents of the <b>command.log</b> file.

### MIB Objects

sessionCliCommandLogStatus

---



# 58 File Management Commands

This chapter includes descriptions for CLI commands used to manage files on the switch. Several of these commands are used to create, move, and delete both files and directories in the OmniSwitch flash directory. Other commands allow you to change command privileges and to monitor the switch's memory.

MIB information for the system commands is as follows:

*Filename:* AlcatelIND1System.mib  
*Module:* ALCATEL-IND1-SYSTEM-MIB

*Filename:* AlcatelIND1Chassis.mib  
*Module:* ALCATEL-IND1-CHASSIS-MIB

*Filename:* AlcatelIND1Ssh.mib  
*Module:* ALCATEL-IND1-SSH-MIB

A summary of the available commands is listed here:

---

<b>File System</b>	<b>cd</b> <b>pwd</b> <b>mkdir</b> <b>rmdir</b> <b>ls</b> <b>dir</b> <b>rename</b> <b>rm</b> <b>delete</b> <b>cp</b> <b>scp</b> <b>mv</b> <b>move</b> <b>chmod</b> <b>attrib</b> <b>freespace</b> <b>fsck</b> <b>newfs</b> <b>rcp</b> <b>rrm</b> <b>rls</b>
<b>System Services</b>	<b>vi</b> <b>view</b> <b>tty</b> <b>show tty</b> <b>more</b> <b>ftp</b> <b>ftp6</b> <b>scp-sftp</b> <b>show ssh config</b> <b>sftp</b> <b>sftp6</b> <b>tftp</b> <b>rz</b>

---

## cd

Changes the switch's current working directory.

**cd** [*path*]

---

### Syntax Definitions

*path* Specifies a particular working directory. If no path is specified, the switch's working directory is changed to the top level.

### Defaults

The switch's default working directory is **/flash**.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories, including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

### Examples

```
-> cd  
-> cd test_path
```

### Release History

Release 6.1; command was introduced.

**Related Commands**

<b>pwd</b>	Displays the switch's current working directory.
<b>mkdir</b>	Creates a new directory.
<b>rmdir</b>	Deletes an existing directory.
<b>ls</b>	Displays the contents of a specified directory or the current working directory.
<b>dir</b>	Displays the contents of a specified directory or the current working directory.

**MIB Objects**

systemServices  
systemServicesWorkingDirectory

---



## pwd

Displays the switch's current working directory.

pwd

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command can also be used on the secondary CMM.

### Examples

```
-> pwd  
/flash
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">cd</a>	Changes the switch's current working directory.
<a href="#">mkdir</a>	Creates a new directory.
<a href="#">rmdir</a>	Deletes an existing directory.
<a href="#">ls</a>	Displays the contents of a specified directory or the current working directory.
<a href="#">dir</a>	Displays the contents of a specified directory or the current working directory.

### MIB Objects

```
systemServices  
  systemServicesWorkingDirectory
```

---

## mkdir

Creates a new directory.

```
mkdir [path]/dir
```

---

### Syntax Definitions

*path*

The path in which the new directory is being created. If no path is specified, the new directory is created in the current path.

*dir*

A user-defined name for the new directory. Up to thirty-two (32) characters may be used (e.g., **test\_directory**).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate path directories with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

### Examples

```
-> mkdir test_directory  
-> mkdir flash/test_directory
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>cd</b>	Changes the switch's current working directory.
<b>pwd</b>	Displays the switch's current working directory.
<b>rmdir</b>	Deletes an existing directory.
<b>ls</b>	Displays the contents of a specified directory or the current working directory.
<b>dir</b>	Displays the contents of a specified directory or the current working directory.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## rmdir

Deletes an existing directory.

**rmdir** [*path*]/*dir*

---

### Syntax Definitions

<i>path</i>	The path containing the directory to be removed. If no path is specified, the command assumes the current path.
<i>dir</i>	The name of the existing directory being removed. Up to thirty-two (32) characters may be used (e.g., <b>test_directory</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate path directories with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for the specified path.
- This command can also be used on the secondary CMM.

### Examples

```
-> rmdir ../working  
-> rmdir flash/working
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<b>cd</b>	Changes the switch's current working directory.
<b>pwd</b>	Displays the switch's current working directory.
<b>mkdir</b>	Creates a new directory.
<b>ls</b>	Displays the contents of a specified directory or the current working directory.
<b>dir</b>	Displays the contents of a specified directory or the current working directory.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## ls

Displays the contents of a specified directory or the current working directory.

**ls** [-r] [[*path*]/*dir*]

---

### Syntax Definitions

<b>-r</b>	Optional syntax that displays the contents of the current directory in addition to <i>recursively</i> displaying all subdirectories. Be sure to include a space between the syntax <b>ls</b> and <b>-r</b> (i.e., <b>ls -r</b> ).
<i>path/</i>	Specifies the path (i.e., location) of a particular directory to be displayed. If no path is specified, the command assumes the current location.
<i>dir</i>	Specifies a particular directory to be displayed. If no directory name is specified, the contents of the current working directory are displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate multiple path directories with a slash (/).
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

## Examples

```
-> ls
```

```
Listing Directory /flash:
```

```
-rw      268 Oct  2 09:54 boot.params
drw     2048 Sep 29 15:36 certified/
drw     2048 Oct  2 05:32 working/
drw     2048 Sep 27 12:26 switch/
-rw    115837 Sep 27 15:30 debug.lnk
-rw      185 Sep 29 14:19 phwi
-rw      706 Sep 29 14:52 incrsrc2
-rw   127640 Sep 29 14:52 pktgen.o
-rw      354 Sep 29 15:48 incrsrc
```

```
3143680 bytes free
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>cd</b>	Changes the switch's current working directory.
<b>pwd</b>	Displays the switch's current working directory.
<b>mkdir</b>	Creates a new directory.
<b>rmdir</b>	Deletes an existing directory.
<b>dir</b>	Displays the contents of a specified directory or the current working directory.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## dir

Displays the contents of a specified directory or the current working directory.

**dir** *[[path/]dir]*

---

### Syntax Definitions

*path/*

Specifies the path (i.e., location) of a particular directory to be displayed. If no path is specified, the command assumes the current location.

*dir*

Specifies a particular directory to be displayed. If no directory name is specified, the contents of the current working directory are displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate multiple path directories with a slash (/).
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.



## Examples

```
-> dir /certified
```

```
Listing Directory /certified:
```

```
drw      2048 Jul  8 11:05 ./
drw      2048 Aug 21 13:54 ../
-rw     3555538 Jul  5 09:37 Jeni.img
-rw     1824898 Jul  5 09:37 Jos.img
-rw       2929 Jul  5 09:37 Jrelease.img
-rw    10526922 Jul  5 09:37 Jbase.img
-rw     9393680 Jun 10 10:35 Jeni2.img
-rw       1452 Jun 28 18:23 boot.cfg
-rw    1348241 Jul  5 09:36 Jadvrout.img
-rw    2478362 Jul  5 09:37 Jdiag.img
-rw     349555 Jul  5 09:37 Jsecu.img
-rw        256 Jul  8 11:05 random-seed
```

```
2390016 bytes free
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>cd</b>	Changes the switch's current working directory.
<b>pwd</b>	Displays the switch's current working directory.
<b>mkdir</b>	Creates a new directory.
<b>rmdir</b>	Deletes an existing directory.
<b>ls</b>	Displays the contents of a specified directory or the current working directory.

## MIB Objects

```
systemServices
  systemServicesArg22
  systemServicesAction
```

---

## rename

Renames an existing file or directory.

```
rename [path]/old_name [path]/new_name
```

---

### Syntax Definitions

<i>path</i> /	Specifies the particular path (i.e., location) containing the file or directory to be renamed. If no path is specified, the command assumes the current directory.
<i>old_name</i>	The name of the existing file or directory to be renamed.
<i>new_name</i>	The new user-defined file or directory name. Up to thirty-two (32) characters may be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

### Examples

```
-> rename flash/working/asc.1.snap new_file
```

### Release History

Release 6.1; command was introduced.

## Related Commands

<code>cp</code>	Copies an existing file or directory.
<code>mv</code>	Moves an existing file or directory to a new location.
<code>move</code>	Moves an existing file or directory to a new location.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesArg2
  systemServicesAction
```

---

## rm

Permanently deletes an existing file. This command can also delete a directory if the `-r` keyword is used.

**rm** [-r] [path/]filename

---

### Syntax Definitions

<b>-r</b>	Syntax that <i>recursively</i> removes directories, as well as any associated subdirectories and files. Be sure to include a space between the syntax <b>rm</b> and <b>-r</b> (i.e., <b>rm -r</b> ).
<i>path</i>	The path (i.e., location) containing the file being removed. If no path is specified, the command assumes the current directory.
<i>filename</i>	The name of the existing file being deleted. Up to thirty-two (32) characters may be used (e.g., <b>test_config_file</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Use care when deleting files. Depending on your switch and network configurations, specific configuration and image files must be present for your system to work properly.
- This command can also be used on the secondary CMM.

### Examples

```
-> rm test_config_file
-> rm flash/test_config_file
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[delete](#) Deletes an existing file.

## **MIB Objects**

systemServices

    systemServicesArg1

    systemServicesAction

---

## delete

Deletes an existing file.

**delete** [*path/*]*filename*

---

### Syntax Definitions

*path/*

The path (i.e., location) containing the file being removed. If no path is specified, the command assumes the current directory.

*filename*

The name of the existing file being removed. Up to thirty-two (32) characters may be used (e.g., **test\_config\_file**).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Use care when deleting files. Depending on your switch and network configurations, specific configuration and image files must be present for your system to work properly.
- This command can also be used on the secondary CMM.

### Examples

```
-> delete test_config_file
-> delete flash/test_config_file
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**rm** Deletes an existing file or directory.

### MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## cp

Copies an existing file. This command can also copy a directory if the `-r` keyword is used.

```
cp [-r] [path/]orig_filename [dest_path/]dupl_filename
```

---

### Syntax Definitions

<code>-r</code>	Syntax that <i>recursively</i> copies directories, as well as any associated subdirectories and files. Be sure to include a space between the syntax <code>cp</code> and <code>-r</code> (i.e., <code>cp -r</code> ).
<code>path/</code>	Specifies the path containing the original file to be copied. If no path name is specified, the command assumes the current path.
<code>orig_filename</code>	The name of the existing file to be copied.
<code>dest_path/</code>	Specifies the destination path for the resulting file copy. If no destination path is specified, the file copy will be placed in the current path.
<code>dupl_filename</code>	The new user-defined file name for the resulting file copy. If you are copying a file to the same directory as the original, the file name for the copy must be different from the original. Up to thirty-two (32) characters may be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You should verify that your switch's `/flash` directory has enough available memory to hold the new files and directories that will result from using the `cp -r` command.
- A file may be copied to a new location; you are not required to copy a file to the same directory that contains the original.
- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including `/flash`.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

## Examples

```
-> cp flash/snapshots/asc.1.snap flash/snapshot/snapshot_copy
-> cp flash/snapshots/asc.1.snap snapshot_copy
-> cp asc.1.snap flash/snapshot/snapshot_copy
-> cp asc.1.snap snapshot_copy
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**mv** Moves an existing file or directory to a new location.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesArg2
  systemServicesAction
```

---



## scp

Copies an existing file in a secure manner.

```
scp user_name@remote_ip_addr:[path/]source [path/]target
```

```
scp [path/]source user_name@remote_ip_addr:[path/]target
```

---

### Syntax Definitions

<i>user_name@remote_ip_addr:</i>	The username along with the IP address of the remote switch.
<i>path/</i>	Specifies the path containing the file to be copied and the path where the file will be copied.
<i>source</i>	The name of the file(s) to be copied.
<i>target</i>	The new user-defined file name for the resulting file copy. Up to thirty-two (32) characters may be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command will prompt you to enter the admin password, and the names and the path of the files being copied will be displayed.
- A file may be copied to a new location; you are not required to copy a file to the same directory that contains the original.
- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- If SCP is not enabled, use the **ftp6** command to enable it.
- SCP is not supported between OmniSwitch and Windows currently.

## Examples

```
-> scp admin@172.17.11.13:/flash/working/Kos.img /flash/working/Kos.img
admin's password for keyboard-interactive method:
```

```
Fetching /flash/working/Kos.img to /flash/working/Kos.img
Connection to 172.17.11.13 closed.
```

```
-> scp /flash/working/Kos.img admin@172.17.11.13:/flash/working/Kos.img
admin's password for keyboard-interactive method:
```

```
Uploading /flash/working/Kos.img to /flash/working/Kos.img
Connection to 172.17.11.13 closed.
```

```
-> scp admin@172.17.11.13:/flash/working/*.img /flash/working
admin's password for keyboard-interactive method:
```

```
Fetching /flash/working/K2os.img to /flash/working/K2os.img
Fetching /flash/working/Kadvrout.img to /flash/working/Kadvrout.img
Fetching /flash/working/Kbase.img to /flash/working/Kbase.img
Fetching /flash/working/Keni.img to /flash/working/Keni.img
Fetching /flash/working/Kos.img to /flash/working/Kos.img
Fetching /flash/working/Krelease.img to /flash/working/Krelease.img
Fetching /flash/working/Ksecu.img to /flash/working/Ksecu.img
Connection to 172.17.11.13 closed.
```

## Release History

Release 6.1.2; command was introduced.

## Related Commands

**mv** Moves an existing file or directory to a new location.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesArg2
  systemServicesAction
```

---

## mv

Moves an existing file or directory to a new location.

```
mv {[path/]filename dest_path[/new_filename]} | {[path/]dir dest_path[/new_dir]}
```

---

### Syntax Definitions

<i>path/</i>	Specifies the path (i.e., location) containing the file or directory being moved. If no path name is specified, the command assumes the current path.
<i>filename</i>	Specifies the name of the existing file to be moved.
<i>dest_path/</i>	Specifies the destination path (i.e., new location) for the file or directory that is being moved.
<i>new_filename</i>	Specifies a new file name for the file being moved. If a new name is not specified, the existing name will be used.
<i>dir</i>	Specifies the name of the existing directory to be moved.
<i>new_dir</i>	Specifies a new directory name for the directory being moved. If a new name is not specified, the existing name will be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **mv** command does not make a copy of the file or directory being moved. To copy a file or directory to the current path or to a new location, use the [cp command on page 58-19](#).
- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

### Examples

```
-> mv flash/asc.1.snap flash/backup_files/asc.1.snap
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**rename**                      Renames an existing file or directory.  
**cp**                              Copies an existing file or directory.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesArg2
  systemServicesAction
```

---

## move

Moves an existing file or directory to a new location.

```
move {[path/]filename dest_path[/new_filename] | [path/]dir dest_path[/new_dir]}
```

---

### Syntax Definitions

<i>path/</i>	Specifies the path (i.e., location) containing the file or directory being moved. If no path name is specified, the command assumes the current path.
<i>filename</i>	Specifies the name of the existing file to be moved.
<i>dest_path</i>	Specifies the destination path (i.e., new location) for the file or directory that is being moved.
<i>/new_filename</i>	Specifies a new file name for the file being moved. If a new name is not specified, the existing name will be used.
<i>dir</i>	Specifies the name of the existing directory to be moved.
<i>/new_dir</i>	Specifies a new directory name for the directory being moved. If a new name is not specified, the existing name will be used.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **move** command does not make a copy of the file or directory being moved. To copy a file or directory to the current path or to a new location, use the **cp** command.
- Be sure to separate path directories and file names with a slash (/). Refer to the examples below.
- Up to 255 characters may be used for a fully qualified path.
- A path can contain up to a maximum of seven (7) directories including **/flash**.
- As with files names, up to thirty-two (32) characters may be used for a directory name.
- File and directory names can include only the following character types: a-z, A-Z, 0-9, dashes (-), dots (.), and underscores (\_).
- This command can also be used on the secondary CMM.

### Examples

```
-> move flash/asc.1.snap flash/backup_files/asc.1.snap
```

## Release History

Release 6.1; command was introduced.

## Related Commands

**rename**                      Renames an existing file or directory.  
**cp**                              Copies an existing file or directory.

## MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesArg2  
  systemServicesAction
```

---

## chmod

Changes the write privileges for a specified file.

```
chmod {+w | -w} [path/]file
```

---

### Syntax Definitions

<code>+w</code>	Enables read-write privileges for the file.
<code>-w</code>	Disables write privileges for the file—i.e., the file becomes read-only.
<code>path/</code>	The path containing the file for which privileges are being changed. Be sure to separate path directories and file names with a slash (/). Up to 255 characters may be used for the specified path. Also, a path may contain a maximum of thirty-two (32) directories.
<code>file</code>	The name of the file for which read-write privileges are being changed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command can also be used on the secondary CMM.

### Examples

```
-> chmod +w vlan.config  
-> chmod -w flash/backup_configs/vlan.config
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[attrib](#) Changes the write privileges for a specified file.

### MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesAction
```

---

## attrib

Changes the write privileges for a specified file.

```
attrib {+w | -w} [path]/file
```

---

### Syntax Definitions

<i>+w</i>	Enables read-write privileges for the file.
<i>-w</i>	Disables write privileges for the file—i.e., the file becomes read-only.
<i>path/</i>	The path containing the file for which write privileges are being changed. Be sure to separate path directories and file names with a slash (/). Up to 255 characters may be used for the specified path. Also, a path may contain a maximum of thirty-two (32) directories.
<i>file</i>	The name of the file for which write privileges are being changed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command can also be used on the secondary CMM.

### Examples

```
-> attrib +w vlan.config  
-> attrib -w flash/backup_configs/vlan.config
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[chmod](#) Changes the write privileges for a specified file.

### MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesAction
```

---



## freespace

Displays the amount of free space available in the **/flash** directory.

**freespace** [/flash]

---

### Syntax Definitions

**/flash** Optional syntax. The amount of free space is shown for the **/flash** directory.

### Defaults

N/A

### Usage Guidelines

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Examples

```
-> freespace /flash
/flash 3143680 bytes free
```

```
-> freespace
/flash 3143680 bytes free
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**fsc** Performs a file system check, including diagnostic information in the event of file corruption. If the **fsc** command detects a problem with the **/flash** file system, a message is displayed indicating the problem, along with any steps needed to resolve it.

### MIB Objects

SystemFileSystemTable  
    systemFileSystemFreespace

---

## fsck

Performs a file system check, including diagnostic information in the event of file corruption.

**fsck /flash [no-repair | repair]**

---

### Syntax Definitions

<b>/flash</b>	Indicates that the file system check will be performed on the <b>/flash</b> directory.
<b>no-repair</b>	Performs only the file system check on the <b>/flash</b> directory.
<b>repair</b>	Performs file system check on the <b>/flash</b> directory and also repairs any errors found on the file system.

### Defaults

parameter	default
<b>no-repair   repair</b>	<b>no-repair</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The file system check is performed on the **/flash** directory by default.
- Specifying the parameter **repair** along with the command performs the file system check and also repairs any errors found. The switch will display the errors found and specify those errors that have been repaired. If there are no errors found, then just the file system information is displayed.
- This command only applies to the primary and secondary CMM in an OmniSwitch chassis-based switch or the primary and secondary switch in an OmniSwitch stack.

### Examples

```
-> fsck /flash no-repair
/flash/ - disk check in progress ...
/flash/ - Volume is OK

        total # of clusters: 29,758
        # of free clusters: 18,886
        # of bad clusters: 0
        total free space: 77,357,056
max contiguous free space: 55,451,648 bytes
        # of files: 59
        # of folders: 5
total bytes in files: 44,357,695
        # of lost chains: 0
total bytes in lost chains: 0
```

```
(Example Continued on Next Page)
-> fsck /flash repair
/flash/ - disk check in progress ...
/flash/ - Volume is OK
Change volume Id from 0x0 to 0xef2e3c
```

```
total # of clusters: 29,758
# of free clusters: 18,886
# of bad clusters: 0
total free space: 77,357,056
max contiguous free space: 55,451,648 bytes
# of files: 59
# of folders: 5
total bytes in files: 44,357,695
# of lost chains: 0
total bytes in lost chains: 0
```

## Release History

Release 6.1; command was introduced.

Release 6.3.3; **no-repair** and **repair** parameters added.

## Related Commands

### [freespace](#)

Displays the amount of free space available in the **/flash** directory.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## newfs

Deletes the complete file system and all files within it, replacing it with a new, empty file system. Use this command when you want to reload all files in the file system or in the unlikely event that the file system becomes corrupt.

**newfs** {/flash | /uflash}

---

### Syntax Definitions

**/flash** This indicates that the complete flash file system will be replaced.

**/uflash** This indicates that the complete uflash file system will be replaced.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- It is recommended that you preserve all required image and configuration files by saving them to a remote host before executing the **newfs** command.
- Do not power-down the switch after running the **newfs** command until you reload all required image and configuration files.
- This command can also be used on the secondary CMM.

### Examples

```
-> newfs /flash  
-> newfs /uflash
```

### Release History

Release 6.1; command was introduced.

Release 6.4.3; **/uflash** parameter was added.

### Related Commands

N/A

### MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesAction
```

---

## rcp

Copies a file from a primary to a non-primary switch in a stack and vice versa.

**rcp** [**cmm-b:** | *slot:*] *source\_filepath* [**cmm-b:** | *slot:*] *destination\_filepath*

---

### Syntax Definitions

<i>slot</i>	The slot number of the non-primary switch in a stack.
<i>source_filepath</i>	The name and path of the source file.
<i>destination_filepath</i>	The name and path of the destination file.
<b>cmm-b:</b>	Specifies the secondary CMM. This parameter is available on OmniSwitch chassis-based switches only.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X, 9000E

### Usage Guidelines

- On OmniSwitch chassis-based switches this command copies any file from the secondary CMM to the primary CMM.
- On OmniSwitch stackable switches this command copies a file from any non-primary switch to the primary switch in a stack. You must specify the slot number on these switches.

### Examples

```
-> rcp 3:/flash/file.txt file.txt
-> rcp /flash/working/file.txt 3:/flash/working/file.txt
-> rcp cmm-b:/flash/file.txt file.txt

-> rcp /flash/working/file.txt cmm-b:/flash/working/file.txt
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- rrm** Removes a file from a secondary CMM or from a non-primary switch in a stack.
- rls** Displays the content of a non primary CMM in a switch or a non-primary switch in a stack.

## MIB Objects

```
chasSupervisionRfsLsTable  
  alcatelIND1ChassisSupervisionRfsCommands  
  chasSupervisionRfsCommandsSlot  
  chasSupervisionRfsCommandsCommand  
  chasSupervisionRfsCommandsSrcFileName  
  chasSupervisionRfsCommandsDestFileName
```

---

## rrm

Removes a file from a secondary CMM in a switch or from a non-primary switch in a stack.

**rrm** *slot* *filepath*

---

### Syntax Definitions

*slot* The slot number of the non-primary switch in a stack.

*filepath* The name and path of the file to be deleted.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X, 9000E

### Usage Guidelines

- On OmniSwitch chassis-based switches this command deletes any file from the secondary CMM.
- On OmniSwitch stackable switches this command deletes a file from any non-primary switch. You must specify the slot number on these switches.

### Examples

```
-> rrm 5 /flash/boot.params
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**rcp** Copies a file from a secondary CMM to a primary CMM or from a non-primary switch to a primary switch in a stack.

**rls** Displays the content of a non primary CMM in a switch or a non-primary switch in a stack.

### MIB Objects

chasSupervisionRfsLsTable  
  alcatelIND1ChassisSupervisionRfsCommands  
  chasSupervisionRfsCommandsSlot  
  chasSupervisionRfsCommandsCommand  
  chasSupervisionRfsCommandsSrcFileName

---

## rls

Displays the content of a non primary CMM in a switch or a non-primary switch in a stack.

**rls** *slot directory* [*file\_name*]

---

### Syntax Definitions

<i>slot</i>	The slot number of the non-primary switch in a stack. <i>This parameter is only required on a stack of switches.</i>
<i>directory</i>	The name of the directory on the non-primary CMM or switch.
<i>file_name</i>	The file to be displayed on the non-primary CMM or switch.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855-U24X, 9000E

### Usage Guidelines

- On OmniSwitch chassis-based switches this command displays directory content on the secondary CMM.
- On OmniSwitch stackable switches, this command displays directory content on any non-primary switch in a stack. You must specify the slot number on these switches.

### Examples

On OmniSwitch 6850 Series switches:

```
-> rls 5 /flash
-rw      324  Mar  3 11:32  boot.params
drw     2048  Mar  3 11:32  certified/
drw     2048  Mar  3 11:32  working/
-rw    64000  Mar  7 09:54  swlog1.log
-rw       29  Feb  5 2023  policy.cfg
-rw   3369019  Mar  3 11:20  cs_system.pmd
-rw   394632  Jan  1 1980  bootrom.bin
-rw   511096  Jan  1 1980  miniboot.backup
-rw   511096  Jan  1 1980  miniboot.default
drw     2048  Feb 25 06:34  network/
drw     2048  Mar  3 11:29  switch/
-rw       256  Mar  3 11:29  random-seed
```

### Release History

Release 6.1; command was introduced.



## Related Commands

- rcp** Copies a file from a secondary CMM to a primary CMM or from a non-primary switch to a primary switch in a stack.
- rrm** Removes a file from a secondary CMM or from a non-primary switch in a stack.

## MIB Objects

chasSupervisionRfsLsTable  
  chasSupervisionRfsLsFileIndex  
  chasSupervisionRfsLsSlot  
  chasSupervisionRfsLsDirName  
  chasSupervisionRfsLsFileName  
  chasSupervisionRfsLsFileType  
  chasSupervisionRfsLsFileSize  
  chasSupervisionRfsLsFileAttr  
  chasSupervisionRfsLsFileDateTime

---

## vi

Launches the switch's UNIX-like Vi text editor. The Vi file editor allows you to view or edit the contents of a specified text file.

**vi** [*path*]/*filename*

---

### Syntax Definitions

*path* The path (i.e., location) containing the file being viewed or edited. If no path is specified, the command assumes the current directory.

*filename* The name of the existing file being viewed or edited. Up to thirty-two (32) characters may be used (e.g., **test\_config\_file**).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Until you exit the switch's file editor, all keystrokes will be passed to the text editor rather than the switch's command line.
- This command can also be used on the secondary CMM.

### Examples

```
-> vi test_config_file
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**view** Allows you to view the contents of a specified file by invoking the Vi text editor in read-only mode.

### MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesAction
```

---

## view

Allows you to view the contents of a specified file by invoking the Vi text editor in read-only mode.

**view** [*path*]/*filename*

---

### Syntax Definitions

<i>path</i>	The path directory leading to the file being viewed. If no path is specified, the command assumes the current directory.
<i>filename</i>	The name of the existing file being viewed. Up to thirty-two (32) characters may be used (e.g., <b>test_config_file</b> ).

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

This command can also be used on the secondary CMM.

### Examples

```
-> view flash/text_file.txt
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**vi** Launches the switch's Vi text editor.

### MIB Objects

```
systemServices  
  systemServicesArg1  
  systemServicesAction
```

---

## tty

Specifies the number of lines and columns to be displayed on the terminal screen while the switch is in the edit file mode.

**tty** *lines columns*

---

### Syntax Definitions

*lines* The number of lines to be displayed on the terminal emulation screen for the current session. Values may range from 10 to 150.

*columns* The number of columns to be displayed for each line. One column is the same width as a single text character. Values may range from 20 to 150.

### Defaults

parameter	default
<i>lines</i>	24
<i>columns</i>	80

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The number of lines and columns set with this command control the screen size when the switch is editing or viewing a text file with the **vi** or **more** commands.
- The values set with this command do not control the CLI screen when the switch is operating in normal mode.
- This command can also be used on the secondary CMM.

### Examples

```
-> tty 10 60
```

### Release History

Release 6.1; command was introduced.

## Related Commands

[show tty](#)

Displays current TTY settings.

[more](#)

Displays a switch text file onto the console screen.

## MIB Objects

systemServices

systemServicesTtyLines

systemServicesTtyColumns

---

## show tty

Displays current TTY settings.

```
show tty
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Shows the settings made with the `tty` command.
- This command can also be used on the secondary CMM.

### Examples

```
-> show tty  
lines = 24, columns = 80
```

### Release History

Release 6.1; command was introduced.

### Related Commands

`tty` Specifies the number of TTY lines and columns to be displayed.

### MIB Objects

```
systemServices  
  systemServicesTtyLines  
  systemServicesTtyColumns
```

---

## more

Displays a switch text file onto the console screen.

**more** [*path*]/*file*

---

### Syntax Definitions

*path* The directory path leading to the file to be displayed. If no path is specified, the command assumes the current path.

*file* The name of the text file to be displayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- This command displays the specified text file within the line and column parameters set with the **tty** command.
- If the specified text file contains more columns than set with the **tty** command, the text will wrap to the next line displayed.
- If the text file contains more lines than set with the **tty** command, the switch will display only the number of lines specified. To display more lines, press the spacebar to show another full screen, press Enter to show the next line, or press q to quit the display and return to the system prompt.
- This command can also be used on the secondary CMM.

### Examples

```
-> more config_file1  
-> more flash/config_file1  
-> more flash/working/config_file1
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**tty** Specifies the number of TTY lines and columns to be displayed.

## **MIB Objects**

systemServices

    systemServicesArg1

    systemServicesAction

---



## ftp

Starts an FTP session.

**ftp** {*host\_name* | *ip\_address*}

---

### Syntax Definitions

*host\_name* Specifies the host name for the FTP session.

*ip\_address* Specifies the IP address for the FTP session.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and password for the specified host.
- You can establish up to 9 FTP sessions from an OmniSwitch (when it acts as FTP Client) and up to 4 FTP sessions towards an OmniSwitch (when it acts as FTP Server).
- After logging in, FTP commands are supported. They are defined in the following table:

<b>ascii</b>	Set transfer type to ASCII (7-bit).
<b>binary</b>	Set transfer type to binary (8-bit).
<b>bye</b>	Close session gracefully.
<b>cd</b>	Change to a new directory on the remote machine.
<b>delete</b>	Delete a file on the remote machine.
<b>dir</b>	Obtain a long listing on the remote machine.
<b>get</b>	Retrieve a file from the remote machine.
<b>hash</b>	Print the hash symbol (#) for every block of data transferred. (This command toggles hash enabling and disabling.)
<b>ls</b>	Display summary listing of the current directory on the remote host.
<b>put</b>	Send a file to the remote machine.
<b>pwd</b>	Display the current working directory on the remote host.
<b>quit</b>	Close session gracefully.
<b>remotehelp</b>	List the commands that the remote FTP server supports.
<b>user</b>	Send new user information.
<b>lpwd</b>	Display the current working directory on the local host.
<b>?</b>	Display list of available FTP commands.

## Examples

```
-> ftp 172.17.6.228
Connecting to 172.17.6.228 [172.17.6.228]...connected.
220 Annex FTP server (Version RA4000 R14.1.15) ready.
Name :
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">sftp</a>	Starts an SFTP session.
<a href="#">ftp6</a>	Starts an FTPv6 session.

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## ftp6

Starts an FTPv6 session.

**ftp6** {*ipv6\_address* | *hostname*} [*if\_name*]

---

### Syntax Definitions

<i>ipv6_address</i>	Specifies the IPv6 address of the FTPv6 server.
<i>hostname</i>	Specifies the hostname of the FTPv6 server.
<i>if_name</i>	The name of the interface used to reach the FTPv6 server, if the target has been specified using the link-local address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and password for the specified host.
- A console, a telnet or an SSH session can handle only one FTPv6 client session.
- You can establish up to 9 FTP or FTPv6 sessions from an OmniSwitch (when it acts as FTP Client) and up to 4 FTP or FTPv6 sessions towards an OmniSwitch (when it acts as FTP Server).
- If the session is invoked using the server's link-local address, the source interface name must be provided.
- After logging in, FTPv6 commands are supported. They are defined in the following table:

<b>ascii</b>	Set transfer type to ASCII (7-bit).
<b>binary</b>	Set transfer type to binary (8-bit).
<b>bye</b>	Close session gracefully.
<b>cd</b>	Change to a new directory on the remote machine.
<b>close</b>	Terminate the ftp session.
<b>delete</b>	Delete a file on the remote machine.
<b>dir</b>	Obtain a long listing on the remote machine.
<b>get</b>	Retrieve a file from the remote machine.
<b>hash</b>	Print the hash symbol (#) for every block of data transferred. (This command toggles hash enabling and disabling.)
<b>help</b>	Display list of available FTP commands.
<b>lcd</b>	Change to a new directory on the local machine.

<b>ls</b>	Display summary listing of the current directory on the remote host.
<b>?</b>	Display list of available FTP commands.
<b>mgets</b>	Receive multiple files.
<b>mputs</b>	Receive multiple files.
<b>prompt</b>	Enable/disable interactive prompting.
<b>put</b>	Send a file to the remote machine.
<b>pwd</b>	Print current working directory.
<b>quit</b>	Close session gracefully.
<b>remotehelp</b>	List the commands that the remote FTP server supports.
<b>user</b>	Send new user information.
<b>ls</b>	Display list content of local directory.

### Examples

```
-> ftp6 fe80::a00:20ff:fea8:8961 int3
-> ftp6 ::5
-> ftp6 Sun.com
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

**sftp6** Starts an SFTPV6 session.  
**ftp** Starts an FTP session.

### MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesAction
```

---

## scp-sftp

Enables or disables secure copy (SCP) and Secure FTP (SFTP) at the same time on the switch.

`scp-sftp {enable / disable}`

---

### Syntax Definitions

**enable** Administratively enables SCP/SFTP on the switch.  
**disable** Administratively disables SCP/SFTP on the switch.

### Defaults

parameter	default
enable / disable	enable

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> scp-sftp enable
```

### Release History

Release 6.1.3; command was introduced.

### Related Commands

[ssh](#) Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.

[show ssh config](#) Displays the status of Secure Shell, SCP/SFTP on the switch.

### MIB Objects

alaSshConfigGroup  
alaScpSftpAdminStatus

---

## show ssh config

Displays the status of Secure Shell, SCP/SFTP on the switch.

**show ssh config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show ssh config
SSH = Enabled
SCP/SFTP = Enabled
Public Key Authentication Enforced = False
```

### output definitions

---

<b>SSH</b>	Displays the SSH status ( <b>enabled</b> or <b>disabled</b> ).
<b>SCP/SFTP</b>	Displays the SCP/SFTP status ( <b>enabled</b> or <b>disabled</b> ).
<b>Public Key Authentication Enforced</b>	Displays whether the Public Key Authentication is enforced. Options include <b>true</b> or <b>false</b> .

---

### Release History

Release 6.1.3; command was introduced.

### Related Commands

#### [ssh](#)

Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.

#### [ftpd](#)

Enables or disables secure copy (SCP) and secure FTP (SFTP) at the same time on the switch.

## **MIB Objects**

alaSshConfigGroup

    alaSshAdminStatus

    alaScpSftpAdminStatus

    alaSshPubKeyEnforceAdminStatus

---

## sftp

Starts an SFTP session. An SFTP session provides a secure file transfer method.

**sftp** {*host\_name* | *ip\_address*}

---

### Syntax Definitions

*host\_name* Specifies the host name for the SFTP session.

*ip\_address* Specifies the IP address for the SFTP session.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and a password for the specified host.
- If SFTP is not enabled, use the **ftp6** command to enable it.
- You can establish up to 4 SFTP sessions from an OmniSwitch (when it acts as FTP Client) and up to 8 SFTP sessions towards an OmniSwitch (when it acts as FTP Server).
- After logging in, SFTP commands are supported. They are defined in the following table:

<b>cd path</b>	Change remote path to 'path'.
<b>lcd path</b>	Change local directory to 'path'.
<b>chmod mode path</b>	Change permissions of file 'path' to 'mode'.
<b>help</b>	Display command help information.
<b>get remote-path [local path]</b>	Download a file from the remote path to the local path.
<b>lls [path]</b>	Display local directory listing.
<b>ln oldpath newpath</b>	Creates a symbolic link (symlink) to the remote file.
<b>symlink oldpath newpath</b>	Creates a symbolic link (symlink) to the remote file.
<b>mkdir path</b>	Create local directory.
<b>lpwd</b>	Print local working directory.
<b>ls [path]</b>	Display remote directory listing.
<b>mkdir path</b>	Create remote directory.
<b>put local-path [remote-path]</b>	Upload file.
<b>pwd</b>	Display remote working directory.
<b>exit</b>	Quit the sftp mode.



<b>quit</b>	Exit the sftp mode.
<b>rename oldpath newpath</b>	Rename a remote file.
<b>rmdir path</b>	Remove remote directory.
<b>rm path</b>	Delete remote file.
<b>version</b>	Show the current SFTP version.
<b>?</b>	Synonym for help. Displays command help information.

## Examples

```
-> sftp 12.251.11.122  
login as:
```

## Release History

Release 6.1; command was introduced.

## Related Commands

<b>ftp</b>	Starts an FTP session.
<b>ssh</b>	Invokes Secure Shell on the switch. Secure Shell is used to make a secured connection to a remote system or device.

## MIB Objects

```
SystemServices  
  systemServicesArg1  
  systemServicesAction
```

---

## sftp6

Starts an SFTPv6 session. An SFTPv6 session provides a secure file transfer method.

**sftp6** {*host\_name* | *ipv6\_address*} [*if\_name*]

---

### Syntax Definitions

<i>host_name</i>	Specifies the host name for the SFTPv6 session.
<i>ipv6_address</i>	Specifies the IPv6 address for the SFTPv6 session.
<i>if_name</i>	The name of the interface used to reach the SFTPv6 server, if the target has been specified using the link-local address.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- You must have a valid username and a password for the specified host.
- A console or a telnet session can handle only one SSHv6 client session.
- If the session is invoked using the server's link-local address, the source interface name must be provided.
- You can establish up to 4 SFTP6 sessions from an OmniSwitch (when it acts as FTP Client) and up to 8 SFTP6 sessions towards an OmniSwitch (when it acts as FTP Server).
- At anytime, there can be only 4 SFTP sessions (including SFTPv4 or SFTPv6) to any SSH servers.
- After logging in, SFTPv6 commands are supported. They are defined in the following table:

<b>cd path</b>	Change remote path to 'path'.
<b>lcd path</b>	Change local directory to 'path'.
<b>chmod mode path</b>	Change permissions of file 'path' to 'mode'.
<b>help</b>	Display command help information.
<b>get remote-path [local path]</b>	Download a file from the remote path to the local path.
<b>lls [path]</b>	Display local directory listing.
<b>ln oldpath newpath</b>	Creates a symbolic link (symlink) to the remote file.
<b>symlink oldpath newpath</b>	Creates a symbolic link (symlink) to the remote file.
<b>mkdir path</b>	Create local directory.
<b>lpwd</b>	Print local working directory.
<b>ls [path]</b>	Display remote directory listing.

<b>mkdir path</b>	Create remote directory.
<b>put local-path [remote-path]</b>	Upload file.
<b>pwd</b>	Display remote working directory.
<b>exit</b>	Quit the sftp mode.
<b>quit</b>	Exit the sftp mode.
<b>rename oldpath newpath</b>	Rename a remote file.
<b>rmdir path</b>	Remove remote directory.
<b>rm path</b>	Delete remote file.
<b>version</b>	Show the current SFTP version.
<b>?</b>	Synonym for help. Displays command help information.

### Examples

```
-> sftp6 fe80::a00:20ff:fea8:8961 int1
-> sftp6 ::1
-> sftp6 Sun.com
```

### Release History

Release 6.3.1; command was introduced.

### Related Commands

<b>ftp6</b>	Starts an FTP6 session.
<b>ssh6</b>	Invokes Secure Shellv6 on the switch. Secure Shellv6 is used to make a secured connection to an SSHv6 server.

### MIB Objects

```
SystemServices
  systemServicesArg1
  systemServicesAction
```

---

## tftp

Starts a TFTP client session that enables a file transfer to an TFTP server.

```
tftp {host_name | ip_address} {get | put} source-file [src_path]/src_file [destination-file [dest_path]/dest_file] [ascii]
```

---

### Syntax Definitions

<i>host_name</i>	Specifies the hostname of the TFTP server.
<i>ip_address</i>	Specifies the IP address of the TFTP server.
<b>get</b>	Specifies to download the file from the TFTP server.
<b>put</b>	Specifies to upload the file to the TFTP server.
<i>src_path</i>	Specifies the path containing the source file to be transferred.
<i>src_file</i>	Specifies the file name of the source file to be transferred.
<i>dest_path</i>	Specifies the destination path of the file to be transferred.
<i>dest_file</i>	Specifies the destination file name of the file to be transferred.
<b>ascii</b>	Sets the transfer type to ASCII (7-bit).

### Defaults

- If a path is not specified with the filename, the current path is used by default (for example, /flash).
- If a destination filename is not specified, the source filename is used by default.
- The default file transfer mode for a TFTP client session is Binary mode.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The OmniSwitch supports TFTP client functionality only.
- A TFTP server has no provisions for user authentication.
- Only one active TFTP client session is allowed at a time.
- When downloading a file to the switch, the file size must not exceed the available flash space.

## Examples

```
-> tftp tftp.server.com get source-file abc.img destination-file xyz.img
-> tftp tftp.server.com put source-file abc.txt destination-file xyz.txt ascii
-> tftp 10.211.17.1 get source-file boot.cfg destination-file /flash/working/
boot.cfg ascii
-> tftp 10.211.17.1 get source-file boot.cfg ascii
```

## Release History

Release 6.3.3; command was introduced.

## Related Commands

N/A

## MIB Objects

```
systemServices
  systemServicesArg1
  systemServicesArg2
  systemServicesArg3
  systemServicesArg4
  systemServicesArg5
  systemServicesAction
```

---

## **rz**

Starts a Zmodem session.

**rz**

---

### **Syntax Definitions**

N/A

### **Defaults**

N/A

### **Platforms Supported**

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### **Usage Guidelines**

- To use Zmodem, you must have a terminal emulator that supports the Zmodem protocol.
- Activate the Zmodem transfer according to the instructions that came with your terminal emulation software.
- When the transfer is complete, you can use the **ls** command to verify that the files were loaded successfully.
- To abort a Zmodem session, enter **CTRL + X** five times in succession. Refer to your switch's User Manual for more information on uploading files via Zmodem.
- This command can also be used on the secondary CMM.

### **Examples**

```
-> rz
Upload directory: /flash
rz ready to receive file, please start upload (or send 5 CTRL-X's to abort).
```

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

N/A

### **MIB Objects**

```
systemServices
  systemServicesAction
```

---

# 59 Web Management Commands

The switch can be configured and monitored using WebView, which is a web-based device management tool. Web Management CLI commands allow you to enable/disable web-based management and configure certain WebView parameters, such as Secure Socket Layer (SSL).

MIB information for the Web Management commands is as follows:

*Filename:* AlcatelInd1WebMgt.mib  
*Module:* alcatelIND1WebMgtMIB

A summary of the available commands is listed here:

---

**http server**  
**http ssl**  
**http port**  
**https port**  
**debug http sessiondb**  
**show http**

---

## http server

Enables/disables web management on the switch. When enabled, a user is able to configure the switch using the WebView application.

**{[ip] http | https} server**

**no {[ip] http | https} server**

---

### Syntax Definitions

**ip** Optional syntax. Using this optional syntax is the same as using the **http server** command.

### Defaults

Web management is enabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to disable web management. If web management is disabled, you will not be able to access the switch using WebView.

### Examples

```
-> http server
-> no http server
-> https server
-> no https server
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">http ssl</a>	Enables/disables SSL on the switch.
<a href="#">debug http sessiondb</a>	Displays web management session information.
<a href="#">show http</a>	Displays web management configuration information.

### MIB Objects

```
alaIND1WebMgtConfigMIBGroup
  alaInd1WebMgtAdminStatus
```

---



## http ssl

Enables/disables Force SSL on the switch. SSL is a protocol that establishes and maintains secure communication between SSL-enabled servers and clients across the Internet.

**{[ip] http | https} ssl**

**no {[ip] http | https} ssl**

---

### Syntax Definitions

**ip** Optional syntax. Using this optional syntax is the same as using the **http ssl** command.

### Defaults

SSL is enabled by default.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Use the **no** form of this command to disable SSL.

### Examples

```
-> http ssl
-> no http ssl
-> https ssl
-> no https ssl
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[http server](#) Enables/disables web management on the switch.

[show http](#) Displays web management configuration information.

### MIB Objects

alaIND1WebMgtConfigMIBGroup  
alaInd1WebMgtSsl

---

## http port

Changes the port number for the embedded Web server in the switch.

```
[ip] http port {default | port}
```

---

### Syntax Definitions

<b>ip</b>	Optional syntax.
<b>default</b>	Restores the port to its default (80) value.
<i>port</i>	The desired port number for the embedded Web server. The number must be in the range 0 to 65535; well-known port numbers cannot be configured.

### Defaults

parameter	default
<i>port</i>	80

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

All WebView sessions must be terminated before entering this command.

### Examples

```
-> http port 1025
-> http port default
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">http server</a>	Enables/disables web management on the switch.
<a href="#">show http</a>	Displays web management configuration information.

### MIB Objects

```
alaIND1WebMgtConfigMIBGroup
  alaIND1WebMgtHttpPort
```

---

## https port

Changes the default secure HTTP (HTTPS) port for the embedded Web server.

**https port** {default | *port*}

---

### Syntax Definitions

**default**

Restores the port to its default (443) value.

*port*

The desired HTTPS port number. The number must be in the range 0 to 65535; well-known port numbers cannot be configured.

### Defaults

---

parameter	default
<i>port</i>	443

---

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

All WebView sessions must be terminated before entering this command.

### Examples

```
-> https port 1026
-> https port default
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[http server](#)

Enables/disables web management on the switch.

[show http](#)

Displays web management configuration information.

### MIB Objects

```
alaIND1WebMgtConfigMIBGroup
  alaIND1WebMgtHttpsPort
```

---

## debug http sessiondb

Displays web management session information.

**debug http sessiondb**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> debug http sessiondb
```

```
Sess      SessName  Name  TimeOut  Status  URL Name--&--StatMsg
-----+-----+-----+-----+-----+-----+-----
0 6  sess_21606  admin  5848035  AUTHENTICATED  /web/content/index.html
1 -2  sess_28257  5999940  IN_PROGRESS  /ip/content/index.html
Current Active WebView Session: 1
```

### *output definitions*

---

<b>Sess</b>	The first number is the session number.
<b>SessName</b>	Unique ID assigned by the browser.
<b>Name</b>	User name.
<b>TimeOut</b>	User-configured inactivity timer, in minutes.
<b>Status</b>	Session status. If the user has successfully logged in, the status is "Authenticated."
<b>URL Name&amp;StatMsg</b>	Current page being viewed by the user.

---

### Release History

Release 6.1; command was introduced.

### **Related Commands**

[http server](#)

Enables/disables web management on the switch.

[http ssl](#)

Enables/disables SSL on the switch.

[show http](#)

Displays web management configuration information.

### **MIB Objects**

N/A

---

## show http

Displays web management configuration information.

show [ip] http

---

### Syntax Definitions

**ip** Optional syntax. Using this optional syntax is the same as using the **show http** command.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show http
```

```
Web Management = on
Force SSL = on
Web Management Http Port = 80
Web Management Https Port = 443
```

### *output definitions*

<b>Web Management</b>	Indicates whether web management is enabled (on) or disabled (off) on the switch.
<b>Force SSL</b>	Indicates whether Force SSL is enabled (on) or disabled (off) on the switch. If this is set to <b>on</b> this means that SSL is forced on an HTTP session and hence HTTPS protocol is negotiated between the client and server. For example, an “http://switchname.com” URL will be redirected to an “https://switchname.com” URL.
<b>Web Management Http Port</b>	The port configured for the HTTP connection.
<b>Web Management Https Port</b>	The port configured for a secure HTTP connection (SSL enabled).

### Release History

Release 6.1; command was introduced.

## Related Commands

<a href="#">http server</a>	Enables/disables web management on the switch.
<a href="#">http ssl</a>	Enables/disables SSL on the switch.
<a href="#">http port</a>	Changes the port number for the embedded Web server in the switch.
<a href="#">https port</a>	Changes the default secure HTTP (HTTPS) port for the embedded Web server.

## MIB Objects

```
alaIND1WebMgtConfigMIBGroup  
  alaInd1WebMgtAdminStatus  
  alaInd1WebMgtSsl  
  alaInd1WebMgtHttpPort  
  alaInd1WebMgtHttpsPort
```

---





# 60 Configuration File Manager Commands

The Configuration Manager feature allows you to configure your switch using an ASCII-based text file. CLI commands may be typed into a text document—referred to as a *configuration file*—and then uploaded and applied to the switch.

MIB information for the Configuration Manager commands is as follows:

*Filename:* AlcatelIND1System.mib  
*Module:* Alcatel-IND1ConfigMgr.mib

A summary of the available commands is listed here:

---

**configuration apply**  
**configuration error-file limit**  
**show configuration status**  
**configuration cancel**  
**configuration syntax check**  
**configuration snapshot**  
**show configuration snapshot**  
**write terminal**

---

## configuration apply

Applies a configuration file to the switch. Files may be applied immediately or after a designated timer session. With the timer session option, files are applied either at a scheduled date and time or after a specified period of time (i.e., a countdown) has passed.

**configuration apply** *filename* [**at** *hh:mm month dd* [*year*]] | [**in** *hh[:mm]*] [**verbose**]

---

### Syntax Definitions

<i>filename</i>	The name of the configuration text file to be applied to the switch (e.g., <b>newfile1</b> ).
<b>at</b> <i>hh:mm</i> { <i>dd month</i>   <i>month dd</i> } [ <i>year</i> ]	Designates a timer session in which a configuration file is applied at a specified date and time in the future. Values for <i>hh</i> range from 00 through 23. Values for <i>mm</i> range from 00 through 59. Values for <i>dd</i> range from 01 through 31. Values for <i>month</i> range from january through december. The switch assumes either the current year or the next calendar year for month and day pairs that precede the current date.
<b>in</b> <i>hh[:mm]</i>	Designates a timer session in which the configuration file is applied after a specific amount of time (i.e., a countdown) has passed. Values for <i>hh</i> range from 00 through 23. Values for <i>mm</i> range from 00 through 59.
<b>verbose</b>	When <b>verbose</b> is entered, information is displayed on your workstation's console as each command in the configuration file is applied.

### Defaults

By default, **verbose** error checking is not performed.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The **configuration apply** command only applies settings to the running configuration. The **boot.cfg** file does not get overwritten.
- It is recommended that you check all configuration files for syntax errors before applying them to your switch.
- To schedule a timer session in which a file is applied at a specific date and time, enter **at** followed by the hour, minute, month, day, and year. The switch assumes either the current calendar year or the next calendar year for dates beginning January 1.
- To schedule a timer session in which a file is applied after a specific amount of time (i.e., a countdown) has passed, enter **in** followed by the number of hours and minutes.
- Verbose mode is not supported for timer sessions.

- The keyword, **authkey**, along with a related alpha-numeric text string, are automatically included in many snapshot files (e.g., **configuration snapshot all**). The text string following the **authkey** keyword represents a login password that has been encrypted *twice*. (The first encryption occurs when a password is first created by a user; the second encryption occurs when a configuration snapshot is taken.) This dual encryption further enhances switch security. However, it is important to note that any configuration file (including a generated snapshot) that includes this dual-encrypted password information will result in an error whenever it is applied to the switch via the **configuration apply** command. This is a valid switch function and does not represent a significant problem. If an **authkey**-related error is the *only* error detected, simply remove all **authkey**-related syntax using a text editor. If a new password is required for the switch, include valid password syntax in the configuration file or immediately issue a new password by using the **password** command at the command prompt. For more information on passwords, refer to [page 36-53](#).

## Examples

```
-> configuration apply new_configuration at 12:00 15 november
-> configuration apply new_configuration at 12:00 november 15
-> configuration apply newfile1 in 01:30
-> configuration apply my_switch_config in 00:05
-> configuration apply asc.1.snap in 23:00
-> configuration apply aaa_config in 12
-> configuration apply vlan_config verbose
-> configuration apply vlan_config
...
```

---

**Note.** When the **configuration apply** command is entered *without at* or *in* syntax information, one or more dots “.” is displayed in the next line, immediately following the command line. This indicates command progress; each dot represents 256 text lines in the configuration file processed by the configuration apply mechanism.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

**configuration syntax check** Performs a syntax and authorization check of all CLI commands contained in a configuration file.

## MIB Objects

```
alcatelIND1ConfigMgrMIBObjects
  configFileName
  configFileMode
  configFileAction
  configTimerFileName
  configTimerFileTime
```

---



## Related Commands

- configuration apply** Applies a configuration file to the switch. Also used for scheduling a timer session for a configuration file.
- configuration cancel** Cancels a pending timer session for a configuration file.

## MIB Objects

alcatelIND1ConfigMgrMIBObjects  
configErrorFileMaximum

---

## show configuration status

Displays whether there is a pending timer session scheduled for a configuration file and indicates whether the running configuration and the saved configuration files are *identical* or *different*. This command also displays the number of error files that will be held in the flash directory.

**show configuration status**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- A timer session can be scheduled using the [configuration apply](#) command. For more information, refer to [page 60-2](#).
- The screen output **File configuration </path/filename>: scheduled at dd/mm hh:mm** indicates that a timer session has been scheduled for a later time.
- The output **No file configuration has been scheduled** indicates an idle timer session (i.e., no timer session has been scheduled for a configuration file).
- The output **File configuration is in progress** indicates that a file is currently being applied to the switch.
- The output **File configuration </path/filename>: completed with 2 errors** indicates that the named file was applied to the switch with two recorded errors.
- When the running and saved configurations are the same, the output **Running configuration and saved configuration are identical** will be displayed.
- When the running and saved configurations are the different, the output **Running configuration and saved configuration are different** will be displayed.
- To synchronize the running and saved configuration, use the [write memory](#) command.

### Examples

```
-> show configuration status
```

### Release History

Release 6.1; command was introduced.

## Related Commands

- configuration apply** Applies a configuration file to the switch. Also used for scheduling a timer session for a configuration file.
- configuration cancel** Cancels a pending timer session for a configuration file.
- configuration error-file limit** Specifies the maximum number of configuration error files allowed in the switch's **/flash** directory.
- write memory** Copies the running configuration (RAM) to the working directory.

## MIB Objects

configTimerFileGroup  
configTimerFileStatus

---

## configuration cancel

Cancels a pending timer session for a configuration file.

**configuration cancel**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> configuration cancel
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**configuration apply** Applies a configuration file to the switch. Also used for scheduling a timer session for a configuration file.

**show configuration status** Displays whether there is a pending timer session scheduled for a configuration file.

### MIB Objects

```
configTimerFileGroup  
configTimerClear
```

---



## configuration syntax check

Performs a syntax and authorization check of all CLI commands contained in a configuration file.

**configuration syntax check** *path/filename* [**verbose**]

---

### Syntax Definitions

*path/filename*

The configuration file being checked for syntax and authorization errors. If a configuration file is located in another directory, be sure to specify the full path. For example, **/flash/working/asc.1.snap**.

**verbose**

When **verbose** is specified in the command line, all syntax contained in the configuration file is printed to the console, even if no error is detected. When **verbose** is *not* specified in the command line, cursory information (number of errors and error log file name) will be printed to the console *only if a syntax or configuration error is detected*.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When an error is detected, an error file (**.err**) is automatically generated by the switch. By default, this file is placed in the root **/flash** directory. To view the contents of a generated error file, use the **view** command. For example, **view asc.1.snap.1.err**.
- The syntax, **mac alloc**, is automatically included in many snapshot files (e.g., **configuration snapshot all**). All **mac alloc**-related syntax is valid *during switch boot up only* (i.e., it cannot be applied while the switch is in run-time operation). Because snapshot files are commonly used as configuration files, syntax checks may detect **mac alloc** syntax and issue an error (along with a generated **.err** file). This is a valid switch function and does not represent a significant problem. If a **mac alloc**-related error is the *only* error detected, simply remove the syntax using a text editor, then re-check the file using the **configuration syntax check** command.
- It is recommended that you check all configuration files for syntax errors before applying them to your switch.

### Examples

```
-> configuration syntax check vlan_file1
..
```

---

**Note.** When the **configuration syntax check** command is entered, one or more dots “.” is displayed in the command output. This indicates command progress; each dot represents 256 text lines in the configuration file processed by the syntax check mechanism.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

- configuration apply** Applies a configuration file to the switch. Also used for scheduling a timer session for a configuration file.
- show configuration status** Displays whether there is a pending timer session scheduled for a configuration file.

## MIB Objects

```
configFileGroup
  configErrorFileName
  configErrorFileMaximum
  configFileMode
  configFileStatus
```

---

## configuration snapshot

Generates a snapshot file of the switch's non-default current running configuration. A snapshot can be generated for all current network features or for one or more specific network features. A snapshot is a single text file that can be viewed, edited, and reused as a configuration file.

**configuration snapshot** *feature\_list* [*path/filename*]

---

### Syntax Definitions

*feature\_list*

The description for the network feature(s) to be included in the snapshot. You may enter more than one network feature in the command line. Current snapshot-supported network features are listed below.

---

#### snapshot-supported features

<b>802.1q</b>	<b>ipmr</b>	<b>rdp</b>
<b>aaa</b>	<b>ipms</b>	<b>rip</b>
<b>aip</b>	<b>ipx</b>	<b>ripng</b>
<b>all</b>	<b>ipv6</b>	<b>session</b>
<b>bgp</b>	<b>linkagg</b>	<b>slb</b>
<b>bridge</b>	<b>module</b>	<b>snmp</b>
<b>chassis</b>	<b>ntp</b>	<b>stp</b>
<b>health</b>	<b>ospf</b>	<b>system</b>
<b>interface</b>	<b>ospf3</b>	<b>vlan</b>
<b>ip</b>	<b>pmm</b>	<b>vrrp</b>
<b>ip-helper</b>	<b>policy</b>	<b>webmgt</b>
<b>ip-routing</b>	<b>qos</b>	<b>udld</b>
<b>netsec</b>		

*path/filename*

A user-defined name for the resulting snapshot file. For example, **test\_snmp\_snap**. You may also enter a specific path for the resulting file. For example, the syntax **/flash/working/test\_snmp\_snap** places the **test\_snmp\_snap** file in the switch's **/flash/working** directory.

### Defaults

If a file name is not specified, the default file name **asc.#.snap** is used. Here, # indicates the order in which the default file is generated. For example, the first default file name to be generated is **asc.1.snap**, the second default file name to be generated is named **asc.2.snap**, etc. By default, all snapshot files are placed in the root **/flash** directory.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

## Usage Guidelines

- Only current, non-default configuration settings are written to the snapshot file.
- You may enter more than one network feature in the command line. Separate each network feature with a space and no comma. Network features may be entered in any order.
- The snapshot file is automatically placed in the root **/flash** directory unless otherwise specified.

## Examples

```
-> configuration snapshot all
-> configuration snapshot new_file1 qos health aggregation
-> configuration snapshot snmp_snapshot snmp
-> configuration snapshot 802.1q
```

## Release History

Release 6.1; command was introduced.

## Related Commands

N/A

## **MIB Objects**

```
configManager
  configSnapshotFileName
  configSnapshotAction
  configSnapshotAllSelect
  configSnapshotVlanSelect
  configSnapshotSpanningTreeSelect
  configSnapshotQOSSelect
  configSnapshotIPSelect
  configSnapshotIPXSelect
  configSnapshotIPMSSelect
  configSnapshotAAASelect
  configSnapshotSNMPSelect
  configSnapshot802.1QSelect
  configSnapshotLinkAggregateSelect
  configSnapshotPortMirrorSelect
  configSnapshotXIPSelect
  configSnapshotHealthMonitorSelect
  configSnapshotBootPSelect
  configSnapshotBridgeSelect
  configSnapshotChassisSelect
  configSnapshotInterfaceSelect
  configSnapshotPolicySelect
  configSnapshotSessionSelect
  configSnapshotServerLoadBalanceSelect
  configSnapshotSystemServiceSelect
  configSnapshotVRRPSelect
  configSnapshotWebSelect
  configSnapshotRIPSelect
  configSnapshotRIPngSelect
  configSnapshotOSPFSelect
  configSnapshotBGPSelect
  configSnapshotIPRMSelect
  configSnapshotIPMRSelect
  configSnapshotModuleSelect
  configSnapshotRDPSelect
  configSnapshotIPv6Select
```

---

## show configuration snapshot

Displays the switch's current running configuration for all features or for the specified feature(s).

**show configuration snapshot** [*feature\_list*]

---

### Syntax Definitions

*feature\_list* Specify the feature(s) for which you want to display the running configuration. List the features separated by a space with no comma.

---

#### snapshot-supported features

802.1q	ipmr	rdp
aaa	ipms	rip
aip	ipx	ripng
all	ipv6	session
bgp	linkagg	slb
bridge	module	snmp
chassis	ntp	stp
health	ospf	system
interface	ospf3	vlan
ip	pmm	vrrp
ip-helper	policy	webmgt
ip-routing	qos	udld
netsec		

---

### Defaults

By default, this command shows configuration information for *all* features.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use this command to view the current configuration for any feature shown in the table.
- To show a list of features on the switch, use the **show configuration snapshot ?** syntax.
- Configurations are listed below the name of each feature.
- Features with no current configuration show only the name of the feature.

## Examples

```
-> show configuration snapshot
-> show configuration snapshot aaa bridge
! Bridging :

! AAA :
aaa authentication default "local"
aaa authentication console "local"
user "public" read All write All no auth authkey 391b0e74dbd13973d703ccea4a8e30
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[write terminal](#) Displays the switch's current running configuration for all features.

## MIB Objects

```
configManager
  configSnapshotFileName
  configSnapshotAction
  configSnapshotAllSelect
  configSnapshotVlanSelect
  configSnapshotSpanningTreeSelect
  configSnapshotQOSSelect
  configSnapshotIPSelect
  configSnapshotIPXSelect
  configSnapshotIPMSSelect
  configSnapshotAAASelect
  configSnapshotSNMPSelect
  configSnapshot802.1QSelect
  configSnapshotLinkAggregateSelect
  configSnapshotPortMirrorSelect
  configSnapshotXIPSelect
  configSnapshotHealthMonitorSelect
  configSnapshotBootPSelect
  configSnapshotBridgeSelect
  configSnapshotChassisSelect
  configSnapshotInterfaceSelect
  configSnapshotPolicySelect
  configSnapshotSessionSelect
  configSnapshotServerLoadBalanceSelect
  configSnapshotSystemServiceSelect
  configSnapshotVRRPSelect
  configSnapshotWebSelect
  configSnapshotRIPSelect
  configSnapshotRIPngSelect
  configSnapshotOSPFSelect
  configSnapshotBGPSelect
  configSnapshotIPRMSelect
  configSnapshotIPMRSelect
  configSnapshotModuleSelect
  configSnapshotRDPSelect
  configSnapshotIPv6Select
```

---



## write terminal

Displays the switch's current running configuration for all features.

**write terminal**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Configurations are listed below the name of each feature.
- Features with no current configuration show only the name of the feature.

### Examples

```
-> write terminal
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show configuration snapshot** Displays the switch's current running configuration for all features or for the specified feature(s).

### MIB Objects

```
configManager  
  mib_configSnapshotAllSelect
```

---



# 61 SNMP Commands

This chapter includes descriptions for Trap Manager and SNMP Agent commands. The commands are used for configuring SNMP settings on the switch.

- SNMP station commands can create, modify, or delete an SNMP station. Also included is a show command for monitoring current SNMP station status.
- SNMP trap commands configure SNMP trap settings. Traps can be replayed and filtered. Also, test traps can be generated to verify that individual traps are being correctly handled by the Network Management Station (NMS). The SNMP trap commands set includes show commands for monitoring SNMP trap information.
- SNMP agent commands configure SNMP security levels on the switch. Also includes show commands for monitoring the current SNMP security status.

MIB information for SNMP Community commands is as follows:

*Filename:* IETFsnmpCommunity.MIB  
*Module:* IETF SNMP-COMMUNITY.MIB

MIB information for Trap Manager commands is as follows:

*Filename* AlcatelIND1TrapMgr.MIB  
*Module:* ALCATEL-IND1-TRAP-MGR.MIB

MIB information for SNMP Agent commands is as follows:

*Filename:* AlcatelIND1SNMPAgent.MIB  
*Module:* ALCATEL-IND1-SNMP-AGENT.MIB

---

A summary of the available commands is listed here:

---

<b>SNMP station commands</b>	<b>snmp station</b> <b>snmp source ip preferred</b> <b>show snmp station</b>
<b>SNMP community map commands</b>	<b>snmp community map</b> <b>snmp community map mode</b> <b>show snmp community map</b>
<b>SNMP security commands</b>	<b>snmp security</b> <b>show snmp security</b> <b>show snmp statistics</b> <b>show snmp mib family</b>
<b>SNMP trap commands</b>	<b>snmp trap absorption</b> <b>snmp trap to webview</b> <b>snmp trap replay</b> <b>snmp trap filter</b> <b>snmp authentication trap</b> <b>show snmp trap replay</b> <b>show snmp trap filter</b> <b>snmp authentication trap</b> <b>show snmp trap config</b>

---

## snmp station

Adds a new SNMP station; modifies or deletes an existing SNMP station.

**snmp station** {*ip\_address* | *ipv6\_address*} {[*udp\_port*] [*username*] [**v1** | **v2** | **v3**] [**enable** | **disable**]}

**no snmp station** {*ip\_address* | *ipv6\_address*}

---

### Syntax Definitions

<i>ip_address</i>	The IP address to which SNMP unicast traps will be sent. A maximum of 16 SNMP stations can be configured.
<i>ipv6_address</i>	The IPv6 address to which SNMP unicast traps will be sent.
<i>udp_port</i>	A UDP destination port.
<i>username</i>	The user name on the switch or external server used to send traps to the SNMP station(s). The username specified here must match an existing user account name.
<b>v1</b>	Specifies that traps are sent using SNMP version 1.
<b>v2</b>	Specifies that traps are sent using SNMP version 2.
<b>v3</b>	Specifies that traps are sent using SNMP version 3.
<b>enable</b>	Enables the specified SNMP station.
<b>disable</b>	Disables the specified SNMP station.

### Defaults

parameter	default
<i>udp_port</i>	162
<b>v1</b>   <b>v2</b>   <b>v3</b>	<b>v3</b>
<b>enable</b>   <b>disable</b>	<b>enable</b>

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the no form of the command to remove an existing SNMP station.
- The user name specified must match an existing user account name.
- When adding an SNMP station, you must specify an IP address *plus username parameters*. For example, the syntax **snmp station 1.2.3.4** is not a valid command entry; however, **snmp station 1.2.3.4 username1** is a valid command entry.
- You can establish up to 50 SNMP sessions towards an OmniSwitch.

- When modifying an SNMP station, you must specify an IP address *plus at least one additional parameter*. For example, the syntax **snmp station 1.2.3.4** is not a valid command entry; however, **snmp station 1.2.3.4 v2** is a valid command entry.
- The default UDP port 162 is commonly used for traps; however, the destination port can be redefined to accommodate an SNMP station using a nonstandard port. The destination port specified in the command line must correspond with the UDP destination port configured at the receiving SNMP station(s).
- When the SNMP station is enabled the switch will send ICMP echo requests to verify reachability. The switch transmits traps to the specified IP or IPv6 address immediately after receiving the ICMP echo response.

## Examples

```
-> snmp station 168.22.2.2 111 username2 v1 disable
-> snmp station 168.151.2.101 "test lab"
-> snmp station 170.1.2.3 username1 enable
-> snmp station 1.1.2.2 v2
-> no snmp station 2.2.2.2
-> snmp station 300::1 enable
-> no snmp station 300::1
```

## Release History

Release 6.1; command was introduced.

Release 6.3.1; *ipv6\_address* parameter added.

## Related Commands

[show snmp station](#) Displays the current SNMP station information.

## MIB Objects

```
trapStationTable
  trapStationIP
  trapStationPort
  trapStationUser
  trapStationProtocol
  trapStationRowStatus
alaTrapInetStationTable
  alaTrapInetStationIPType
  alaTrapInetStationIP
  alaTrapInetStationPort
  alaTrapInetStationRowStatus
  alaTrapInetStationProtocol
  alaTrapInetStationUser
```

---

## snmp source ip preferred

Configures the source IP address field of the SNMP client packets.

**snmp source ip preferred** {**default** | **no-loopback** | *ip\_address*}

**no snmp source ip preferred**

---

### Syntax Definitions

<b>default</b>	The Loopback0 address, if configured, will be used for the source IP address field. If no Loopback0 is configured, the first IP address on the switch will be used.
<b>no-loopback</b>	The Loopback0 address should not be used for the source IP address field and the first available IP address on the switch should be used for this field.
<i>ip_address</i>	The IP address to be used in the source IP field.

### Defaults

By default, the setting is set to the **default** parameter.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When configuring a specific IP address, that address must already exist on the switch.
- Use the **no** form of this command to clear a specific IP address and change the behavior back to default.

### Examples

```
-> snmp source ip preferred 192.168.10.1
-> snmp source ip preferred no-loopback
-> snmp source ip preferred default
```

### Release History

Release 6.3.4; command was introduced

Release 6.4.3; command was deprecated, use [ip managed-interface](#).

### Related Commands

[snmp station](#) Adds a new SNMP station; modifies or deletes an existing SNMP station.

## show snmp station

Displays the current SNMP station status.

**show snmp station**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show snmp station
ipAddress/udpPort          status    protocol user
-----
199.199.100.200/8010      enable   v3      NMSuserV3MD5DES
199.199.101.201/111      disable  v2      NMSuserV3MD5
199.199.102.202/8002      enable   v1      NMSuserV3SHADES
199.199.103.203/8003      enable   v3      NMSuserV3SHADES
199.199.104.204/8004      enable   v3      NMSuserV3SHA
```

The following is an example of the output display using IPv6.

```
-> show snmp station
ipAddress/udpPort          status    protocol user
-----+-----+-----+
172.21.160.32/4000        enable   v3      abc
172.21.160.12/5000        enable   v3      user1
0300:0000:0000:0000:0211:d8ff:fe47:470b/4001  enable   v3      user2
0300:0000:0000:0000:0211:d8ff:fe47:470c/5001  enable   v2      abc
```

### output definitions

---

<b>IPAddress</b>	IP Address of the SNMP management station that replayed the trap. <b>Note:</b> OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
<b>UDP Port</b>	UDP port number.
<b>Status</b>	The Enabled/Disabled status of the SNMP management station.
<b>Protocol</b>	The version of SNMP set for this management station.
<b>User</b>	The user account name.

---



## Release History

Release 6.1; command was introduced.

## Related Commands

### [snmp station](#)

Adds a new SNMP station; modifies or deletes an existing SNMP station.

## MIB Objects

trapStationTable

  trapStationIP

  trapStationPort

  trapStationUser

  trapStationProtocol

  trapStationRowStatus

alaTrapInetStationTable

  alaTrapInetStationIPType

  alaTrapInetStationIP

  alaTrapInetStationPort

  alaTrapInetStationRowStatus

  alaTrapInetStationProtocol

  alaTrapInetStationUser

---

## snmp community map

Configures and enables a community string on the switch and maps it to an existing user account name.

```
snmp community map community_string [{user useraccount_name] | {enable | disable}}
```

```
no snmp community map community_string
```

---

### Syntax Definitions

<i>community_string</i>	A community string in the form of a text string. This string must be between 1 and 32 characters.
<i>useraccount_name</i>	A user name in the form of a text string. This name must match a user login account name already configured on the switch or configured remotely on an external AAA server. This user name must be between 1 and 32 characters.
<b>enable</b>	Enables SNMP community string mapping.
<b>disable</b>	Disables SNMP community string mapping.

### Defaults

By default, SNMP community map authentication is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Community strings configured on the switch are used for v1 and v2c SNMP managers only.
- The user account name must be a current user account recognized by the switch. For a list of current user names use the **show user** command. To create a new user account, use the **user** command.
- There is one to one mapping between each community string and a user account name.
- Privileges attached to the community string are the ones inherited from the user account name that created it.

### Examples

```
-> snmp community map community1 user testname1  
-> snmp community map community1 enable
```

### Release History

Release 6.1; command was introduced.

## Related Commands

**snmp community map mode** Enables the local community strings database.

## MIB Objects

SNMPCommunityTable  
    snmpCommunityIndex  
    snmpCommunitySecurityName  
    snmpCommunityStatus

---

---

## snmp community map mode

Enables the local community strings database.

`snmp community map mode {enable | disable}`

---

### Syntax Definitions

<b>enable</b>	Enables SNMP community map database.
<b>disable</b>	Disables SNMP community map database.

### Defaults

By default, SNMP community strings database is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- When enabled, the community string carried over each incoming v1 or v2c SNMP request must be mapped to a user account name in order to be processed by the SNMP agent.
- When enabled, mapping is contained in the local community strings database populated by using the [snmp community map](#) command.
- When disabled, the community strings carried over each incoming v1 or v2c request must be *equal* to a user account name in order to be processed by the SNMP agent.

### Examples

```
-> snmp community map mode enable
-> snmp community map mode disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[snmp community map](#) Configures and enables a community string on the switch and maps it to an existing user account name.

### MIB Objects

```
SNMPCommunityTable
  snmpCommunityIndex
  snmpCommunitySecurityName
  snmpCommunityStatus
```

---

## show snmp community map

Shows the local community strings database.

**show snmp community map**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guideline

N/A

### Examples

```
-> show snmp community map
Community mode : enabled
```

```
status  community string          user name
-----+-----+-----
enabled test_string1              bb_username
enabled test_string2              rr_username
disabled test_string3              cc_username
disabled test_string4              jj_username
```

#### *output definitions*

---

<b>Status</b>	The Enabled/Disabled status of the community string.
<b>Community String</b>	The text that defines the community string.
<b>User Name</b>	The user account name.

---

### Release History

Release 6.1; command was introduced.

### Related Commands

[snmp community map](#) Configures and enables a community string on the switch and maps it to an existing user account name.

---

## snmp security

Configures SNMP security settings.

**snmp security** {no security | authentication set | authentication all | privacy set | privacy all | trap only}

---

### Syntax Definitions

<b>no security</b>	The switch will accept all SNMP v1, v2, and v3 requests.
<b>authentication set</b>	The switch will accept all requests <i>except</i> v1, v2, and non-authenticated v3 set requests. SNMP v1, v2, and non-authenticated v3 set requests will be rejected.
<b>authentication all</b>	The switch will accept all requests <i>except</i> v1, v2, and non-authenticated v3 get, get-next, and set requests. SNMP v1, v2, and non-authenticated v3 get, get-next, and set requests will be rejected.
<b>privacy set</b>	The switch will accept <i>only</i> authenticated SNMP v3 get, get-next and encrypted v3 set requests. All other requests will be rejected.
<b>privacy all</b>	The switch will accept only encrypted v3 get, get-next, and set requests. All other requests will be rejected.
<b>trap only</b>	All SNMP get, get-next, and set requests will be rejected.

### Defaults

By default, the SNMP security default is set to **privacy all**, which is the highest level of security.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Refer to the table below for a quick-reference list of security parameter and the SNMP request allowances for each parameter.

	v1 set v2 set v3 non-auth set	v1 get v2 get v3 non-auth get/ get-next	v3 auth set	v3 auth get/ get-next	v3 encryp set	v3 encryp get/ get-next
<b>no security</b>	accepted	accepted	accepted	accepted	accepted	accepted
<b>authentication set</b>	rejected	accepted	accepted	accepted	accepted	accepted
<b>authentication all</b>	rejected	rejected	accepted	accepted	accepted	accepted
<b>privacy set</b>	rejected	rejected	rejected	accepted	accepted	accepted
<b>privacy all</b>	rejected	rejected	rejected	rejected	accepted	accepted
<b>trap only</b>	rejected	rejected	rejected	rejected	rejected	rejected

## Examples

```
-> snmp security no security
-> snmp security authentication set
-> snmp security authentication all
-> snmp security privacy set
-> snmp security trap only
```

## Release History

Release 6.1; command was introduced.

## Related Commands

[show snmp security](#) Displays the current SNMP security status.

## MIB Objects

```
SNMPAgtConfig
  SmpAgtSecurityLevel
```

---

## show snmp security

Displays the current SNMP security status.

```
show snmp security
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

Refer to the command on page [61-12](#) for descriptions of the five SNMP security states: no security, authentication set, authentication all, privacy set, privacy all, and trap only.

### Examples

```
-> show snmp security
snmp security = no security
```

```
-> show snmp security
snmp security = authentication set
```

```
-> show snmp security
snmp security = authentication all
```

```
-> show snmp security
snmp security = privacy set
```

```
-> show snmp security
snmp security = privacy all
```

```
-> show snmp security
snmp security = trap only
```

### Release History

Release 6.1; command was introduced.



## **Related Commands**

[\*\*snmp security\*\*](#)

Configures the SNMP security settings.

---

## show snmp statistics

Displays the current SNMP statistics.

```
show snmp statistics
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show snmp statistics
From RFC1907
  snmpInPkts                = 801
  snmpOutPkts               = 800
  snmpInBadVersions         = 0
  snmpInBadCommunityNames  = 0
  snmpInBadCommunityUses   = 0
  snmpInASNParseErrs       = 0
  snmpEnableAuthenTraps    = disabled(2)
  snmpSilentDrops           = 0
  snmpProxyDrops            = 0
  snmpInTooBigs             = 0
  snmpOutTooBigs            = 0
  snmpInNoSuchNames        = 0
  snmpOutNoSuchNames       = 0
  snmpInBadValues          = 0
  snmpOutBadValues         = 0
  snmpInReadOnlys          = 0
  snmpOutReadOnlys        = 0
  snmpInGenErrs            = 0
  snmpOutGenErrs           = 0
  snmpInTotalReqVars       = 839
  snmpInTotalSetVars       = 7
  snmpInGetRequests        = 3
  snmpOutGetRequests       = 0
  snmpInGetNexts           = 787
  snmpOutGetNexts          = 0
  snmpInSetRequests        = 7
  snmpOutSetRequests       = 0
  snmpInGetResponses       = 0
  snmpOutGetResponses      = 798
```

```
snmpInTraps           = 0
snmpOutTraps          = 0
From RFC2572
snmpUnknownSecurityModels = 0
snmpInvalidMsgs       = 0
snmpUnknownPDUHandlers = 0
From RFC2573
snmpUnavailableContexts = 0
snmpUnknownContexts    = 1
From RFC2574
usmStatsUnsupportedSecLevels = 0
usmStatsNotInTimeWindows   = 1
usmStatsUnknownUserNames   = 1
usmStatsUnknownEngineIDs   = 0
usmStatsWrongDigests       = 0
usmStatsDecryptionErrors   = 0
```

### *output definitions*

---

<b>From RFCxxxx</b>	Displays the RFC number that defines the SNMP MIB objects listed.
<b>MIB Objects</b>	Name of the MIB object listed as an SNMP statistic.
<b>= (integer)</b>	The number of times the MIB object has been reported to the SNMP management station since the last reset.

---

### **Release History**

Release 6.1; command was introduced.

### **Related Commands**

N/A

---



## snmp trap absorption

Enables or disables the trap absorption function.

**snmp trap absorption {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables SNMP trap absorption. When trap absorption is enabled, identical, repetitive traps sent by applications during a pre-configured time period will be absorbed, and therefore not sent to SNMP Manager stations configured on the switch.
<b>disable</b>	Disables SNMP trap absorption.

### Defaults

By default, trap absorption is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

To view the current trap absorption status, use the **show snmp trap config** command.

### Examples

```
-> snmp trap absorption enable  
-> snmp trap absorption disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show snmp trap config** Displays the SNMP trap information. Information includes trap ID numbers and corresponding trap names and families.

### MIB Objects

```
trapFilterTable  
  trapAbsorption
```

---

---

## snmp trap to webview

Enables the forwarding of traps to WebView.

`snmp trap to webview {enable | disable}`

---

### Syntax Definitions

<b>enable</b>	Enables WebView forwarding. When WebView forwarding is enabled, all traps sent by switch applications are also forwarded to WebView. This allows a WebView session to retrieve the trap history log.
<b>disable</b>	Disables WebView forwarding.

### Defaults

By default, WebView forwarding is enabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

To view the current WebView forwarding status, use the **show snmp trap config** command.

### Examples

```
-> snmp trap to webview enable
-> snmp trap to webview disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show snmp trap config** Displays the SNMP trap information, including the current status for trap absorption and WebView forwarding.

### MIB Objects

```
trapFilterTable
  trapToWebView
```

---

## snmp trap replay

Replays stored traps from the switch to a specified SNMP station. This command is used to replay (to resend) traps on demand. This is useful in the event when traps are lost in the network.

```
snmp trap replay {ip_address | ipv6_address} [seq_id]
```

---

### Syntax Definitions

<i>ip_address</i>	The IP address for the SNMP station to which traps will be replayed from the switch.
<i>ipv6_address</i>	The IPv6 address for the SNMP station to which traps will be replayed from the switch.
<i>seq_id</i>	The sequence number from which trap replay will begin. Each trap sent by the switch to an SNMP station has a sequence number. The sequence number reflects the order in which the trap was sent to the SNMP station. For example, the first trap sent to an SNMP station has a sequence number of 1; the second trap has a sequence number of 2, etc. If no sequence number is entered, all stored traps are replayed.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the [show snmp station](#) command to display the latest stored sequence number for each SNMP station.
- The switch replays traps in the same order that they were previously sent, beginning from the specified sequence number.
- When traps are replayed, the original dates on which the trap was issued, rather than the current dates are used.
- If the specified sequence number is lower than the oldest trap sequence number stored in the switch, the switch replays all stored traps.
- If the specified sequence number is equal to or greater than the oldest trap sequence number stored, the switch replays all stored traps from the specified sequence number up to the latest sequence number.
- If the specified sequence number is greater than the latest sequence number, no traps are replayed.

### Examples

```
-> snmp trap replay 172.12.2.100  
-> snmp trap replay 300::1
```

## Release History

Release 6.1; command was introduced.

Release 6.3.1; *ipv6\_address* parameter added.

## Related Commands

**show snmp station** Displays the current SNMP station status.

**show snmp trap replay** Displays the SNMP trap replay information.

## MIB Objects

trapStationTable

    trapStation Replay

AlaTrapInetStationEntry

    alaTrapInetStationReplay

    alaTrapInetStationNextSeq

---



## snmp trap filter

Enables or disables SNMP trap filtering. Trap filtering is used to determine whether a trap or group of traps will be sent from the switch to a specified SNMP station.

**snmp trap filter** {*ip\_address* | *ipv6\_address*} *trap\_id\_list*

**no snmp trap filter** {*ip\_address* / *ipv6\_address*} *trap\_id\_list*

---

### Syntax Definitions

<i>ip_address</i>	The IP address for the SNMP station for which trap filtering is being enabled or disabled.
<i>ipv6_address</i>	The IPv6 address for the SNMP station for which trap filtering is being enabled or disabled.
<i>trap_id_list</i>	Specifies the trap(s) for which filtering is being enabled or disabled. Traps must be specified using the numeric trap ID. You can specify more than one trap in the command line; separate each trap ID with a space and no comma.

### Defaults

By default, SNMP trap filtering is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- The amount of traps that can be specified is equal to the number of traps supported in the AOS release.
- To *enable* trap filtering, use the syntax **snmp trap filter** *ip\_address trap\_id\_list*.
- To *disable* trap filtering, use the syntax **no snmp trap filter** *ip\_address trap\_id\_list*.
- When filtering is enabled, the specified trap(s) *will not* be sent to the SNMP station. When filtering is disabled, the specified traps *will* be sent to the SNMP station.
- To display a list of traps and their ID numbers, use the **show snmp trap config** command.

### Examples

```
-> snmp trap filter 172.1.2.3 1
-> snmp trap filter 172.1.2.3 0 1 3 5
-> snmp trap filter 300::1 1 3 4
-> no snmp trap filter 172.1.2.3 1
-> no snmp trap filter 172.1.2.3 0 1 3 5
-> no snmp trap filter 300::1 1 3
```

## Release History

Release 6.1; command was introduced.  
Release 6.3.1; *ipv6\_address* parameter added.

## Related Commands

<a href="#">show snmp trap filter</a>	Displays the current SNMP trap filter status.
<a href="#">show snmp trap config</a>	Displays the SNMP trap information, including trap ID numbers, trap names, command families, and absorption rate.

## MIB Objects

```
trapFilterTable
  trapFilterStatus
alaTrapInetFilterTable
  alaTrapInetFilterStatus
```

---

## snmp authentication trap

Enables or disables SNMP authentication failure trap forwarding.

**snmp authentication trap {enable | disable}**

---

### Syntax Definitions

<b>enable</b>	Enables authentication failure trap forwarding. When enabled, the standard authentication failure trap is sent each time an SNMP authentication failure is detected.
<b>disable</b>	Disables authentication failure trap forwarding.

### Defaults

By default, authentication failure trap forwarding is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> snmp authentication trap enable  
-> snmp authentication trap disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

**show snmp authentication trap** Displays the current authentication failure trap forwarding status.

### MIB Objects

```
snmpGroup  
  snmpEnableAuthenTraps
```

---

## show snmp trap replay

Displays SNMP trap replay information.

```
show snmp trap replay
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

A maximum of 60 traps will be replayed.

### Examples

```
-> show snmp trap replay
ipAddress      : oldest replay number
-----
199.199.101.200 :      1234
199.199.105.202 :       578
199.199.101.203 :     1638
199.199.101.204 :     2560
```

The following is an example of the output display with IPv6 information.

```
-> show snmp trap replay
ipAddress      oldest replay number
-----+-----
172.21.160.32      12
172.21.160.12     57
0300:0000:0000:0000:0211:d8ff:fe47:470b  12
0300:0000:0000:0000:0211:d8ff:fe47:470c  42
```

#### *output definitions*

---

<b>IPAddress</b>	IP address of the SNMP station manager that replayed the trap. <b>Note:</b> OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
<b>Oldest Replay Number</b>	Number of the oldest replayed trap.

---

### Release History

Release 6.1; command was introduced.

## Related Commands

### [snmp trap replay](#)

Replays stored traps from the switch to a specified SNMP station.

## MIB Objects

trapStationTable

    snmpStation Replay

AlaTrapInetStationEntry

    alaTrapInetStationReplay

    alaTrapInetStationNextSeq

---

## show snmp trap filter

Displays the current SNMP trap filter status.

**show snmp trap filter**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

To display a list of traps and their ID numbers, use the [show snmp trap config](#) command.

### Examples

```
-> show snmp trap filter
ipAddress      : trapId list
-----
199.199.101.200 :    0  1  2  3
199.199.101.201 : no filter
199.199.105.202 :    0  1  2  3  4  5  6  7  8  9 10 11 12 13 14
                  15 16 17 18 19
199.199.101.203 :   20 22 30
199.199.101.204 : no filter
```

The following is an example of the output display with IPv6 information.

```
-> show snmp trap filter
ipAddress      : trapId list
-----+-----
172.21.160.32  :          1  3  4
172.21.160.12  :          no filter
0300:0000:0000:0000:0211:d8ff:fe47:470b :    4  5  6
0300:0000:0000:0000:0211:d8ff:fe47:470c :          no filter
```

#### *output definitions*

---

<b>IPAddress</b>	IP address of the SNMP management station that recorded the traps. <b>Note:</b> OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
<b>TrapId List</b>	Identification number for the traps being filtered.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[snmp trap filter](#)

Enables or disables SNMP trap filtering.

[show snmp trap config](#)

Displays the SNMP trap information, including trap ID numbers, trap names, command families, and absorption rate.

## MIB Objects

trapFilterTable

    trapFilterEntry

alaTrapInetFilterTable

    alaTrapInetFilterStatus

---

## show snmp authentication trap

Displays the current authentication failure trap forwarding status (i.e., enable or disable).

**show snmp authentication trap**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show snmp authentication trap  
snmp authentication trap = disable
```

### Release History

Release 6.1; command was introduced.

### Related Commands

[snmp authentication trap](#) Enables or disables SNMP authentication failure trap forwarding.

### MIB Objects

sessionAuthenticationTrap

---



## show snmp trap config

Displays SNMP trap information. Information includes trap ID numbers, trap names, command families, and absorption rate. This command also displays the Enabled/Disabled status of SNMP absorption and the Traps to WebView service.

**show snmp trap config**

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

```
-> show snmp trap config
Absorption service : enabled
Traps to WebView : enabled
```

Id	trapName	family	absorption
0	coldStart	chassis	15 seconds
1	warmStart	chassis	15 seconds
2	linkDown	interface	15 seconds
3	linkUp	interface	15 seconds
4	authenticationFailure	snmp	15 seconds
5	entConfigChange	module	15 seconds
30	slPesudoCAMStatusTrap	bridge	15 seconds
31	slbTrapException	loadbalancing	15 seconds
32	slbTrapConfigChanged	loadbalancing	15 seconds
33	slbTrapOperStatus	loadbalancing	15 seconds
34	ifMauJabberTrap	interface	15 seconds
35	sessionAuthenticationTrap	session	15 seconds

#### *output definitions*

---

<b>Id</b>	Identification number for the trap.
<b>Trap Name</b>	Name of the trap.
<b>Family</b>	Family to which the trap belongs.
<b>Absorption</b>	Time needed for the trap to process.

---

## Release History

Release 6.1; command was introduced.

## Related Commands

[show snmp mib family](#)

Displays SNMP MIB information.

[snmp trap absorption](#)

Enables or disables the trap absorption function.

[snmp trap to webview](#)

Enables or disables the forwarding of SNMP traps to WebView.

## MIB Objects

trapConfigTable

  trapConfigEntry

---

# 62 DNS Commands

A Domain Name System resolver is an internet service that translates host names into IP addresses. Every time you use a host name, a DNS service must resolve the name to an IP address. You can configure up to three domain name servers. If the primary DNS server does not know how to translate a particular host name, it asks the secondary DNS server (if specified). If this fails, it asks the third DNS server (if specified), until the correct IP address is returned (resolved). If all DNS servers have been queried and the name is still not resolved to an IP address, the DNS resolver will fail and issue an error message.

MIB information for the DNS commands is as follows:

*Filename:* AlcatelIND1System.mib  
*Module:* ALCATEL-IND1-SYSTEM.MIB

A summary of the available commands is listed here.

---

[ip domain-lookup](#)  
[ip name-server](#)  
[ipv6 name-server](#)  
[ip domain-name](#)  
[show dns](#)

---

---

## ip domain-lookup

Enables or disables the DNS resolver.

**ip domain-lookup**

**no ip domain-lookup**

---

### Syntax Definitions

N/A

### Defaults

By default, the DNS resolver is disabled.

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the **no** form of this command to disable the DNS resolver.
- You must use the **ip domain-name** command to set a default domain name for your DNS resolver(s) and the **ip name-server** command to specify up to three DNS servers to query on host lookups.
- The **ip domain-lookup** command enables the DNS resolver.

### Examples

```
-> ip domain-lookup  
-> no ip domain-lookup
```

### Release History

Release 6.1; command was introduced.

### Related Commands

<a href="#">ip name-server</a>	Specifies the IP addresses of up to three servers to query on a host lookup.
<a href="#">ipv6 name-server</a>	Specifies the IPv6 addresses of up to three IPv6 DNS servers to query on a host lookup.
<a href="#">ip domain-name</a>	Sets or deletes the default domain name for DNS lookups.
<a href="#">show dns</a>	Displays the current DNS resolver configuration and status.

### MIB Objects

```
systemDNS  
  systemDNSEnableDnsResolver
```

---

## ip name-server

Specify the IP addresses of up to three servers to query on a host lookup.

**ip name-server** *server-address1* [*server-address2* [*server-address3*]]

**no ip name-server** {*server-address1* [*server-address2* [*server-address3*]] | **all**}

---

### Syntax Definitions

<i>server-address1</i>	The IP address of the primary DNS server to query for host lookup. This is the only address that is required.
<i>server-address2</i>	The IP address of the secondary DNS server to query for host lookup. This server will be queried only if the desired host name or host IP address is not located by the primary DNS server. A second IP address is optional.
<i>server-address3</i>	The IP address of the DNS server with the lower priority. This server will be queried only if the desired host name or IP address is not located by the primary and secondary DNS servers. A third IP address is optional.
<b>all</b>	Removes all configured DNS servers.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Use the no form of this command to remove individual or all DNS servers.
- Configuration of the DNS resolver to resolve any host query requires that you first set the default domain name with the **ip domain-name** command and enable the DNS resolver function with the **ip domain-lookup** command before you specify the IP addresses of the DNS servers by using the **ip name-server** command.
- You can configure up to three IPv4 DNS servers and three IPv6 DNS servers in a switch.

### Examples

```
-> ip name-server 189.202.191.14 189.202.191.15 188.255.19.1
-> ip name-server 10.255.11.66
-> no ip name-server 10.255.11.66
-> no ip name-server all
```

### Release History

Release 6.1; command was introduced.

Release 6.3.4; 'no' parameter was added for removing DNS servers.

## Related Commands

[ip domain-lookup](#)

Enables or disables the DNS resolver.

[ip domain-name](#)

Sets or deletes the default domain name for DNS lookups.

[show dns](#)

Displays the current DNS resolver configuration and status.

## MIB Objects

systemDNS

systemDNSNsAddr1

systemDNSNsAddr2

systemDNSNsAddr3

---

## ipv6 name-server

Specifies the IPv6 addresses of up to three IPv6 DNS servers to query on a host lookup.

**ipv6 name-server** *server-ipv6\_address1* [*server-ipv6\_address2* [*server-ipv6\_address3*]]

---

### Syntax Definitions

<i>server-ipv6_address1</i>	The IPv6 address of the primary IPv6 DNS server to query for host lookup. Specifying the primary IPv6 DNS address is mandatory.
<i>server-ipv6_address2</i>	The IPv6 address of the secondary IPv6 DNS server to query for host lookup. This server will be queried only if the desired host name is not able to be resolved by the primary IPv6 DNS server. A second IPv6 address is optional.
<i>server-ipv6_address3</i>	The IPv6 address of the IPv6 DNS server with the lower priority. This server will be queried only if the desired host name is not able to be resolved by both the primary and secondary IPv6 DNS servers. A third IPv6 address is optional.

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

- Configuration of the DNS resolver to resolve any host query requires that you first set the default domain name with the **ip domain-name** command and enable the DNS resolver function with the **ip domain-lookup** command before you specify the IPv6 addresses of the IPv6 DNS servers by using the **ipv6 name-server** command.
- You cannot use multicast, loopback, link-local and unspecified IPv6 addresses for specifying IPv6 DNS servers.
- You can configure up to three IPv6 DNS servers and three IPv4 DNS servers in a switch.

### Examples

```
-> ipv6 name-server fec0::2d0:d3:f3fc
-> ipv6 name-server fe2d::2c f302::3de1:1 f1bc::202:fd40:f3
```

### Release History

Release 6.3.1; command was introduced.

## Related Commands

[ip domain-lookup](#)

Enables or disables the DNS resolver.

[ip domain-name](#)

Sets or deletes the default domain name for DNS lookups.

[show dns](#)

Displays the current DNS resolver configuration and status.

## MIB Objects

systemDNS

  systemDNSNsIPv6Addr1

  systemDNSNsIPv6Addr2

  systemDNSNsIPv6Addr3

---





## show dns

Displays the current DNS resolver configuration and status.

```
show dns
```

---

### Syntax Definitions

N/A

### Defaults

N/A

### Platforms Supported

OmniSwitch 6400, 6850, 6850E, 6855, 9000E

### Usage Guidelines

N/A

### Examples

The following is an example of the output display on OmniSwitch stackable and chassis-based switches:

```
-> show dns
Resolver is          : enabled
domainName          : company.com
IPv4 nameServer(s) : 189.202.191.14
                   : 189.202.191.15
                   : 188.255.19.1
IPv6 nameServer(s) : fe2d::2c
                   : f302::3de1:1
                   : f1bc::202:fd40:f3
```

#### *output definitions*

<b>Resolver is</b>	Indicates whether the DNS resolver is enabled or disabled.
<b>domainName</b>	Indicates the default domain name assigned to the DNS lookups. This value is set using the <b>ip domain-name</b> command.
<b>IPv4 nameServer(s)</b>	Indicates the IP address(es) of the IPv4 DNS server(s). These addresses are set using the <b>ip name-server</b> command.
<b>IPv6 nameServer(s)</b>	Indicates the IPv6 address(es) of the IPv6 DNS server(s). These addresses are set using the <b>ipv6 name-server</b> command.

### Release History

Release 6.1; command was introduced.

Release 6.3.1; **IPv4 nameServer(s)** and **IPv6 nameServer(s)** fields are added.

## Related Commands

### **ip domain-lookup**

Enables or disables the DNS resolver.

### **ip name-server**

Specifies the IP addresses of up to three servers to query on a host lookup.

### **ipv6 name-server**

Specify the IPv6 addresses of up to three IPv6 DNS servers to query on a host lookup.

### **ip domain-name**

Sets or deletes the default domain name for DNS lookups.

## MIB Objects

systemDNS

systemDNSEnableDnsResolver

systemDNSDomainName

systemDNSNsAddr1

systemDNSNsAddr2

systemDNSNsAddr3

systemDNSNsIPv6Addr1

systemDNSNsIPv6Addr2

systemDNSNsIPv6Addr3

---



# A Software License and Copyright Statements

This appendix contains Alcatel-Lucent and third-party software vendor license and copyright statements.

## Alcatel-Lucent License Agreement

### ALCATEL-LUCENT SOFTWARE LICENSE AGREEMENT

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PR 30872 B Kesner created May 5 2000

PR 30872 B Kesner June 16 2000 moved batch\_entropy\_process to own task iWhirlpool to make code more efficient

random.c -- A strong random number generator

Version 1.89, last modified 19-Sep-99

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```



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Version 1.33.1

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# CLI Quick Reference

## Ethernet Port Commands

```
trap {slot / slot/port[-port2]} port link {enable | disable | on | off}
interfaces {slot / slot/port[-port2]} speed {auto | 10 | 100 | 1000 | 10000 | max {100 | 1000}}
interfaces {slot / slot/port} mode {uplink | stacking}
interfaces {slot / slot/port[-port2]} autoneg {enable | disable | on | off}
interfaces {slot / slot/port[-port2]} crossover {auto | mdix | mdi}
interfaces {slot / slot/port[-port2]} pause {tx | rx | tx-and-rx | disable}
interfaces e2e-flow-vlan vlan_id
interfaces no e2e-flow-vlan
interfaces {slot / slot/port[-port2]} duplex {full | half | auto}
interfaces {slot / slot/port[-port2]} admin {up | down}
interfaces cli-prompt {enable | disable}
interfaces slot/port alias description
interfaces {slot / slot/port[-port2]} ifg bytes
interfaces {slot / slot/port[-port2]} no l2 statistics [cli]
interfaces {slot / slot/port[-port2]} max frame bytes
interfaces slot/port[-port2] flood multicast {enable | disable}
interfaces {slot / slot/port[-port2]} flood [broadcast | multicast | unknown-unicast | all] [enable | disable]
interfaces {slot / slot/port[-port2]} flood [broadcast | multicast | unknown-unicast | all] rate [mbps mbps | pps pps | percentage percent]
interfaces [slot / slot/port[-port2]] violation-recovery-time {seconds | default}
interfaces {slot / slot/port[-port2]} violation-recovery-time default
interfaces [slot / slot/port[-port2]] violation-recovery-maximum max_attempts
interfaces {slot / slot/port[-port2]} violation-recovery-maximum default
interface violation-recovery-trap {enable | disable}
interfaces {slot / slot/port[-port2]} clear-violation-all
interfaces {slot / slot/port[-port2]} wait-to-restore seconds
interfaces transceiver ddm [trap] {enable | disable}
interfaces {slot / slot/port[-port2]} link-monitoring admin-status {enable | disable}
interfaces {slot / slot/port[-port2]} link-monitoring time-window seconds
interfaces {slot / slot/port[-port2]} link-monitoring link-flap-threshold link_flaps
interfaces {slot / slot/port[-port2]} link-monitoring link-error-threshold mac_errors
interfaces {slot / slot/port[-port2]} clear-link-monitoring-stats
interfaces {slot / slot/port[-port2]} hybrid preferred-fiber
interfaces {slot / slot/port[-port2]} hybrid {fiber | copper} autoneg {enable | disable | on | off}
interfaces {slot / slot/port[-port2]} hybrid copper crossover {auto | mdix | mdi}
interfaces {slot / slot/port[-port2]} hybrid {fiber | copper} duplex {full | half | auto}
interfaces {slot / slot/port[-port2]} hybrid {fiber | copper} speed {auto | 10 | 100 | 1000 | 10000 | max {100 | 1000}}
```

```
interfaces {slot / slot/port[-port2]} hybrid {fiber | copper} pause {tx | rx | tx-and-rx | disable}
show interfaces [slot / slot/port[-port2]]
show interfaces [slot / slot/port[-port2]] capability
show interfaces [slot / slot/port[-port2]] flow [control]
show interfaces [slot / slot/port[-port2]] pause
show interfaces e2e-flow-vlan
show interfaces [slot / slot/port[-port2]] accounting
show interfaces [slot / slot/port[-port2]] counters
show interfaces [slot / slot/port[-port2]] counters errors
show interfaces [slot / slot/port[-port2]] collisions
show interfaces [slot / slot/port[-port2]] status
show interfaces [slot / slot/port[-port2]] port
show interfaces violation-recovery
show interfaces [slot / slot/port[-port2]] ifg
show interfaces [slot / slot/port [-port2]] flood rate
show interfaces [slot / slot/port[-port2]] traffic
show interfaces [slot / slot/port[-port2]] transceiver [ddm | w-low | w-high | a-low | a-high | actual]
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper}
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} status
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} pause
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} capability
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} accounting
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} counters
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} counters errors
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} collisions
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} traffic
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} port
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} flood rate
show interfaces [slot / slot/port[-port2]] hybrid {fiber | copper} ifg
show interfaces {slot / slot/port[-port2]} link-monitoring config
show interfaces {slot / slot/port[-port2]} link-monitoring statistics
debug interfaces set [slot] backpressure {enable | disable}
debug interfaces [slot] backpressure
link-fault-propagation group group_id [admin-state {enable | disable}]
no link-fault-propagation group {group_id[-group_id2]}
link-fault-propagation group group_id source {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
no link-fault-propagation group group_id source {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
link-fault-propagation group group_id destination {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
no link-fault-propagation group group_id destination {port slot/port[-port2] | linkagg agg_id[-agg_id2]}
```

```

link-fault-propagation group group_id wait-to-shutdown seconds
show link-fault-propagation group [group_id]
interfaces slot/port tdr-test-start
interfaces {slot / slot/port[-port2]} no tdr-statistics
show interfaces [slot / slot/port[-port2]] tdr-statistics

```

## UDLD Commands

```

udld {enable | disable}
udld port slot/port[-port2] {enable | disable}
udld port [slot/port[-port2]] mode {normal | aggressive}
udld port [slot/port[-port2]] probe-timer seconds
no udld port [slot/port[-port2]] probe-timer
udld port [slot/port[-port2]] echo-wait-timer seconds
no udld port [slot/port[-port2]] echo-wait-timer
clear udld statistics [port slot/port]
show udld configuration
show udld configuration port [slot/port]
show udld statistics port slot/port
show udld neighbor port slot/port
show udld status port [slot/port]

```

## Power over Ethernet (PoE) Commands

```

lanpower start {slot/port[-port2] | slot}
lanpower stop {slot/port[-port2] | slot}
lanpower {slot/port | slot} power milliwatts
lanpower slot maxpower watts
lanpower slot/port priority {critical | high | low}
lanpower slot priority-disconnect {enable | disable}
lanpower slot slot-priority {critical | high | low}
lanpower redundant-power {enable | disable}
lanpower slot capacitor-detection {enable | disable}
show lanpower slot
show lanpower capacitor-detection slot
show lanpower priority-disconnect slot
show lanpower slot-priority slot

```

## Source Learning Commands

```

mac-address-table [permanent] mac_address {slot/port / linkagg link_agg} vid [bridging |
filtering]
no mac-address-table [permanent | learned] [mac_address {slot/port / linkagg link_agg} vid]
mac-address-table vpls service-id permanent mac-address sap {sap-id | linkagg sap-id}

```

```

no mac-address-table vpls service-id permanent mac-address
no mac-address-table vpls service-id learned [sap sap-id | linkagg sap-id] mac-address
mac-address-table vpls service-id permanent mac-address mesh-sdp sdp-id[:vc-id]
no mac-address-table vpls service-id permanent mac-address
no mac-address-table vpls service-id learned [mesh-sdp sdp-id[:vc-id]] mac-address
mac-address-table static-multicast multicast_address {slot1/port1[-port1a] [slot2/port2[-
port2a]...] / linkagg link_agg} vid
no mac-address-table static-multicast [multicast_address {slot1/port1[-port1a] [slot2/port2[-
port2a]...] / linkagg link_agg} vid]
mac-address-table aging-time seconds
no mac-address-table aging-time
source-learning {port slot/port1[-port2] | linkagg linkagg_num} {enable | disable}
source-learning chassis-distributed {enable | disable}
show mac-address-table [permanent | learned | quarantined] [mac_address] [slot slot | slot/
port] [linkagg link_agg] [vid | vid1-vid2]
show mac-address-table all [permanent | learned]
show mac-address-table vpls [service-id] [permanent | learned] [mac-address]
show mac-address-table vpls service-id sap {sap-id | linkagg sap-id} mac-address
show mac-address-table vpls service-id mesh-sdp sdp-id[:vc-id] mac-address
show mac-address-table static-multicast [multicast_address] [slot slot | slot/port] [linkagg
link_agg] [vid / vid1-vid2]
show mac-address-table count [mac_address] [slot slot | slot/port] [linkagg link_agg] [vid /
vid1-vid2]
show mac-address-table vpls service-id count [mac-address]
show mac-address-table all count
show mac-address-table aging-time
show source-learning [port slot/port[-port2] | linkagg linkagg_num]
show source-learning chassis-distributed

```

## VLAN Management Commands

```

vlan vid1[-vid2] [enable | disable] [name description]
no vlan vid1[-vid2]
vlan vid1[-vid2] [1x1 | flat] stp {enable | disable}
vlan vid1[-vid2] mobile-tag {enable | disable}
vlan vid authentication {enable | disable}
vlan vid mtu-ip size
vlan vid port default {slot/port / link_agg}
vlan vid no port default {slot/port / link_agg}
show vlan [vid1 [-vid2]]
show vlan [vid1[-vid2]] port [slot/port / link_agg]
show vlan router mac status
show vlan gvrp [vid1[-vid2]]
show vlan ipmvlan [ipmvlan-id1[-ipmvlan-id2]]

```

## 802.1Q Commands

```
vlan vid 802.1q {slot/port | aggregate_id} [description]  
vlan vid no 802.1q {slot/port | aggregate_id}  
vlan 802.1q slot/port frame type {all | tagged}  
show 802.1q {slot/port | aggregate_id}
```

## Distributed Spanning Tree Commands

```
bridge mode {flat | 1x1}  
bridge [instance] protocol {stp | rstp | mstp}  
bridge cist protocol {stp | rstp | mstp}  
bridge port {slot/port | linkagg linkagg_id } loop-guard {enable | disable}
```

```
bridge 1x1 vid protocol {stp | rstp}  
bridge mst region name name  
bridge mst region no name  
bridge mst region revision level rev_level  
bridge mst region max hops max_hops  
bridge msti msti_id [name name]  
bridge no msti msti_id  
bridge msti msti_id no name  
bridge msti msti_id vlan vid_range  
bridge msti msti_id no vlan vid_range  
bridge [instance] priority priority  
bridge cist priority priority  
bridge msti msti_id priority priority  
bridge 1x1 vid priority priority  
bridge [instance] hello time seconds  
bridge cist hello time seconds  
bridge 1x1 vid hello time seconds  
bridge [instance] max age seconds  
bridge cist max age seconds  
bridge 1x1 vid max age seconds  
bridge [instance] forward delay seconds  
bridge cist forward delay seconds  
bridge 1x1 vid forward delay seconds  
bridge mode 1x1 pvst+ {enable | disable}  
bridge [instance] bpdu-switching {enable | disable}  
bridge path cost mode {auto | 32bit}  
bridge [msti msti_id] auto-vlan-containment {enable | disable}  
bridge port {slot/port | agg_num} pvst+ {auto | enable | disable}  
bridge instance {slot/port | logical_port} {enable | disable}  
bridge cist {slot/port | logical_port} {enable | disable}
```

```
bridge 1x1 vid {slot/port | logical_port} {enable | disable}  
bridge instance {slot/port | logical_port} priority priority  
bridge cist {slot/port | logical_port} priority priority  
bridge msti msti_id {slot/port | logical_port} priority priority  
bridge 1x1 vid {slot/port | logical_port} priority priority  
bridge instance {slot/port | logical_port} path cost path_cost  
bridge cist {slot/port | logical_port} path cost path_cost  
bridge msti msti_id {slot/port | logical_port} path cost path_cost  
bridge 1x1 vid {slot/port | logical_port} path cost path_cost  
bridge instance {slot/port | logical_port} mode {forwarding | blocking | dynamic}  
bridge cist {slot/port | logical_port} mode {dynamic | blocking | forwarding}  
bridge 1x1 vid {slot/port | logical_port} mode {dynamic | blocking | forwarding}  
bridge instance {slot/port | logical_port} connection {noptp | ptp | autoptp | edgeport}  
bridge cist {slot/port | logical_port} connection {noptp | ptp | autoptp | edgeport}  
bridge 1x1 vid {slot/port | logical_port} connection {noptp | ptp | autoptp | edgeport}  
bridge cist {slot/port | logical_port} admin-edge {on | off | enable | disable}  
bridge 1x1 vid {slot/port | logical_port} admin-edge {on | off | enable | disable}  
bridge cist {slot/port | logical_port} auto-edge {on | off | enable | disable}  
bridge 1x1 vid {slot/port | logical_port} auto-edge {on | off | enable | disable}  
bridge cist {slot/port | logical_port} {restricted-role | root-guard} {on | off | enable | disable}  
bridge 1x1 vid {slot/port | logical_port} {restricted-role | root-guard} {on | off | enable | disable}  
bridge cist {slot/port | logical_port} restricted-tcn {on | off | enable | disable}  
bridge 1x1 vid {slot/port | logical_port} restricted-tcn {on | off | enable | disable}  
bridge cist txholdcount value  
bridge 1x1 vid txholdcount {value}  
bridge rrstp  
no bridge rrstp  
bridge rrstp ring ring_id port1 {slot/port | linkagg agg_num} port2  
          {slot/port | linkagg agg_num} vlan-tag vlan_id [status {enable | disable}]  
no bridge rrstp ring [ring_id]  
bridge rrstp ring ring_id vlan-tag vid  
bridge rrstp ring ring_id status {enable | disable}  
show spantree [instance]  
show spantree cist  
show spantree msti [msti_id]  
show spantree 1x1 [vid]  
show spantree [instance] ports [forwarding | blocking | active | configured]  
show spantree cist ports [forwarding | blocking | active | configured]  
show spantree msti [msti_id] ports [forwarding | blocking | active | configured]  
show spantree 1x1 [vid] ports [forwarding | blocking | active | configured]  
show spantree mst region  
show spantree mst [msti_id] vlan-map  
show spantree cist vlan-map
```

```

show spantree mst vid vlan-map
show spantree mst port {slot/port | logical_port}
show bridge rrstp configuration
show bridge rrstp ring [ring_id]

```

## Link Aggregation Commands

```

static linkagg agg_num size size [name name] [admin state {enable | disable}]
no static linkagg agg_num
static linkagg agg_num name name
static linkagg agg_num no name
static linkagg agg_num admin state {enable | disable}
static agg [ethernet | fastethernet | gigaehternet] slot/port agg num agg_num
static agg no [ethernet | fastethernet | gigaehternet] slot/port
lacp linkagg agg_num size size
no lacp linkagg agg_num
lacp linkagg agg_num name name
lacp linkagg agg_num no name
lacp linkagg agg_num admin state {enable | disable}
lacp linkagg agg_num actor admin key actor_admin_key
lacp linkagg agg_num no actor admin key
lacp linkagg agg_num actor system priority actor_system_priority
lacp linkagg agg_num no actor system priority
lacp linkagg agg_num actor system id actor_system_id
lacp linkagg agg_num no actor system id
lacp linkagg agg_num partner system id partner_system_id
lacp linkagg agg_num no partner system id
lacp linkagg agg_num partner system priority partner_system_priority
lacp linkagg agg_num no partner system priority
lacp linkagg agg_num partner admin key partner_admin_key
lacp linkagg agg_num no partner admin key
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor admin key actor_admin_key
lacp agg no [ethernet | fastethernet | gigaehternet] slot/port
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor admin state {[active] [timeout]
[aggregate] [synchronize] [collect] [distribute] [default] [expire] | none}
lacp agg [ethernet | fastethernet | gigaehternet] slot/port
actor admin state {[no] active} [[no] timeout] [[no] aggregate] [[no] synchronize]
[[no] collect] [[no] distribute] [[no] default] [[no] expire] | none}
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor system id actor_system_id
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no actor system id
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor system priority
actor_system_priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no actor system priority

```

```

lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin state
{[active] [timeout] [aggregate] [synchronize] [collect] [distribute] [default] [expire] |
none}
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin state
{[[no] active] [[no] timeout] [[no] aggregate] [[no] synchronize] [[no] collect] [[no]
distribute]
[[no] default] [[no] expire] | none}
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin system id
partner_admin_system_id
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin system id
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin key
partner_admin_key
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin key
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin system priority
partner_admin_system_priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin system priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port actor port priority actor_port_priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no actor port priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin port
partner_admin_port
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin port
lacp agg [ethernet | fastethernet | gigaehternet] slot/port partner admin port priority
partner_admin_port_priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin port priority
lacp agg [ethernet | fastethernet | gigaehternet] slot/port standby {enable | disable}
lacp linkagg agg_num pre-empt {enable | disable}
lacp linkagg agg_num pre-empt timer seconds
show linkagg [agg_num]
show linkagg [agg_num] port [slot/port]
dhl num dhl_num [name name]
no dhl num dhl_num
dhl num dhl_num linka {port slot/port | linkagg agg_id} linkb {port slot/port | linkagg agg_id}
no dhl num dhl_num linka {port slot/port | linkagg agg_id} linkb {port slot/port | linkagg
agg_id}
dhl num dhl_num admin-state {enable | disable}
dhl num dhl_num vlan-map linkb {vlan_id[-vlan_id]}
no dhl num dhl_num vlan-map linkb {vlan_id[-vlan_id]}
dhl num dhl_num pre-emption-time num
dhl num dhl_num mac-flushing {none | raw | mvrp}
show dhl
show dhl num dhl_num
show dhl num dhl_num [linkA | linkB]

```



## Ethernet Ring Protection Commands

```
erp-ring ring_id port1 {slot/port | linkagg agg_num} port2 {slot/port | linkagg agg_num}
  service-vlan vlan_id level level_num [guard-timer guard_timer] [wait-to-restore-
  timer wtr_timer] [enable | disable]
no erp-ring ring_id
erp-ring ring_id rpl-node {port slot/port | linkagg agg_num}
no erp-ring ring_id rpl-node
erp-ring ring_id wait-to-restore wtr_timer
no erp-ring ring_id wait-to-restore
erp-ring ring_id {enable | disable}
erp-ring ring_id ethoam-event {port slot/port | linkagg agg_num} remote-endpoint mep_id
no erp-ring ring_id ethoam-event {port slot/port | linkagg agg_num}
erp-ring ring_id guard-timer guard_timer
no erp-ring ring_id guard-timer
Clears ERP statistics for all rings, a specific ring, or a specific ring port.
clear erp statistics [ring ring_id [port slot/port | linkagg agg_num]]
show erp [ring ring_id | [port slot/port | linkagg agg_num]]
show erp [ring ring_id] protected-vlan
show erp statistics [ring ring_id [port slot/port | linkagg agg_num]]
```

## GVRP Commands

```
gvrp
no gvrp
gvrp {linkagg agg_num | port slot/port}
no gvrp {linkagg agg_num | port slot/port}
gvrp transparent switching
no gvrp transparent switching
gvrp maximum vlan vlanlimit
no gvrp registration {linkagg agg_num | port slot/port}
gvrp applicant {participant | non-participant | active} {linkagg agg_num | port slot/port}
no gvrp applicant {linkagg agg_num | port slot/port}
gvrp timer {join | leave | leaveall} timer-value {linkagg agg_num | port slot/port}
no gvrp timer {join | leave | leaveall} {linkagg agg_num | port slot/port}
no gvrp restrict-vlan-registration {linkagg agg_num | port slot/port} vlan-list
no gvrp restrict-vlan-advertisement {linkagg agg_num | port slot/port} vlan-list
gvrp static-vlan restrict {linkagg agg_num | port slot/port} vlan-list
no gvrp static-vlan restrict {linkagg agg_num | port slot/port} vlan-list
clear gvrp statistics [linkagg agg_num | port slot/port]
show gvrp statistics [linkagg agg_num | port slot/port]
show gvrp last-pdu-origin {linkagg agg_num | port slot/port}
show gvrp configuration
```

```
show gvrp configuration port
show gvrp configuration {linkagg agg_num | port slot/port}
show gvrp timer [[join | leave | leaveall] {linkagg agg_num | port slot/port}]
```

## MVRP Commands

```
vlan registration-mode {gvrp | mvrp}
mvrp {enable | disable}
mvrp port slot/port [-port2] {enable | disable}
mvrp linkagg agg_num [-agg_num2] {enable | disable}
mvrp transparent-switching {enable | disable}
mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} registration {normal | fixed |
  forbidden}
mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} applicant {participant | non-
  participant | active}
mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} restrict-vlan-registration vlan
  vlan-list
no mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} restrict-vlan-registration
  vlan vlan-list
mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} restrict-vlan-advertisement
  vlan vlan-list
no mvrp {port slot/port [-port2] | linkagg agg_num [-agg_num2]} restrict-vlan-
  advertisement
vlan vlan-list
mvrp {linkagg agg_num [-agg_num2] | port slot/port [-port2]} static-vlan-restrict vlan
  vlan-list
no mvrp {linkagg agg_num [-agg_num2] | port slot/port [-port2]} static-vlan-restrict vlan
  vlan-list
show mvrp configuration
show mvrp port {slot/port [-port2]} [enabled | disabled]
show mvrp linkagg [agg_num [-agg_num2]] [enabled | disabled]
mvrp [port slot/port [-port2] | linkagg agg_num [-agg_num2]] clear-statistics
```

## 802.1AB Commands

```
lldp destination mac-address {nearest-bridge | nearest-edge}
lldp transmit fast-start-count num
lldp transmit interval seconds
lldp transmit hold-multiplier num
lldp transmit delay seconds
lldp reinit delay seconds
lldp notification interval seconds
lldp {slot/port | slot | chassis} lldpdu {tx | rx | tx-and-rx | disable}
lldp {slot/port | slot | chassis} notification {enable | disable}
```

```

lldp network-policy policy_id - [ policy_id2] application { voice | voice-signaling | guest-voice
|
  guest-voice-signaling | softphone-voice | video-conferencing | streaming-video | video-
signaling }
  vlan { untagged | priority-tag | vlan-id } [l2-priority 802.1p_value] [dscp dscp_value]
no lldp network-policy policy_id - [policy_id2]
lldp { slot/port | slot | chassis } med network-policy policy_id - [policy_id2]
no lldp { slot/port | slot | chassis } med network-policy policy_id - [policy_id2]
lldp { slot/port | slot | chassis } tlv management { port-description | system-name | system-
description | system-capabilities | management-address } { enable | disable }
lldp { slot/port | slot | chassis } tlv dot1 { port-vlan | vlan-name } { enable | disable }
lldp { slot/port | slot | chassis } tlv dot3 mac-phy { enable | disable }
lldp { slot/port | slot | chassis } tlv med { power | capability | network policy } { enable | disable }
show lldp { slot | slot/port } config
show lldp network-policy [policy_id]
show lldp [slot | slot/port] med network-policy
show lldp system-statistics
show lldp [slot|slot/port] statistics
show lldp local-system
show lldp [slot/port | slot] local-port
show lldp local-management-address
show lldp [slot/port | slot] remote-system
show lldp [slot/port | slot] remote-system [med { network-policy | inventory }]
lldp { slot/port| slot | chassis } trust-agent { enable | disable } [chassis-id-subtype { chassis-
component | interface-alias | port-component | mac-address | network-address | interface-
name | locally-assigned | any }]
lldp { slot/port| slot | chassis } trust-agent violation-action { trap-and-shutdown | trap |
shutdown }
show lldp [num | slot/port] trusted remote-agent
show lldp [slot | slot/port] trust-agent

```

## Interswitch Protocol Commands

```

amap { enable | disable }
amap discovery [time] seconds
amap common [time] seconds
show amap

```

## IP Commands

```

ip interface name [address ip_address] [mask subnet_mask] [admin {enable | disable}] [vlan
vid] [forward | no forward] [local-proxy-arp | no local-proxy-arp] [eth2 | snap] [primary
| no primary]
no ip interface name

```

```

ip managed-interface { Loopback0 / interface-name } application [ldap-server] [tacacs]
[radius] [snmp] [sflow] [ntp] [syslog] [dns] [telnet] [ftp] [ssh] [tftp] [all]
no ip managed-interface { Loopback0 / interface-name } application [ldap-server] [tacacs]
[radius] [snmp] [sflow] [ntp] [syslog] [dns] [telnet] [ftp] [ssh] [tftp] [all]
ip interface dhcp-client [vlan vid] [release | renew] [option-60 opt60_string] [admin {enable |
disable}]
no ip interface dhcp-client
ip interface name tunnel [source ip_address] [destination ip_address] [protocol {ipip | gre}]
ip router primary-address ip_address
ip router router-id ip_address
ip static-route ip_address [mask mask] {gateway | follows} ip_address [metric metric]
no ip static-route ip_address [mask mask] {gateway | follows} ip_address [metric metric]
ip route-pref {static | ospf | rip | ebgp | ibgp} value
ip default-ttl hops
ping {ip_address | hostname} [source-interface ip_interface] [[sweep-range start_size /
end_size / diff_size] | [count count] [size packet_size]] [interval seconds] [timeout
seconds] [tos tos_val]
[dont-fragment] [data-pattern hex_string]
traceroute {ip_address | hostname} [source-interface ip_interface] [min-hop min_hop_count]
[max-hop max_hop_count] [probes probe_count] [time-out seconds] [port-number
port_number]
ip directed-broadcast {on | off}
ip service {all | service_name | port service_port}
no ip service {all | service_name | port service_port}
ip redis {local | static | rip | ospf | isis | bgp} into {rip | ospf | isis | bgp} route-map route-map-
name [status {enable | disable}]
no ip redis {local | static | rip | ospf | isis | bgp} into {rip | ospf | bgp} [route-map route-map-
name]
ip access-list access-list-name
no ip access-list access-list-name
ip access-list access-list-name address address/prefixLen [action {permit | deny}]
[redis-control {all-subnets | no-subnets | aggregate}]
no ip access-list access-list-name address address/prefixLen
ip route-map route-map-name [sequence-number number] match ip-nexthop
{access-list-name | ip_address/prefixLen [permit | deny]}
no ip route-map route-map-name [sequence-number number] match ip-nexthop
{access-list-name | ip_address/prefixLen [permit | deny]}
ip route-map route-map-name [sequence-number number] match ipv6-nexthop
{access-list-name | ipv6_address/prefixLen [permit | deny]}
no ip route-map route-map-name [sequence-number number] match ipv6-nexthop
{access-list-name | ipv6_address/prefixLen [permit | deny]}
ip route-map route-map-name [sequence-number number] match ipv4-interface interface-
name

```

```

no ip route-map route-map-name [sequence-number number] match ipv4-interface interface-
name
ip route-map route-map-name [sequence-number number] match ipv6-interface interface-
name
no ip route-map route-map-name [sequence-number number] match ipv6-interface interface-
name
ip route-map route-map-name [sequence-number number] match metric metric [deviation
deviation]
no ip route-map route-map-name [sequence-number number] match metric metric
[deviation deviation]
ip route-map route-map-name [sequence-number number] match route-type {internal |
external [type1 | type2] | level1 | level2}
no ip route-map route-map-name [sequence-number number] match route-type {internal |
external [type1 | type2] | level1 | level2}
ip route-map route-map-name [sequence-number number] set metric metric
[effect {add | subtract | replace | none}]
no ip route-map route-map-name [sequence-number number] set metric metric
[effect {add | subtract | replace | none}]
ip route-map route-map-name [sequence-number number] set metric-type
{internal | external [type1 | type2]}
no ip route-map route-map-name [sequence-number number] set metric-type
{internal | external [type1 | type2]}
ip route-map route-map-name [sequence-number number] set tag tag-number
no ip route-map route-map-name [sequence-number number] set tag tag-number
ip route-map route-map-name [sequence-number number] set community community-string
no ip route-map route-map-name [sequence-number number] set community community-
string
ip route-map route-map-name [sequence-number number] set local-preference value
no ip route-map route-map-name [sequence-number number] set local-preference value
ip route-map route-map-name [sequence-number number] set level {level1 | level2 | level1-2}
no ip route-map route-map-name [sequence-number number] set level {level1 | level2 |
level1-2}
ip route-map route-map-name [sequence-number number] set ip-nexthop ip_address
no ip route-map route-map-name [sequence-number number] set ip-nexthop ip_address
ip route-map route-map-name [sequence-number number] set ipv6-nexthop ipv6_address
no ip route-map route-map-name [sequence-number number] set ipv6-nexthop ipv6_address
vrf [name / default]
no vrf name
arp ip_address hardware_address [alias] [arp-name name]
no arp ip_address [alias]
clear arp-cache
ip dos arp-poison restricted-address ip_address
no ip dos arp-poison restricted-address ip_address
arp filter ip_address [mask ip_mask] [vid] [sender | target] [allow | block]

```

```

no arp filter ip_address
clear arp filter
icmp type type code code {{enable | disable} | min-pkt-gap gap}
icmp unreachable [net-unreachable | host-unreachable | protocol-unreachable |
port-unreachable] {{enable | disable} | min-pkt-gap gap}
icmp echo [request | reply] {{enable | disable} | min-pkt-gap gap}
icmp timestamp [request | reply] {{enable | disable} | min-pkt-gap gap}
icmp addr-mask [request | reply] {{enable | disable} | min-pkt-gap gap}
icmp messages {enable | disable}
ip dos scan close-port-penalty penalty_value
ip dos scan tcp open-port-penalty penalty_value
ip dos scan udp open-port-penalty penalty_value
ip dos scan threshold threshold_value
ip dos trap {enable | disable}
ip dos scan decay decay_value
show ip traffic
show ip interface [name / emp | vlan vlan id / dhcp-client]
show ip managed-interface
show ip route [summary]
show ip route-pref
show ip redistrib [rip | ospf | bgp]
show ip access-list [access-list-name]
show ip route-map [route-map-name]
show ip router database [protocol type / gateway ip_address / dest {ip_address/prefixLen /
ip_address}]
show ip emp-route
show ip config
show ip protocols
show ip service
show ip dynamic-proxy-arp
show vrf
show arp [ip_address | hardware_address]
show arp summary
show arp filter [ip_address]
show icmp control
show icmp [statistics]
show tcp statistics
show tcp ports
show udp statistics
show udp ports
show ip dos config
show ip dos statistics
show ip dos arp-poison
ip wccp admin-state {enable | disable}

```

```

ip wccp service-group {web-cache | service-id[-service-id2]} [md5 password string]
no ip wccp service-group {web-cache | service-id[-service-id2]}
ip wccp service-group {web-cache | service-id} restrict { port slot/port | vlan vlan_id | ip ipv4
[mask mask]}
no ip wccp service-group {web-cache | service-id} restrict { port slot/port | vlan vlan_id | ip
ipv4 [mask mask]}
clear ip wccp [service-group {web-cache | service-id}] statistics
show ip wccp status
show ip wccp services
show ip wccp cache-engines
show ip wccp [service-group {web-cache | service-id}] restricts
show ip wccp service-group {web-cache | service-id}
show ip wccp [service-group {web-cache | service-id}] detail
show ip wccp [service-group {web-cache | service-id}] view
show ip wccp [service-group {web-cache | service-id}] statistics

```

## IPv6 Commands

```

ipv6 interface if_name [vlan vid | tunnel {tid | 6to4}] [enable | disable]
[base-reachable-time time]
[ra-send {yes | no}]
[ra-max-interval interval]
[ra-managed-config-flag {true | false}]
[ra-other-config-flag {true | false}]
[ra-reachable-time time]
[ra-retrans-timer time]
[ra-default-lifetime time | no ra-default-lifetime]
[ra-send-mtu] {yes | no}
no ipv6 interface if_name
ipv6 address ipv6_address /prefix_length [anycast] {if_name | loopback}
no ipv6 address ipv6_address [anycast] {if_name | loopback}
ipv6 address ipv6_prefix eui-64 {if_name | loopback}
no ipv6 address ipv6_prefix eui-64 {if_name | loopback}
ipv6 address global-id {generate | globalID}
ipv6 address local-unicast [global-id globalID] [subnet-id subnetID] {interface-id interfaceID
| eui-64} [prefix-length prefixLength] {if-name | loopback}
[no] ipv6 address local-unicast [global-id globalID] [subnet-id subnetID] {interface-id
interfaceID | eui-64} [prefix-length prefixLength] {if-name | loopback}
ipv6 interface if_name tunnel [{source ipv4_source} [destination ipv4_destination]]
ipv6 dad-check ipv6_address if_name
ipv6 hop-limit value
no ipv6 hop-limit
ipv6 pmtu-lifetime time
ipv6 host name ipv6_address

```

```

no ipv6 host name ipv6_address
ipv6 neighbor stale-lifetime stale-lifetime
ipv6 neighbor ipv6_address hardware_address {if_name} slot/port
no ipv6 neighbor ipv6_address {if_name}
ipv6 prefix ipv6_address /prefix_length if_name
[valid-lifetime time]
[preferred-lifetime time]
[on-link-flag {true | false}]
[autonomous-flag {true | false}] if_name
no ipv6 prefix ipv6_address /prefix_length if_name
ipv6 route ipv6_prefix/prefix_length ipv6_address [if_name]
no ipv6 route ipv6_prefix/prefix_length ipv6_address [if_name]
ipv6 static-route ipv6_prefix/prefix_length gateway ipv6_address [if_name] [metric metric]
no ipv6 static-route ipv6_prefix/prefix_length gateway ipv6_address [if_name]
ipv6 route-pref {static | ospf | rip | ebgp | ibgp} value
ping6 {ipv6_address | hostname} [if_name] [count count] [size data_size] [interval seconds]
traceroute6 {ipv6_address | hostname} [if_name] [max-hop hop_count] [wait-time time]
[port port_number] [probe-count probe]
show ipv6 hosts [substring]
show ipv6 icmp statistics [if_name]
show ipv6 interface [if_name | loopback]
show ipv6 pmtu table
clear ipv6 pmtu table
show ipv6 neighbors [ipv6_prefix/prefix_length | if_name | hw hardware_address | static]
clear ipv6 neighbors
show ipv6 prefixes
show ipv6 routes [ipv6_prefix/prefix_length | static]
show ipv6 route-pref
show ipv6 router database [protocol type / gateway ipv6_address / dest ipv6_prefix/
prefix_length]
show ipv6 tcp ports
show ipv6 traffic [if_name]
clear ipv6 traffic
show ipv6 tunnel
show ipv6 udp ports
show ipv6 information
ipv6 redistrib {local | static | rip | ospf | isis | bgp} into {rip | ospf | isis | bgp} route-map route-
map-name
[status {enable | disable}]
ipv6 access-list access-list-name
no ipv6 access-list access-list-name
ipv6 access-list access-list-name address address/prefixLen [action {permit | deny}]
[redist-control {all-subnets | no-subnets | aggregate}]
no ipv6 access-list access-list-name address address/prefixLen

```

```

show ipv6 redist [rip | ospf | bgp]
show ip access-list [access-list-name]
ipv6 load rip
ipv6 rip status {enable | disable}
ipv6 rip invalid-timer seconds
ipv6 rip garbage-timer seconds
ipv6 rip holddown-timer seconds
ipv6 rip jitter value
ipv6 rip route-tag value
ipv6 rip update-interval seconds
ipv6 rip triggered-sends {all | updated-only | none}
ipv6 rip interface if_name
[no] ipv6 rip interface if_name
ipv6 rip interface if_name metric value
ipv6 rip interface if_name rcv-status {enable | disable}
ipv6 rip interface if_name send-status {enable | disable}
ipv6 rip interface if_name horizon {none | split-only | poison}
show ipv6 rip
show ipv6 rip interface [if_name]
show ipv6 rip peer [ipv6_addresses]
show ipv6 rip routes [dest <ipv6_prefix/prefix_length>] | [gateway <ipv6_addr>] | [detail
    <ipv6_prefix/prefix_length>]

```

## IPsec commands

```

ipsec key key_name {sa-authentication | sa-encryption} key
ipsec security-key [old_key] new_key
ipsec policy policy_name [priority priority] [source {ipv6_address [/prefix_length]}
    [port port]] [destination {ipv6_address [/prefix_length]} [port port]] [protocol
    protocol]] [in | out] [discard | ipsec | none] [description description] [no
    shutdown | shutdown]
no ipsec policy policy_name
ipsec policy policy_name rule index [ah | esp]
no ipsec policy policy_name rule index
ipsec sa sa_name {esp | ah} [source ipv6_address] [destination ipv6_address] [spi
    spi] [encryption {null | des-cbc | 3des-cbc | aes-cbc [key-size key_length]} | aes-
    ctr [key-size key_length]] [authentication {none | hmac-md5 | hmac-sha1 |
    aes-xcbc-mac}] [description description] [no shutdown | shutdown]
no ipsec sa name
show ipsec policy [policy_name]
show ipsec sa [sa_name | esp | ah]
show ipsec key {sa-encryption | sa-authentication}
show ipsec ipv6 statistics

```

## RIP Commands

```

ip load rip
ip rip status {enable | disable}
ip rip interface {interface_name}
no ip rip interface {interface_name}
ip rip interface {interface_name} status {enable | disable}
ip rip interface {interface_name} metric value
ip rip interface {interface_name} send-version {none | v1 | v1compatible | v2}
ip rip interface {interface_name} rcv-version {v1 | v2 | both | none}
ip rip force-holddowntimer seconds
ip rip host-route
no ip rip host-route
ip rip route-tag value
ip rip interface {interface_name} auth-type {none | simple | md5}
ip rip interface {interface_name} auth-key string
ip rip update-interval seconds
ip rip invalid-timer seconds
ip rip garbage-timer seconds
ip rip holddown-timer seconds
show ip rip
show ip rip routes [ip_address ip_mask]
show ip rip interface [interface_name]
show ip rip peer [ip_address]

```

## RDP Commands

```

ip router-discovery {enable | disable}
ip router-discovery interface name [enable | disable]
no router-discovery interface name
ip router-discovery interface name advertisement-address {all-systems-multicast | broadcast}
ip router-discovery interface name max-advertisement-interval seconds
ip router-discovery interface name min-advertisement-interval seconds
ip router-discovery interface name advertisement-lifetime seconds
ip router-discovery interface name preference-level level
show ip router-discovery
show ip router-discovery interface [name]

```

## bfd Commands

```

ip bfd-std status {enable | disable}
ip bfd-std transmit transmit-interval
ip bfd-std receive receive-interval

```

```

ip bfd-std mode {echo-only | demand echo {enable | disable} | asynchronous echo
    {enable|disable}}
ip bfd-std echo interval echo-interval
ip bfd-std l2-hold-timer l2-holdtimer-interval
ip bfd-std interface interface_name
no ip bfd-std interface interface_name
ip bfd-std interface interface_name status {enable | disable}
ip bfd-std interface interface_name transmit transmit-interval
ip bfd-std interface interface_name receive receive-interval
ip bfd-std interface interface_name multiplier multiplier_value
ip bfd-std interface interface_name echo-interval echo-interval
ip bfd-std interface interface_name mode {echo-only | demand [echo {enable | disable}]}
    asynchronous [echo {enable|disable}]
ip bfd-std interface interface_name l2-hold-timer l2-holdtimer-interval
ip ospf bfd-std status {enable | disable}
ip ospf bfd-std all-interfaces
no ip ospf bfd-std all-interfaces
ip ospf interface interface-name bfd-std {enable | disable}
ip ospf interface interface-name bfd-std drs-only
ip ospf interface interface-name bfd-std all-nbrs
ip bgp bfd-std status {enable | disable}
ip bgp bfd-std all-neighbors
no ip bgp bfd-std all-neighbors
ip bgp neighbor name bfd-std {enable | disable}
vrrp bfd-std {enable | disable}
vrrp track num address address bfd-std {enable| disable}
ip static-route all bfd-std {enable| disable}
ip static-routes ip-address/prefixLen gateway ip-address bfd-std status {enable| disable}
show ip bfd-std
show ip bfd-std interfaces [interface-name]
show ip bfd-std sessions
show ip bfd-std session neighbor_address

```

## DHCP Relay Commands

```

ip helper address ip_address
ip helper no address [ip_address]
ip helper address ip_address vlan vlan_id
ip helper no address ip_address vlan vlan_id
ip helper standard
ip helper avlan only
ip helper per-vlan only
ip helper forward delay seconds
ip helper maximum hops hops

```

```

ip helper agent-information {enable | disable}
ip helper agent-information policy {drop | keep | replace}
ip helper pxe-support {enable | disable}
ip helper traffic-suppression {enable | disable}
ip helper dhcp-snooping {enable | disable}
ip helper dhcp-snooping mac-address verification {enable | disable}
ip helper dhcp-snooping option-82 data-insertion {enable | disable}
ip helper dhcp-snooping option-82 format {base-mac | system-name | user-string string /
    interface-alias / auto-interface-alias}
ip helper dhcp-snooping option-82 format ascii circuit-id {base-mac | system-name | vlan |
    user-string string / interface-alias / auto-interface-alias / cvlan} [delimiter character]
no ip helper dhcp-snooping option-82 format ascii circuit-id
ip helper dhcp-snooping option-82 format ascii remote-id {base-mac | system-name | vlan |
    user-string string / interface-alias / auto-interface-alias / cvlan} [delimiter character]
no ip helper dhcp-snooping option-82 format ascii remote-id
ip helper dhcp-snooping bypass option-82-check {enable | disable}
ip helper dhcp-snooping vlan vlan_id [mac-address verification {enable | disable}] [option-82
    data-insertion {enable | disable}]
no ip helper dhcp-snooping vlan vlan_id
ip helper dhcp-snooping port slot1/port1[-port1a] {block | client-only | trust}
ip helper dhcp-snooping linkagg num {block | client-only | trust| ip-source-filtering}
ip helper dhcp-snooping port slot1/port1[-port1a] traffic-suppression {enable | disable}
ip helper dhcp-snooping port slot1/port1[-port1a] ip-source-filtering {enable | disable}
ip helper dhcp-snooping port binding {[enable | disable] | [mac_address port slot/port
    address ip_address vlan vlan_id]}
no ip helper dhcp-snooping port binding mac_address port slot/port address ip_address
    vlan vlan_id
ip helper dhcp-snooping ip-source-filter {vlan num | port slot/port[-port2] | linkagg num}
    {enable | disable}
ip helper dhcp-snooping port binding timeout seconds
ip helper dhcp-snooping port binding action {purge | renew}
ip helper dhcp-snooping binding persistency {enable | disable}
ip helper boot-up {enable | disable}
ip helper boot-up enable {BOOTP | DHCP}
ip udp relay {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | port [name]}
no ip udp relay {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | port}
ip udp relay {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | port} vlan
    vlan_id
no ip udp relay {BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | port} vlan
    vlan_id
show ip helper
show ip helper stats
ip helper no stats
show ip helper dhcp-snooping vlan

```

```

show ip helper dhcp-snooping port
show ip helper dhcp-snooping binding
show ip udp relay service [BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP |
port]
show ip udp relay [BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP | NTP | port]
show ip udp relay destination [BOOTP | NBDD | NBNSNBDD | DNS | TACACS | TFTP |
NTP | port]
dhcp-server {enable | disable | restart}
clear dhcp-server statistics
show dhcp-server leases [ip_address | mac_address] [type {static | dynamic}]
show dhcp-server statistics [packets | hosts | subnets | all]
show ip helper dhcp-snooping ip-source-filter {vlan | port}

```

## VRRP Commands

```

vrrp vrid vlan_id [enable | disable | on | off] [priority priority] [preempt | no preempt]
[[advertising] interval seconds]
no vrrp vrid vlan_id
vrrp vrid vlan_id address ip_address
vrrp vrid vlan_id no address ip_address
vrrp track track_id [enable | disable] [priority value] [ipv4-interface name / ipv6-interface
name |
port slot/port | address address]
no vrrp track track_id
vrrp vrid vlan_id track-association track_id
vrrp vrid vlan_id no track-association track_id
vrrp trap
no vrrp trap
vrrp delay seconds
vrrp3 vrid vlan_id [enable | disable | on | off] [priority priority] [preempt | no preempt][accept
| no accept] [[advertising] interval centiseconds]
no vrrp3 vrid vlan_id
vrrp3 vrid vlan_id address ipv6_address
vrrp3 vrid vlan_id no address ipv6_address
vrrp3 trap
no vrrp3 trap
vrrp3 vrid vlan_id track-association track_id
vrrp3 vrid vlan_id no track-association track_id
show vrrp [vrid]
show vrrp [vrid] statistics
show vrrp track [track_id]
show vrrp [vrid] track-association [track_id]
show vrrp3 [vrid]

```

```

show vrrp3 [vrid] statistics
show vrrp3 [vrid] track-association [track_id]

```

## OSPF Commands

```

ip ospf status {enable | disable}
ip load ospf
ip ospf exit-overflow-interval seconds
ip ospf extlsdb-limit limit
ip ospf host ip_address tos tos [metric metric]
no ip ospf host ip_address tos tos
ip ospf mtu-checking
no ip ospf mtu-checking
ip ospf default-originate {only | always} [metric-type {type1 | type2}] [metric value]
no ip ospf default-originate
ip ospf route-tag tag
ip ospf spf-timer [delay delay_seconds] [hold hold_seconds]
ip ospf virtual-link area_id router_id [auth-type {none | simple | md5}] [auth-key key_string]
[dead-interval seconds] [hello-interval seconds] [retrans-interval seconds] [transit-delay
seconds]
no ip ospf virtual-link area_id router_id
ip ospf neighbor neighbor_id {eligible | non-eligible}
no ip ospf neighbor neighbor_id
ip ospf area area_id [summary {enable | disable}] [[type {normal | stub | nssa}]
no ip ospf area area_id
ip ospf area area_id default-metric tos [[cost cost] | [type {ospf | type 1 | type 2}]]
no ip ospf area area_id default-metric tos
ip ospf area area_id range {summary | nssa} ip_address subnet_mask
[effect {admatching | noMatching}]
no ip ospf area area_id range {summary | nssa} ip_address subnet_mask
ip ospf interface {interface_name}
no ip ospf interface {interface_name}
ip ospf interface {interface_name} status {enable | disable}
no ip ospf interface {interface_name} status {enable | disable}
ip ospf interface {interface_name} area area_id
ip ospf interface {interface_name} auth-key key_string
ip ospf interface {interface_name} auth-type {none | simple | md5}
ip ospf interface {interface_name} dead-interval seconds
ip ospf interface {interface_name} hello-interval seconds
ip ospf interface {interface_name} md5 key_id [enable | disable]
ip ospf interface {interface_name} md5 key_id key key_string
ip ospf interface {interface_name} type {point-to-point | point-to-multipoint | broadcast | non-
broadcast}
ip ospf interface {interface_name} cost cost

```

```

ip ospf interface {interface_name} poll-interval seconds
ip ospf interface {interface_name} priority priority
ip ospf interface {interface_name} retrans-interval seconds
ip ospf interface {interface_name} transit-delay seconds
ip ospf restart-support {planned-unplanned | planned-only}
no ip ospf restart-support
ip ospf restart-interval [seconds]
ip ospf restart-helper [status {enable | disable}]
ip ospf restart-helper strict-lsa-checking status {enable | disable}
ip ospf restart initiate
show ip ospf
show ip ospf border-routers [area area_id] [router router_id] [tos] [gateway]
show ip ospf ext-lsdb [linkstate-id ls_id] [router-id router_id]
show ip ospf host [ip_address]
show ip ospf lsdb [area_id] [rtr | net | netsum | asbrsum] [linkstate-id ls_id] [router-id
router_id]
show ip ospf neighbor [ip_address]
show ip ospf routes [ip_addr mask tos gateway]
show ip ospf virtual-link [router_id]
show ip ospf virtual-neighbor area_id router_id
show ip ospf area [area_id]
show ip ospf area area_id range [{summary | nssa} ip_address ip_mask]
show ip ospf area area_id stub
show ip ospf interface [interface_name]
show ip ospf restart

```

## OSPFv3 Commands

```

ipv6 ospf status {enable | disable}
ipv6 load ospf
ipv6 ospf host ipv6_address [area area_id] [metric metric]
no ipv6 ospf host ipv6_address area area_id
ipv6 ospf mtu-checking
no ipv6 ospf mtu-checking
ipv6 ospf route-tag tag
ipv6 ospf spf-timer [delay delay_seconds] [hold hold_seconds]
ipv6 ospf virtual-link area area_id router router_id
[dead-interval seconds] [hello-interval seconds] [retrans-interval seconds] [transit-delay
seconds]
no ipv6 ospf virtual-link area area_id router router_id
ipv6 ospf area area_id [type {normal | stub [default-metric metric]}]
no ipv6 ospf area area_id
ipv6 ospf interface interface_name
no ipv6 ospf interface interface_name

```

```

ipv6 ospf interface interface_name status {enable | disable}
no ipv6 ospf interface interface_name
ipv6 ospf interface interface_name area area_id
ipv6 ospf interface interface_name dead-interval seconds
ipv6 ospf interface interface_name hello-interval seconds
ipv6 ospf interface interface_name cost cost
ip ospf interface interface_name priority priority
ipv6 ospf interface interface_name retrans-interval interval
ipv6 ospf interface interface_name transit-delay delay
show ipv6 ospf
show ipv6 ospf border-routers [area area_id] [router router_id]
show ipv6 ospf host [ipv6_address]
show ipv6 ospf lsdb [area area_id] [rtr | net | netsum | asbrsum] [linkstate-id ls_id] [router-id
router_id]
show ipv6 ospf neighbor [router ipv4_address][interface interface_name]
show ipv6 ospf routes [prefix ipv6_address_prefix][gateway gateway]
show ipv6 ospf virtual-link [router_id]
show ipv6 ospf area [area_id]
show ipv6 ospf interface [interface_name]

```

## IS-IS Commands

```

ip load isis
ip isis status {enable | disable}
ip isis area-id area address
no ip isis area-id area address
ip isis level-capability {level-1 | level-2 | level-1/2}
ip isis auth-check {enable | disable}
ip isis auth-type {simple {key key | encrypt-key encrypt-key} | md5 {key key / encrypt-key
encrypt-key} | none}
ip isis csnp-auth
no ip isis csnp-auth
ip isis hello-auth
no ip isis hello-auth
ip isis psnp-auth
no ip isis psnp-auth
ip isis lsp-lifetime seconds
no ip isis lsp-lifetime
ip isis lsp-wait {max-wait | initial-wait | second-wait} seconds
no ip isis lsp-wait {max-wait | initial-wait | second-wait}
ip isis spf-wait {max-wait seconds | initial-wait milliseconds | second-wait milliseconds}
no ip isis spf-wait {max-wait | initial-wait | second-wait}
ip isis summary-address {ip-prefix/mask | ip-prefix [/netmask]} {level-1 | level-2 | level-1/2}
no ip isis summary-address {ip-prefix/mask | ip-prefix [/netmask]}

```



```

ip isis overload [timeout seconds]
no ip isis overload [timeout]
ip isis overload-on-boot [timeout seconds]
no ip isis overload-on-boot [timeout seconds]
ip isis graceful-restart
no ip isis graceful-restart
ip isis graceful-restart helper {enable | disable}
ip isis strict-adjacency-check {enable | disable}
ip isis level {1 | 2} auth-type {simple {key key / encrypt-key encrypt-key} | md5 {key key |
    encrypt-key encrypt-key} | none}
ip isis level {1 | 2} hello-auth
no ip isis level {1 | 2} hello-auth
ip isis level {1 | 2} csnp-auth
no ip isis level {1 | 2} csnp-auth
ip isis level {1 | 2} psnp-auth
no ip isis level {1 | 2} psnp-auth
ip isis level {1 | 2} wide-metrics-only
no ip isis level {1 | 2} wide-metrics-only
show ip isis routes
show ip isis spf [detail]
show ip isis spf-log [detail]
show ip isis statistics
show ip isis status
show ip isis summary-address [ip-addr [/mask]]
ip isis interface interface_name
no ip isis interface interface_name
ip isis interface interface_name status {enable | disable}
ip isis interface interface_name interface-type {broadcast | point-to-point}
ip isis interface interface_name csnp-interval seconds
no ip isis interface interface_name csnp-interval
ip isis interface interface_name hello-auth-type {simple {key key | encrypt-key
    encrypt-key} | md5 {key key | encrypt-key encrypt-key} | none}
ip isis interface interface_name level-capability [level-1 | level-2 | level-1/2]
ip isis interface interface_name lsp-pacing-interval milliseconds
no ip isis interface interface_name lsp-pacing-interval
ip isis interface interface_name passive
no ip isis interface interface_name passive
ip isis interface interface_name retransmit-interval seconds
no ip isis interface interface_name retransmit-interval
ip isis interface interface_name default-type
ip isis interface interface_name level [1 | 2] hello-auth-type {simple {key key /
    encrypt-key encrypt-key} | md5 {key key | encrypt-key encrypt-key} | none}
ip isis interface interface_name level [1 | 2] hello-interval seconds
no ip isis interface interface_name level [1 | 2] hello-interval

```

```

ip isis interface interface_name level [1 | 2] hello-multiplier number
no ip isis interface interface_name level [1 | 2] hello-multiplier
ip isis interface interface_name level [1 | 2] metric number
no ip isis interface interface_name level [1 | 2] metric
ip isis interface interface_name level [1 | 2] passive
no ip isis interface interface_name level [1 | 2] passive
ip isis interface interface_name level [1 | 2] priority number
no ip isis interface interface_name level [1 | 2] priority
show ip isis interface [interface_name] [detail]
clear ip isis adjacency [system-id nbr-sys-id]
clear ip isis lsp-database [system-id sys-id]
clear ip isis spf-log
clear ip isis statistics

```

## BGP Commands

```

ip load bgp
ip bgp status {enable | disable}
ip bgp unicast
no ip bgp unicast
ip bgp autonomous-system value
ip bgp bestpath as-path ignore
no ip bgp bestpath as-path ignore
ip bgp cluster-id ip_address
ip bgp default local-preference value
ip bgp fast-external-failover
no ip bgp fast-external-failover
ip bgp always-compare-med
no ip bgp always-compare-med
ip bgp bestpath med missing-as-worst
no ip bgp bestpath med missing-as-worst
ip bgp client-to-client reflection
no ip bgp client-to-client reflection
ip bgp as-origin-interval seconds
no ip bgp as-origin-interval
ip bgp synchronization
no ip bgp synchronization
ip bgp confederation identifier value
ip bgp maximum-paths
no ip bgp maximum-paths
ip bgp log-neighbor-changes
no ip bgp log-neighbor-changes
ip bgp dampening [half-life half_life reuse reuse suppress suppress max-suppress-time
    max_suppress_time]

```

```

no ip bgp dampening
ip bgp dampening clear
ip bgp aggregate-address ip_address ip_mask
no ip bgp aggregate-address ip_address ip_mask
ip bgp aggregate-address ip_address ip_mask status {enable | disable}
ip bgp aggregate-address ip_address ip_mask as-set
no ip bgp aggregate-address ip_address ip_mask as-set
ip bgp aggregate-address ip_address ip_mask community string
ip bgp aggregate-address ip_address ip_mask local-preference value
no ip bgp aggregate-address ip_address ip_mask local-preference value
ip bgp aggregate-address ip_address ip_mask metric value
no ip bgp aggregate-address ip_address ip_mask metric value
ip bgp aggregate-address ip_address ip_mask summary-only
no ip bgp aggregate-address ip_address ip_mask summary-only
ip bgp network network_address ip_mask
no ip bgp network network_address ip_mask
ip bgp network network_address ip_mask status {enable | disable}
ip bgp network network_address ip_mask community string
ip bgp network network_address ip_mask local-preference value
no ip bgp network network_address ip_mask local-preference value
ip bgp network network_address ip_mask metric value
no ip bgp network network_address ip_mask metric value
ip bgp neighbor ip_address
no ip bgp neighbor ip_address
ip bgp neighbor ip_address status {enable | disable}
ip bgp neighbor ip_address advertisement-interval value
ip bgp neighbor ip_address clear
ip bgp neighbor ip_address route-reflector-client
no ip bgp neighbor ip_address route-reflector-client
ip bgp neighbor ip_address default-originate
no ip bgp neighbor ip_address default-originate
ip bgp neighbor ip_address timers keepalive holdtime
ip bgp neighbor ip_address conn-retry-interval seconds
ip bgp neighbor ip_address auto-restart
ip bgp neighbor ip_address maximum-prefix maximum [warning-only]
ip bgp neighbor ip_address md5 key {string | none}
ip bgp neighbor ip_address md5 key-encrypt encrypted_string
ip bgp neighbor ip_address ebgp-multihop [ttl]
no ip bgp neighbor ip_address ebgp-multihop
ip bgp neighbor ip_address description string
ip bgp neighbor ip_address next-hop-self
no ip bgp neighbor ip_address next-hop-self
ip bgp neighbor ip_address passive
no ip bgp neighbor ip_address passive

```

```

ip bgp neighbor ip_address remote-as value
ip bgp neighbor ip_address remove-private-as
no ip bgp neighbor ip_address remove-private-as
ip bgp neighbor ip_address soft-reconfiguration
no ip bgp neighbor ip_address soft-reconfiguration
ip bgp neighbor ip_address stats-clear
ip bgp confederation neighbor ip_address
no ip bgp confederation neighbor ip_address
ip bgp neighbor ip_address update-source [interface_name]
ip bgp neighbor ip_address in-asmplist {string / none}
ip bgp neighbor ip_address in-communitylist {string / none}
ip bgp neighbor ip_address in-prefixlist {string / none}
ip bgp neighbor peer_address in-prefix6list pfx_list_name
ip bgp neighbor peer_address out-prefix6list pfx_list_name
ip bgp neighbor ip_address out-asmplist {string / none}
ip bgp neighbor ip_address out-communitylist {string | none}
ip bgp neighbor ip_address out-prefixlist {string / none}
ip bgp neighbor ip_address route-map {string | none} {in | out}
no ip bgp neighbor ip_address route-map {in | out}
ip bgp neighbor ip_address clear soft {in | out}
ip bgp policy aspath-list name “regular_expression”
no ip bgp policy aspath-list name “regular_expression”
ip bgp policy aspath-list name “regular_expression” action {permit | deny}
ip bgp policy aspath-list name “regular_expression” priority value
ip bgp policy community-list name {none | no-export | no-advertise | no-export-subconfed |
num:num}
no ip bgp policy community-list name {none | no-export | no-advertise | no-export-subconfed |
num:num}
ip bgp policy community-list name {none | no-export | no-advertise | no-export-subconfed |
num:num}
action {permit | deny}
ip bgp policy community-list name {none | no-export | no-advertise | no-export-subconfed |
num:num}
match-type {exact | occur}
ip bgp policy community-list name {none | no-export | no-advertise | no-export-subconfed |
num:num}
priority value
ip bgp policy prefix-list name ip_address ip_mask
no ip bgp policy prefix-list name ip_address ip_mask
ip bgp policy prefix-list name ip_address ip_mask action {permit | deny}
ip bgp policy prefix-list name ip_address ip_mask ge value
ip bgp policy prefix-list name ip_address ip_mask le value
ip bgp policy prefix6-list pfx_list_name prefix6/pfx_length [action{permit|deny}]
[status{enable|disable}] [ge[{masklength}]] [le[{masklength}]]

```

```

no ip bgp policy prefix6-list pfx_list_name prefix6/pfx_length [action{permit/deny}]
  [status{enable/disable}] [ge{masklength}] [le{masklength}]
ip bgp policy route-map name sequence_number
ip bgp policy route-map name sequence_number action {permit | deny}
ip bgp policy route-map name sequence_number aspath-list as_name
ip bgp policy route-map name sequence_number asprepend path
ip bgp policy route-map name sequence_number community [none | no-export | no-advertise |
  no-export-subconfed | num:num]
ip bgp policy route-map name sequence_number community-list name
ip bgp policy route-map name sequence_number community-mode {add | replace}
ip bgp policy route-map name sequence_number lpref value
ip bgp policy route-map name sequence_number lpref-mode {none | inc | dec | rep}
ip bgp policy route-map name sequence_number match-community [none | no-export | no-
  advertise | no-export-subconfed | num:num]
ip bgp policy route-map name sequence_number match-mask ip_address
ip bgp policy route-map name sequence_number match-prefix ip_address
ip bgp policy route-map name sequence_number match-regexp "regular_expression"
ip bgp policy route-map name sequence_number med value
ip bgp policy route-map name sequence_number med-mode {none | inc | dec | rep}
ip bgp policy route-map name sequence_number origin {igp | egp | incomplete | none}
ip bgp policy route-map name sequence_number prefix-list prefix_name
ip bgp policy route-map name sequence_number weight value
ip bgp policy route-map name sequence_number community-strip community_list
show ip bgp
show ip bgp statistics
show ip bgp dampening
show ip bgp dampening-stats [ip_address ip_mask] [peer_address]
show ip bgp path
show ip bgp routes [network_address ip_mask]
show ip bgp aggregate-address [ip_address ip_mask]
show ip bgp network [network_address ip_mask]
show ip bgp neighbors [ip_address]
show ip bgp neighbors policy ipv4_address
show ip bgp neighbors timer [ip_address]
show ip bgp neighbors statistics [ip_address]
show ip bgp policy aspath-list [name] ["regular_expression"]
show ip bgp policy community-list [name] [string]
show ip bgp policy prefix-list [name] [ip_address ip_mask]
show ip bgp policy prefix6-list [pfx_list_name]{prefix6/prefix_length}]
show ip bgp policy route-map [name] [sequence_number]
ip bgp graceful-restart
no ip bgp graceful-restart
ip bgp graceful-restart restart-interval [seconds]
ipv6 bgp unicast

```

```

no ipv6 bgp unicast
ip bgp neighbor ip_address activate-ipv6
no ip bgp neighbor ip_address activate-ipv6
ip bgp neighbor ip_address ipv6-nexthop ipv6_address
show ipv6 bgp path [ipv6-addr ipv6_address/prefix_length]
show ipv6 bgp routes
ipv6 bgp network ipv6_address/prefix_length
no ipv6 bgp network ipv6_address/prefix_length
ipv6 bgp network ipv6_address/prefix_length [community {none | num | num:num}]
ipv6 bgp network ipv6_address/prefix_length [local-preference num]
ipv6 bgp network ipv6_address/prefix_length [metric num]
ipv6 bgp network ipv6_address/prefix_length [status {enable | disable}]
show ipv6 bgp network [ipv6_address/prefix_length]
ipv6 bgp neighbor ipv6_address
no ipv6 bgp neighbor ipv6_address
ipv6 bgp neighbor peer6_address clear soft {in | out}
ipv6 bgp neighbor peer6_address soft-reconfiguration
no ipv6 bgp neighbor peer6_address soft-reconfiguration
ipv6 bgp neighbor peer6_address in-prefix6list pfx_list_name
ipv6 bgp neighbor peer6_address out-prefix6list pfx_list_name
ipv6 bgp neighbor ipv6_address [activate-ipv6]
no ipv6 bgp neighbor ipv6_address [activate-ipv6]
ipv6 bgp neighbor ipv6_address [ipv6-nexthop ipv6_address]
ipv6 bgp neighbor ipv6_address [status {enable | disable}]
ipv6 bgp neighbor ipv6_address [remote-as num]
ipv6 bgp neighbor ipv6_address [timers num num]
ipv6 bgp neighbor ipv6_address [maximum-prefix num [warning-only]]
no ipv6 bgp neighbor ipv6_address [maximum-prefix num [warning-only]]
ipv6 bgp neighbor ipv6_address [next-hop-self]
no ipv6 bgp neighbor ipv6_address [next-hop-self]
ipv6 bgp neighbor ipv6_address [conn-retry-interval num]
ipv6 bgp neighbor ipv6_address [default-originate]
no ipv6 bgp neighbor ipv6_address [default-originate]
ipv6 bgp neighbor ipv6_address [update-source interface_name]
no ipv6 bgp neighbor ipv6_address [update-source interface_name]
ipv6 bgp neighbor ipv6_address [ipv4-nexthop ip_address]
show ipv6 bgp neighbors [ipv6_address]
show ipv6 bgp neighbors statistics [ipv6_address]
show ipv6 bgp neighbors timers [ipv6_address]
show ipv6 bgp neighbors policy ipv6_address

```

## Server Load Balancing Commands

```
ip slb admin {enable | disable}
ip slb reset statistics
ip slb cluster name {vip ip_address | condition string} [I3 | I2]
no ip slb cluster name
ip slb cluster cluster_name admin status {enable | disable}
ip slb cluster cluster_name ping period seconds
ip slb cluster cluster_name ping timeout milliseconds
ip slb cluster cluster_name ping retries count
ip slb cluster cluster_name probe probe_name
ip slb server ip ip_address cluster cluster_name [admin status {enable | disable}] [weight
weight]
no ip slb server ip ip_address cluster cluster_name
ip slb server ip ip_address cluster cluster_name probe probe_name
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp |
udp}
no ip slb probe probe_name
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp |
udp}
timeout seconds
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp |
udp}
period seconds
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp |
udp}
port port_number
ip slb probe probe_name {ftp | http | https | imap | imaps | nntp | ping | pop | pops | smtp | tcp |
udp}
retries retries
ip slb probe probe_name {http | https} username user_name
ip slb probe probe_name {http | https} password password
ip slb probe probe_name {http | https} url url
ip slb probe probe_name {http | https} status status_value
ip slb probe probe_name {tcp | udp} send send_string
ip slb probe probe_name {http | https | tcp | udp} expect expect_string
show ip slb
show ip slb clusters [statistics]
show ip slb cluster name [statistics]
show ip slb cluster cluster_name server ip_address
show ip slb servers
show ip slb probes [probe_name]
```

## IP Multicast Switching Commands

```
ip multicast [vlan vid] status [{enable | disable}]
ip multicast flood-unknown {enable | disable}
ip multicast [vlan vid] querier-forwarding [{enable | disable}]
no ip multicast [vlan vid] querier-forwarding
ip multicast [vlan vid] version [version]
ip multicast max-group [num] [action {none | drop | replace}]
ip multicast vlan vid max-group [num] [action {none | drop | replace}]
ip multicast port slot | port max-group [num] [action {none | drop | replace}]
ip multicast static-neighbor vlan vid port slot/port
no ip multicast static-neighbor vlan vid port slot/port
ip multicast static-querier vlan vid port slot/port
no ip multicast static-querier vlan vid port slot/port
ip multicast static-group ip_address vlan vid port slot/port
no ip multicast static-group ip_address vlan vid port slot/port
ip multicast [vlan vid] query-interval [seconds]
ip multicast [vlan vid] last-member-query-interval [tenths-of-seconds]
ip multicast [vlan vid] query-response-interval [tenths-of-seconds]
ip multicast [vlan vid] unsolicited-report-interval [seconds]
ip multicast [vlan vid] router-timeout [seconds]
ip multicast [vlan vid] source-timeout [seconds]
ip multicast [vlan vid] querying [{enable | disable}]
no ip multicast [vlan vid] querying
ip multicast [vlan vid] robustness [robustness]
ip multicast [vlan vid] spoofing [{enable | disable}]
no ip multicast [vlan vid] spoofing
ip multicast [vlan vid] zapping [{enable | disable}]
ip multicast [vlan vid] proxying [enable | disable]
ip multicast helper-address [ip-address]
ipv6 multicast [vlan vid] status [{enable | disable}]
ipv6 multicast [vlan vid] querier-forwarding [{enable | disable}]
no ipv6 multicast [vlan vid] querier-forwarding
ipv6 multicast [vlan vid] version [version]
ipv6 multicast max-group [num] [action {none | drop | replace}]
ipv6 multicast vlan vid max-group [num] [action {none | drop | replace}]
ipv6 multicast port slot | port max-group [num] [action {none | drop | replace}]
ipv6 multicast static-neighbor vlan vid port slot/port
no ipv6 multicast static-neighbor vlan vid port slot/port
ipv6 multicast static-querier vlan vid port slot/port
no ipv6 multicast static-querier vlan vid port slot/port
ipv6 multicast static-group ip_address vlan vid port slot/port
no ipv6 multicast static-group ip_address vlan vid port slot/port
ipv6 multicast [vlan vid] query-interval [seconds]
```

```

ipv6 multicast [vlan vid] last-member-query-interval [milliseconds]
ipv6 multicast [vlan vid] query-response-interval [milliseconds]
ipv6 multicast [vlan vid] unsolicited-report-interval [seconds]
ipv6 multicast [vlan vid] router-timeout [seconds]
ipv6 multicast [vlan vid] source-timeout [seconds]
ipv6 multicast [vlan vid] querying [{enable | disable}]
no ipv6 multicast [vlan vid] querying
ipv6 multicast [vlan vid] robustness [robustness]
ipv6 multicast [vlan vid] spoofing [{enable | disable}]
no ipv6 multicast [vlan vid] spoofing
ipv6 multicast [vlan vid] zapping [{enable | disable}]
ipv6 multicast [vlan vid] proxying [enable | disable]
show ip multicast [vlan vid]
show ip multicast port [slot/port]
show ip multicast forward [ip_address]
show ip multicast neighbor
show ip multicast querier
show ip multicast group [ip_address]
show ip multicast source [ip_address]
show ip multicast tunnel [address]
show ipv6 multicast [vlan vid]
show ipv6 multicast port [slot/port]
show ipv6 multicast forward [ipv6_address]
show ipv6 multicast neighbor
show ipv6 multicast querier
show ipv6 multicast group [ip_address]
show ipv6 multicast source [ip_address]
show ipv6 multicast tunnel [address]

```

## IP Multicast VLAN Commands

```

vlan ipmvlan ipmvlan-id [{enable | disable} | [{1x1 | flat} stp {enable | disable}]] [name name-
string]
no vlan ipmvlan ipmvlan-id [-ipmvlan-id2]
vlan ipmvlan ipmvlan-id ctag {ctag | ctag1-ctag2}
no vlan ipmvlan ipmvlan-id ctag {ctag | ctag1-ctag2}
vlan ipmvlan ipmvlan-id address {ip_address [{/prefixlen | mask mask}] | ipv6_address |
ipaddress1-ipaddress2 | ipv6address1-ipv6address2}
no vlan ipmvlan ipmvlan-id address {ip_address [{/prefixlen | mask mask}] | ipv6_address |
ipaddress1-ipaddress2 | ipv6address1-ipv6address2}
vlan ipmvlan ipmvlan-id sender-port {port slot/port[-port2] / linkagg agg_num [-agg_num2]}
no vlan ipmvlan ipmvlan-id sender-port {port slot/port[-port2] / linkagg agg_num [-
agg_num2]}

```

```

vlan ipmvlan ipmvlan-id receiver-port {port slot/port[-port2] / linkagg agg_num [-
agg_num2]}
no vlan ipmvlan ipmvlan-id receiver-port {port slot/port[-port2] / linkagg agg_num [-
agg_num2]}
show vlan ipmvlan [ipmvlan-id] c-tag
show vlan ipmvlan [ipmvlan-id] address [ipv4 | ipv6]
show vlan ipmvlan [ipmvlan-id] port-config
show vlan ipmvlan port-config [slot/port | agg_num]

```

## DVMRP Commands

```

ip load dvmrp
ip dvmrp status {enable | disable}
ip dvmrp flash-interval seconds
ip dvmrp graft-timeout seconds
ip dvmrp interface {interface_name}
no ip dvmrp interface {interface_name}
ip dvmrp interface {interface_name} metric value
ip dvmrp neighbor-interval seconds
ip dvmrp neighbor-timeout seconds
ip dvmrp prune-lifetime seconds
ip dvmrp prune-timeout seconds
ip dvmrp report-interval seconds
ip dvmrp route-holddown seconds
ip dvmrp route-timeout seconds
ip dvmrp subord-default {true | false}
ip dvmrp tunnel {local_name} {remote_address}
no ip dvmrp tunnel {local_name} {remote_address}
ip dvmrp tunnel {interface_name remote_address} ttl value
ip dvmrp debug-level level
ip dvmrp debug-type message_type
no ip dvmrp debug-type message_type
show ip dvmrp
show ip dvmrp interface [ip_address | interface_name | enabled | disabled]
show ip dvmrp neighbor [ip_address]
show ip dvmrp nexthop [ip_address ip_mask]
show ip dvmrp prune [group_address source_address source_mask]
show ip dvmrp route [ip_address ip_mask]
show ip dvmrp tunnel [local_address remote_address]
show ip dvmrp debug

```

## PIM Commands

```
ip load pim
ip pim sparse status {enable | disable}
ip pim dense status {enable | disable}
ip pim static-rp group_address/prefix_length rp_address [[no] override] [priority priority]
ip pim rp-threshold bps
ip pim max-rps number
ip pim probe-time seconds
ip pim register checksum {header | full}
ip pim register-suppress-timeout seconds
ip pim spt status {enable | disable}
ip pim state-refresh-interval seconds
ip pim state-refresh-limit ticks
ip pim state-refresh-ttl num
show ip pim sparse
show ip pim dense
show ip pim neighbor [ip_address]
show ip pim candidate-rp
show ip pim group-map [bsr | static-rp | ssm | dense]
show ip pim interface [if_name]
show ip pim static-rp
ipv6 pim sparse status {enable | disable}
ipv6 pim cbsr bsr_address [priority bsr_priority] [mask-length masklen] [scope scope_value]
no ipv6 pim cbsr bsr_address [priority bsr_priority] [mask-length masklen] [scope scope_value]
ipv6 pim static-rp group_address/prefix_length rp_address [[no] override] [priority priority]
ipv6 pim spt status {enable | disable}
show ipv6 pim neighbor [ipv6_address] [if_name]
show ipv6 pim cbsr [scope scope_value]
show ipv6 pim bsr [scope scope_value]
```

## Multicast Routing Commands

```
ip mroute-boundary if_name scoped_address mask
no ip mroute-boundary if_name scoped_address mask
ipv6 mroute-boundary if_name scope scope_value
no ipv6 mroute-boundary if_name scope scope_value
ip mroute interface if_name ttl threshold
show ip mroute-boundary
show ipv6 mroute-boundary
show ip mroute
show ip mroute interface {interface_name}
```

```
show ipv6 mroute interface {interface_name}
show ip mroute-nexthop
```

## QoS Commands

```
qos {enable | disable}
qos trust ports
qos no trust ports
qos default servicing mode {strict-priority | wrr [w0 w1 w2 w3 w4 w5 w6 w7] | priority-wrr [w0 w1 w2 w3 w4 w5 w6 w7] | drr [w0 w1 w2 w3 w4 w5 w6 w7]}
qos forward log
qos no forward log
qos log console
qos no log console
qos log lines lines
qos log level level
qos no log level
qos default bridged disposition {accept | deny | drop}
qos default routed disposition {accept | deny | drop}
qos default multicast disposition {accept | deny | drop}
qos user-port {filter | shutdown} {spoof | bgp | bpdu | rip | ospf | vrrp | dvmrp | pim | isis | dhcp-server | dns-reply}
qos no user-port {filter | shutdown}
qos dei {ingress | egress}
qos no dei {ingress | egress}
qos stats interval seconds
qos nms priority
qos no nms priority
qos phones [priority priority_value | trusted]
qos no phones
qos quarantine mac-group mac_group
qos no quarantine mac-group
qos quarantine path url
qos no quarantine path
qos quarantine page
qos no quarantine page
debug qos [info] [config] [rule] [main] [route] [hre] [port] [msg] [sl] [ioctl] [mem] [cam] [mapper] [flows] [queue] [slot] [l2] [l3] [classifier] [nat] [sem] [pm] [ingress] [egress] [rsvp] [balance] [nimsg]
debug no qos
debug no qos [info] [config] [rule] [main] [route] [hre] [port] [msg] [sl] [ioctl] [mem] [cam] [mapper] [flows] [queue] [slot] [l2] [l3] [classifier] [nat] [sem] [pm] [ingress] [egress] [rsvp] [balance] [nimsg]
```

```

debug qos internal [slice slot/slice] [flow] [queue] [port] [l2tree] [l3tree] [vector] [pending]
    [verbose] [mapper] [pool] [log] [pingonly | nopingingonly]
qos clear log
qos apply
qos revert
qos flush
qos reset
qos stats reset [egress]
qos port slot/port reset
qos port slot/port
qos port slot/port trusted
qos port slot/port no trusted
qos port slot/port servicing mode {strict-priority | wrr [w0 w1 w2 w3 w4 w5 w6 w7] | priority-
    wrr [w0 w1 w2 w3 w4 w5 w6 w7] | drp [w0 w1 w2 w3 w4 w5 w6 w7] | default}
qos port slot/port qn {minbw | maxbw} kbps
qos port slot/port no qn {minbw | maxbw} kbps
qos port slot/port maximum egress-bandwidth bps
qos port slot/port no maximum egress-bandwidth
qos port slot/port maximum ingress-bandwidth bps
qos port slot/port no maximum ingress-bandwidth
qos port slot/port default 802.1p value
qos port slot/port default dscp value
qos port slot/port default classification {802.1p | dscp}
qos port slot/port dei {ingress | egress}
qos port slot/port no dei {ingress | egress}
qos port slot/port monitor
qos port slot/port no monitor
show qos port [slot/port] [statistics]
show qos port monitor
show qos queue [slot/port]
show qos slice {ingress | egress} [slot/slice]
show qos log
show qos config
show qos statistics

```

## QoS Policy Commands

```

aclman
policy rule rule_name [enable | disable] [precedence precedence] [condition condition]
    [action action] [validity period name | no validity period] [save] [log [log-interval
    seconds]] [count {packets | bytes}] [trap | no trap] [default-list | no default-list]
no policy rule rule_name
policy rule rule_name [no reflexive] [no save] [no log]

```

```

policy validity period name [[no] days days] [[no] months months] [[no] hours hh:mm to
    hh:mm | no hours] [interval mm:dd:yyyy hh:mm to mm:dd:yyyy hh:mm | no interval]
no policy validity period name
policy list list_name type [unp | egress] rules rule_name [rule_name2...] [enable | disable]
no policy list list_name
policy list list_name no rules rule_name [rule_name2...]
policy network group net_group ip_address [mask net_mask] [ip_address2 [mask
    net_mask2]...]
no policy network group net_group
policy network group net_group no ip_address [mask netmask] [ip_address2 [mask
    net_mask2]...]
policy service group service_group service_name1 [service_name2...]
no policy service group service_group
policy service group service_group no service_name1 [service_name2...]
policy mac group mac_group mac_address [mask mac_mask] [mac_address2 [mask
    mac_mask2]...]
no policy mac group mac_group
policy mac group mac_group no mac_address [mask mac_mask] [mac_address2 [mask
    mac_mask2]...]
policy port group group_name slot/port[-port] [slot/port[-port]...]
no policy port group group_name
policy port group group_name no slot/port[-port] [slot/port[-port]...]
policy vlan group group_name vlan_id[-vlan_id] [vlan_id[-vlan_id]...]
no policy vlan group group_name
policy vlan group group_name no vlan_id[-vlan_id] [vlan_id[-vlan_id]...]
policy map group map_group {value1:value2...}
no policy map group map_group
policy map group no {value1:value2...}
policy service service_name
no policy service service_name
policy service service_name protocol protocol {[source ip port port[-port]]
    [destination ip port port[-port]]}
no policy service service_name
policy service service_name [no source ip port] [no destination ip port]
policy service service_name source tcp port port[-port]
no policy service service_name
policy service service_name no source tcp port
policy service service_name destination tcp port port[-port]
no policy service service_name
policy service service_name no destination tcp port
policy service service_name source udp port port[-port]
no policy service service_name
policy service service_name no source udp port
policy service service_name destination udp port port[-port]

```

no policy service *service\_name*  
policy service *service\_name* no destination udp port  
policy condition *condition\_name*  
no policy condition *condition\_name*  
policy condition *condition\_name* source ip *ip\_address* [mask *netmask*]  
policy condition *condition\_name* no source ip  
policy condition *condition\_name* source ipv6 {any | *ipv6\_address* [mask *netmask*]}  
policy condition *condition\_name* no source ipv6  
policy condition *condition\_name* destination ip *ip\_address* [mask *netmask*]  
policy condition *condition\_name* no destination ip  
policy condition *condition\_name* destination ipv6 {any | *ipv6\_address* [mask *netmask*]}  
policy condition *condition\_name* no destination ipv6  
policy condition *condition\_name* multicast ip *ip\_address* [mask *netmask*]  
policy condition *condition\_name* no multicast ip  
policy condition *condition\_name* source network group *network\_group*  
policy condition *condition\_name* no source network group  
policy condition *condition\_name* destination network group *network\_group*  
policy condition *condition\_name* no destination network group  
policy condition *condition\_name* multicast network group *multicast\_group*  
policy condition *condition\_name* no multicast network group  
policy condition *condition\_name* source ip port *port*[-*port*]  
policy condition *condition\_name* no source ip port  
policy condition *condition\_name* destination ip port *port*[-*port*]  
policy condition *condition\_name* no destination ip port  
policy condition *condition\_name* source tcp port *port*[-*port*]  
policy condition *condition\_name* no source tcp port  
policy condition *condition\_name* destination tcp port *port*[-*port*]  
policy condition *condition\_name* no destination tcp port  
policy condition *condition\_name* source udp port *port*[-*port*]  
policy condition *condition\_name* no source udp port  
policy condition *condition\_name* destination udp port *port*[-*port*]  
policy condition *condition\_name* no destination udp port  
policy condition *condition\_name* ethertype *etype*  
policy condition *condition\_name* no ethertype  
policy condition *condition\_name* established  
policy condition *condition\_name* no established  
policy condition *condition\_name* tcpflags [any | all] {F | S | R | P | A | U | E | W} mask {F | S  
| R | P | A | U | E | W}  
policy condition *condition\_name* no tcpflags  
policy condition *condition\_name* service *service\_name*  
policy condition *condition\_name* no service  
policy condition *condition\_name* service group *service\_group*  
policy condition *condition\_name* no service group  
policy condition *condition\_name* icmptype *type*

policy condition *condition\_name* no icmptype  
policy condition *condition\_name* icmpcode *code*  
policy condition *condition\_name* no icmpcode  
policy condition *condition\_name* ip protocol *protocol*  
policy condition *condition\_name* no ip protocol  
policy condition *condition\_name* ipv6  
policy condition *condition\_name* no ipv6  
policy condition *condition\_name* nh *next\_header\_value*  
policy condition *condition\_name* no nh  
policy condition *condition\_name* flow-label *flow\_label\_value*  
policy condition *condition\_name* no flow-label  
policy condition *condition\_name* tos *tos\_value* [mask *tos\_mask*]  
policy condition *conditioning* no tos  
policy condition *condition\_name* dscp {*dscp\_value*[-*value*]} [mask *dscp\_mask*]  
policy condition *condition\_name* no dscp  
policy condition *condition\_name* source mac *mac\_address* [mask *mac\_mask*]  
policy condition *condition\_name* no source mac  
policy condition *condition\_name* destination mac *mac\_address* [mask *mac\_mask*]  
policy condition *condition\_name* no destination mac  
policy condition *condition\_name* source mac group *group\_name*  
policy condition *condition\_name* no source mac group  
policy condition *condition\_name* destination mac group *mac\_group*  
policy condition *condition\_name* no destination mac group  
policy condition *condition\_name* source vlan *vlan\_id*  
policy condition *condition\_name* no source vlan  
policy condition *condition\_name* source vlan group *vlan\_group*  
policy condition *condition\_name* no source vlan group  
policy condition *condition\_name* inner source vlan *vlan\_id*  
policy condition *condition\_name* no inner source vlan  
policy condition *condition\_name* inner source vlan group *vlan\_group*  
policy condition *condition\_name* no inner source vlan group  
policy condition *condition\_name* destination vlan *vlan\_id*  
policy condition *condition\_name* no destination vlan  
policy condition *condition\_name* 802.1p *802.1p\_value*[-*802.1p\_value*]  
policy condition *condition\_name* no 802.1p  
policy condition *condition\_name* inner 802.1p *802.1p\_value*[-*802.1p\_value*]  
policy condition *condition\_name* no inner 802.1p  
policy condition *condition\_name* source port *slot/port*[-*port*]  
policy condition *condition\_name* no source port  
policy condition *condition\_name* destination port *slot/port*[-*port*]  
policy condition *condition\_name* no destination port  
policy condition *condition\_name* source port group *group\_name*  
policy condition *condition\_name* no source port group  
policy condition *condition\_name* destination port group *group\_name*



policy condition *condition\_name* no destination port  
 policy condition *condition\_name* vrf {*vrf\_name* | default}  
 policy condition *condition\_name* no vrf  
 policy action *action\_name*  
 policy no action *action\_name*  
 policy action *action\_name* disposition {accept | drop | deny}  
 policy action *action\_name* no disposition  
 policy action *action\_name* shared  
 policy action *action\_name* no shared  
 policy action *action\_name* priority *priority\_value*  
 policy action *action\_name* no priority  
 policy action *action\_name* maximum bandwidth *bps*  
 policy action *action\_name* no maximum bandwidth  
 policy action *action\_name* maximum depth *bytes*  
 policy action *action\_name* no maximum depth  
 policy action *action\_name* cir bps [*cbs* byte] [*pir* bps] [*pbs* byte] [counter-color [red-nonred | green-nongreen | green-red | green-yellow | red-yellow]]  
 policy action *action\_name* no cir bps  
 policy action *action\_name* no pir bps  
 policy action *action\_name* tos *tos\_value*  
 policy action *action\_name* no tos  
 policy action *action\_name* 802.1p *802.1p\_value*  
 policy action *action\_name* no 802.1p  
 policy action *action\_name* dscp *dscp\_value*  
 policy action *action\_name* no dscp  
 policy action map {802.1p | tos | dscp} to {802.1p | tos | dscp} using *map\_group*  
 policy action no map  
 policy action *action\_name* permanent gateway ip *ip\_address*  
 policy action *action\_name* no permanent gateway ip  
 policy action *action\_name* port-disable  
 policy action *action\_name* no port-disable  
 policy action *action\_name* redirect port *slot/port*  
 policy action *action\_name* no redirect port  
 policy action *action\_name* redirect linkagg *link\_agg*  
 policy action *action\_name* no redirect linkagg  
 policy action *action\_name* no-cache  
 policy action *action\_name* no no-cache  
 policy action *action\_name* [ingress | egress | ingress egress] mirror *slot/port*  
 policy action *action\_name* no mirror *slot/port*  
 show policy classify {12 | 13 | multicast} [applied]  
 show policy classify {12 | 13 | multicast} [applied] source port *slot/port*  
 show policy classify {12 | 13 | multicast} [applied] source mac *mac\_address*  
 show policy classify {12 | 13 | multicast} [applied] destination mac *mac\_address*  
 show policy classify {12 | 13 | multicast} [applied] source vlan *vlan\_id*

show policy classify {12 | 13 | multicast} [applied] destination vlan *vlan\_id*  
 show policy classify {12 | 13 | multicast} [applied] source interface type {ethernet | wan | ethernet-10 | ethernet-100 | ethernet-1G | ethernet-10G}  
 show policy classify {12 | 13 | multicast} [applied] source ip *ip\_address*  
 show policy classify {12 | 13 | multicast} [applied] destination ip *ip\_address*  
 show policy classify {12 | 13 | multicast} [applied] multicast ip *ip\_address*  
 show policy classify {12 | 13 | multicast} [applied] tos *tos\_value*  
 show policy classify {12 | 13 | multicast} [applied] dscp *dscp\_value*  
 show policy classify {12 | 13 | multicast} [applied] ip protocol *protocol*  
 show policy classify {12 | 13 | multicast} [applied] source ip port *port*  
 show policy classify {12 | 13 | multicast} [applied] destination ip port *port*  
 show [applied] policy network group [*network\_group*]  
 show [applied] policy service [*service\_name*]  
 show [applied] policy service group [*service\_group*]  
 show [applied] policy mac group [*mac\_group*]  
 show [applied] policy port group [*group\_name*]  
 show [applied] policy vlan group [*group\_name*]  
 show [applied] policy map group [*group\_name*]  
 show [applied] policy action [*action\_name*]  
 show [applied] policy condition [*condition\_name*]  
 show active [bridged | routed | multicast] policy rule [*rule\_name*]  
 show active policy rule [*rule\_name*] meter-statistics  
 show [applied] [bridged | routed | multicast] policy rule [*rule\_name*]  
 show policy validity period [*name*]  
 show active policy list [*list\_name*]  
 show [applied] policy list [*list\_name*]

## Policy Server Commands

policy server load  
 policy server flush  
 policy server *ip\_address* [port *port\_number*] [admin {up | down}] [preference *preference*]  
     [user *user\_name* password *password*] [searchbase *search\_string*] [ssl | no ssl]  
 no policy server *ip\_address* [port *port\_number*]  
 show policy server  
 show policy server long  
 show policy server statistics  
 show policy server rules  
 show policy server events

## 802.1X Commands

```
802.1x slot/port [direction {both | in}] [port-control {force-authorized | force-unauthorized |
auto}] [quiet-period seconds] [tx-period seconds] [supp-timeout seconds] [server-
timeout seconds] [max-req max_req] [re-authperiod seconds] [reauthentication | no
reauthentication]
802.1x initialize slot/port
802.1x reauthenticate slot/port
802.1x slot/port supp-polling retry retries
802.1x slot/port supplicant bypass {enable | disable}
802.1x slot/port non-supplicant allow-eap {pass | fail | noauth | none}
802.1x slot/port supplicant policy authentication [[pass] {group-mobility | user-
network-profile profile_name | vlan vid / default-vlan | block | captive-portal}...]
[[fail] {user-network-profile profile_name | vlan vid | block | captive-portal}...]
802.1x slot/port non-supplicant policy authentication [[pass] {group-mobility |
user-network-profile profile_name | vlan vid | default-vlan | block | captive-portal}
[[fail] {group-mobility | user-network-profile profile_name | vlan vid / default-vlan |
block | captive-portal}]
802.1x slot/port non-supplicant policy {group-mobility | user-network-profile
profile_name | vlan vid / default-vlan | block | captive-portal}
802.1x slot/port {supplicant | non-supplicant} policy default
802.1x slot/port captive-portal policy authentication pass {group-mobility | user-
network-profile profile_name | vlan vid / default-vlan | block} [[fail] {group-mobility
| vlan vid / default-vlan | block}
802.1x slot/port captive-portal session-limit time
802.1x captive-portal name cp_url_name
802.1x captive-portal no name
802.1x slot/port captive-portal inactivity-logout {enable | disable}
802.1x slot/port captive-portal retry-count retries
802.1x captive-portal address ip_address
802.1x captive-portal proxy-server-url proxy_url
802.1x captive-portal proxy-server-port proxy_port
802.1x captive-portal no proxy-server-port proxy_port
802.1x captive-portal dns-keyword-list {keyword1 [keyword2] [keyword3] [keyword4] }
802.1x captive-portal no dns-keyword-list
802.1x captive-portal success-redirect-url redirect_url
802.1x captive-portal no success-redirect-url
802.1x captive-portal fail-redirect-url redirect_url
802.1x captive-portal no fail-redirect-url
802.1x auth-server-down {enable | disable}
802.1x auth-server-down policy {user-network-profile profile_name | block}
802.1x auth-server-down re-authperiod {value}
show 802.1x [slot/port]
show 802.1x users [slot/port] [unp | detail]
```

```
show 802.1x statistics [slot/port]
show 802.1x device classification policies [slot/port]
show 802.1x non-supplicant [slot/port] [unp | detail]
show 802.1x auth-server-down
show 802.1x captive-portal configuration
```

## AAA Commands

```
aaa radius-server server-name [host {hostname | ip_address} [hostname2 | ip_address2]] [key
secret] [retransmit retries] [timeout seconds] [auth-port auth_port] [acct-port acct_port]
[vrf-name vrf_name]
no aaa radius server server-name
aaa radius agent preferred {default | no-loopback | ip_address}
no aaa radius agent preferred
aaa tacacs+-server server-name [host {hostname | ip_address} {hostname2 | ip_address2}]
[key
secret][timeout seconds] [port port]
no aaa tacacs+-server server-name
aaa ldap-server server_name [host {hostname | ip_address} [{hostname2 | ip_address2}]
[port]
[dn dn_name] [password super_password] [base search_base] [type server_type]
[retransmit retries]
[timeout seconds] [ssl | no ssl] [port port]
no aaa ldap-server server-name
aaa ace-server server-name clear
aaa authentication vlan single-mode server1 [server2] [server3] [server4]
no aaa authentication vlan
aaa authentication vlan multiple-mode vlan_id server1 [server2] [server3] [server4]
no aaa authentication vlan vlan_id
aaa avlan no [mac-address] mac_address
aaa avlan dns [name] dns_name
no aaa avlan dns [name] dns_name
aaa avlan default dhcp [gateway] ip_address
no aaa avlan default dhcp [gateway]
aaa authentication {console | telnet | ftp | http | snmp | ssh | default} server1 [server2...] [local]
no aaa authentication [console | telnet | ftp | http | snmp | ssh | default]
aaa authentication {console | telnet | ftp | http | snmp | ssh} default
aaa authentication 802.1x server1 [server2] [server3] [server4]
no aaa authentication 802.1x
aaa authentication MAC server1 [server2] [server3] [server4]
no aaa authentication MAC
aaa certificate-password password
no aaa certificate-password password
aaa accounting 802.1x server1 [server2...] [local]
```

```

no aaa accounting 802.1x
aaa accounting mac server1 [server2...] [local]
no aaa accounting mac
aaa accounting vlan [vlan_id] server1 [server2...] [local]
no accounting vlan [vlan_id]
aaa accounting session [server_name1] [server_name2...] [local]
no aaa accounting session
aaa accounting command server1 [server2...] [local]
no accounting command
avlan default-traffic {enable | disable}
avlan port-bound {enable | disable}
avlan vlan_id auth-ip ip_address
aaa avlan http language
user username [password password] [expiration {day | date}] [read-only | read-write
    [families... / domains... / all | none]] [no snmp | no auth | sha | md5 | sha+des | md5+des]
    [end-user profile name]
    [console-only {enable | disable}]
no user username
password
user password-size min size
user password-expiration {day / disable}
user password-policy cannot-contain-username {enable | disable}
user password-policy min-uppercase number
user password-policy min-uppercase number
user password-policy min-digit number
user password-policy min-nonalpha number
user password-history number
user password-min-age days
user lockout-window minutes
user lockout-threshold number
user lockout-duration minutes
user {lockout | unlock}
aaa admin-logout {mac-address mac_address | port slot/port | user user_name | user-network-
    profile name profile_name}
end-user profile name [read-only [area | all]] [read-write [area | all]] [disable [area | all]]
no end-user profile name
end-user profile name vlan-range vlan_range [vlan_range2...]
end-user profile name no vlan-range vlan1 [vlan2..]
aaa user-network-profile name profile_name vlan vlan-id [hic [enable | disable]] [policy-list-
    name list_name]
no aaa user-network-profile name profile_name
aaa classification-rule mac-address mac_address user-network-profile name profile_name
aaa classification-rule no mac-address mac_address

```

```

aaa classification-rule mac-address-range low_mac_address high_mac_address user-
    network-profile name profile_name
aaa classification-rule no mac-address-range low_mac_address
aaa classification-rule ip-address ip_address [subnet_mask] user-network-profile name
    profile_name
aaa classification-rule no ip-address ip_address [subnet_mask]
aaa hic server-name server ip-address ip_address secret secret [role {primary | backup}]
    [udp-port udp_port]
aaa hic no server-name server
aaa hic redundancy background-poll-interval value
aaa hic server-failure mode {hold | pass-through}
aaa hic server-failure policy user-network-profile change unp1 to unp2
aaa hic server-failure policy user-network-profile no change
aaa hic allowed-name server ip-address ip_address [ip-mask subnet_mask]
aaa hic no allowed-name server
aaa hic {enable | disable}
aaa hic web-agent-url url
aaa hic custom-proxy-port proxy_port
show aaa server [server_name]
show aaa authentication vlan
show aaa authentication
show aaa authentication 802.1x
show aaa authentication mac
show aaa authentication 802.1x
show aaa authentication mac [statistics]
show aaa accounting vlan
show aaa accounting
show user [username]
show user password-size
show user password-expiration
show user password-policy
show user lockout-setting
show avlan user [vlan vlan_id | slot slot]
show aaa avlan config
show aaa avlan auth-ip [vlan vlan_id]
debug command-info {enable | disable}
debug end-user profile name
show end-user profile name
show aaa classification-rule {mac-rule | mac-range-rule | ip-net-rule}
show aaa priv hexa [domain or family]

```

## Port Mobility Commands

```
vlan vid dhcp mac mac_address
```

```

vlan vid no dhcp mac mac_address
vlan vid dhcp mac range low_mac_address high_mac_address
vlan vid no dhcp mac range low_mac_address
vlan vid dhcp port slot/port
vlan vid no dhcp port slot/port
vlan vid dhcp generic
vlan vid no dhcp generic
vlan vid binding mac-ip-port mac_address ip_address slot/port
vlan vid no binding mac-ip-port mac_address
vlan vid binding mac-port mac_address slot/port
vlan vid no binding mac-port mac_address
vlan vid binding port-protocol slot/port {ip-e2 | ip-snap | ipv6 | ipx-e2 | ipx-novell | ipx-llc |
    ipx-snap | decnet | appletalk | ethertype type | dsapssap dsap/ssap | snap snapttype}
vlan vid no binding port-protocol slot/port {ip-e2 | ip-snap | ipx-e2 | ipx-novell | ipx-llc | ipx-
    snap | decnet | appletalk | ethertype type | dsapssap dsap/ssap | snap snapttype}
vlan vid mac mac_address
vlan vid no mac mac_address
vlan vid mac range low_mac_address high_mac_address
vlan vid no mac range low_mac_address
vlan vid ip ip_address [subnet_mask]
vlan vid no ip ip_address [subnet_mask]
vlan vid ipx ipx_net [e2 | llc | snap | novell]
vlan vid no ipx ipx_net
vlan vid protocol {ip-e2 | ip-snap | ipx-e2 | ipx-novell | ipx-llc | ipx-snap | decnet | appletalk |
    ethertype type | dsapssap dsap/ssap | snap snapttype}
vlan vid no protocol {ip-e2 | ip-snap | ipx-e2 | ipx-nov | ipx-llc | ipx-snap | decnet | appletalk |
    ethertype type | dsapssap dsap/ssap | snap snapttype}
vlan vid port slot/port
vlan vid no port slot/port
vlan port mobile slot/port [bpdu ignore {enable | disable}]
vlan no port mobile slot/port
vlan port slot/port default vlan restore {enable | disable}
vlan port slot/port default vlan {enable | disable}
vlan port slot/port authenticate {enable | disable}
vlan port slot/port 802.1x {enable | disable}
show vlan [vid] rules
show vlan port mobile [slot/port]

```

## Network Security Commands

```

netsec group grp_name port slot/port[-port2]
no netsec group grp_name port slot/port[-port2]
netsec group {grp_name | all} anomaly {anomaly_name | all} {{state | log | trap | quarantine}
    {enable | disable}} | {period seconds} | {count num} | {sensitivity num}}

```

```

no netsec group grp_name anomaly {anomaly_name | all} {state | log | trap | quarantine |
    period | count | sensitivity}
show netsec [group {grp_name | all} | port slot/port[-port2]] [anomaly {anomaly_name | all}]
    summary
show netsec [group {group-name | all} | port slot/port1[-port2]] [anomaly {anomaly_name |
    all}] traffic
show netsec [group {grp_name | all} | port slot/port[-port2]] statistics
show netsec [group {grp_name | all}] [anomaly {anomaly_name | all}] config
show netsec [group {grp_name | all} | port slot/port[-port2]] [anomaly {anomaly_name | all}]
    operation
show netsec {group {grp_name | all} | port slot/port [-port2]}

```

## Port Mapping Commands

```

port mapping port_mapping_sessionid {enable | disable}
no port mapping port_mapping_sessionid
port mapping session id unknown-unicast-flooding {enable | disable}
port mapping session id dynamic-proxy-arp {enable | disable}
show port mapping [port_mapping_sessionid]

```

## Learned Port Security Commands

```

port-security slot/port[-port2] [admin-status {enable | disable | locked}]
port-security chassis {convert-to-static / disable}
no port security slot/port[-port2]
port-security shutdown num [convert-to-static {enable | disable}] [no-aging {enable
    | disable}] [boot-up {enable | disable}]
port-security slot/port[-port2] maximum num
port-security slot/port[-port2] max-filtering num
port-security {slot/port[-port2] / chassis} convert-to-static
port-security slot/port mac mac_address [vlan vlan_id]
port-security slot/port no mac {all | mac_address} [vlan vlan_id]
port-security slot/port[-port2] mac-range [low mac_address / high mac_address]
port-security slot/port[-port2] violation {shutdown | restrict | discard}
port-security slot/port[-port2] release
port-security slot/port[-port2] learn-trap-threshold num
show port-security [slot/port1-port2 / slot/port]
show port-security shutdown
show port-security brief

```

## Port Mirroring and Monitoring Commands

```
port mirroring port_mirror_sessionid [no] source slot/port[-port2] [slot/port[-port2]...]
destination slot/port [rpmir-vlan vlan_id] [bidirectional | inport | outport] [unblocked
vlan_id]
[enable | disable]
port mirroring port_mirror_sessionid {enable | disable}
no port mirroring port_mirror_sessionid {enable | disable}
port monitoring port_monitor_sessionid source slot/port
[{{no file | file filename [size filesize] | [overwrite {on | off}}]}]
[inport | outport | bidirectional] [timeout seconds] [enable | disable]
port monitoring port_monitor_sessionid {disable | pause | resume}
no port monitoring port_monitor_sessionid
show port mirroring status [port_mirror_sessionid]
show port monitoring status [port_monitor_sessionid]
show port monitoring file [port_monitor_sessionid]
```

## sFlow Commands

```
sflow agent ip <ip_address>
no sflow agent ip <ip_address>
sflow receiver num name string timeout {seconds | forever} address {ip_address /
ipv6address} udp-port port packet-size size Version num
sflow receiver receiver_index release
sflow sampler num portlist receiver receiver_index rate value sample-hdr-size size
no sflow sampler num portlist
sflow poller num portlist receiver receiver_index interval value
no sflow poller num portlist
show sflow agent
show sflow receiver [num]
show sflow sampler[num]
show sflow poller [num]
```

## RMON Commands

```
rmon probes {stats | history | alarm} [entry-number] {enable | disable}
show rmon probes [stats | history | alarm] [entry-number]
show rmon events [event-number]
```

## VLAN Stacking Commands

```
ethernet-service {svlan | ipmvlan | management-vlan} svid1[-svid2] [enable | disable] [[1x1 |
flat] stp {enable | disable}] [name description]
no ethernet-service {svlan | ipmvlan | management-vlan} svid1[-svid2]
```

```
ethernet-service {svlan | ipmvlan} svid1[-svid2] source-learning {enable| disable}
Creates a VLAN Stacking service and associates the service with an SVLAN or an IP
Multicast VLAN (IPMV). The SVLAN or IPMV specified is the VLAN that will
transport traffic for the service.
ethernet-service service-name service-name {svlan | ipmvlan} svid
no ethernet-service service-name service-name {svlan | ipmvlan} svid
ethernet-service svlan svid1[-svid2] nni {slot/port1[-port2] | linkagg agg_num} [stp | erp]
no ethernet-service svlan svid1[-svid2] nni {slot/port1[-port2] | linkagg agg_num}
ethernet-service nni {slot/port1[-port2] | agg_num} [tpid value] [{stp | gvrp | mvrp} legacy-
bpdu {enable | disable}] [transparent-bridging {enable | disable}]
ethernet-service sap sapid service-name service-name
no ethernet-service sap sapid
ethernet-service sap sapid uni {slot/port1[-port2] | linkagg agg_num}
ethernet-service sap sapid no uni {slot/port1[-port2] | linkagg agg_num}
ethernet-service sap sapid cvlan {all | cvid | cvid1-cvid2 / untagged}
ethernet-service sap sapid no cvlan {all | cvid | cvid1-cvid2 / untagged}
ethernet-service sap-profile sap-profile-name
no ethernet-service sap-profile sap-profile-name
ethernet-service sap sapid sap-profile sap-profile-name
ethernet-service uni-profile uni-profile-name [tunnel-mac mac-address] [l2-protocol {vtp |
vlan | uplink | udld | stp | pvst | pagp | oam | mvrp | lacpmarker | gvrp | dtp | cdp | amap |
802.3ad | 802.1x | 802.1ab} {peer | discard | tunnel | mac-tunnel} ]
no ethernet-service uni-profile uni-profile-name
ethernet-service uni {slot/port1[-port2] | agg_num} uni-profile uni-profile-name
show ethernet-service mode
show ethernet-services vlan [svid1[-svid2]]
show ethernet-service [service-name service-name / svlan svid]
show ethernet-services sap [sapid]
show ethernet-services port {slot/port / linkagg agg_num}
show ethernet-services nni [slot/port / linkagg agg_num]
show ethernet-services uni [slot/port / linkagg agg_num]
show ethernet-service uni-profile [uni-profile-name]
show ethernet-service sap-profile sap-profile-name
loopback-test profile_name source-mac src_address destination-mac dest_address vlan
vlan_id
loopback-port slot/port type {inward | outward}
loopback-test profile_name {enable | disable}
no loopback-test profile_name
show loopback-test [profile_name]
```

## Ethernet OAM Commands

```
ethoam vlan {vlanid-list} primary-vlan {vlan-id}
no ethoam vlan {vlanid-list}
ethoam domain name format {none | dnsname | mac-address-uint | string}
    level num
no ethoam domain name
ethoam domain name mhf {none / explicit / default}
ethoam domain name id-permission {none | chassisid}

ethoam association ma_name format {vpnid | unsignedint / string | primaryvid | icc-based}
    domain md_name primary-vlan vlan-id
no ethoam association ma_name domain md_name
ethoam association ma_name domain md_name mhf {none | default | explicit |
    defer}
ethoam association ma_name domain md_name md_name id-permission {none
    | chassisid | defer}

ethoam association association_name domain {domain_name | mac_address}
    ccm-interval {interval-invalid | interval100ms | interval1s / interval10s /
    interval1m / interval10m}
ethoam association ma_name domain {md_name | mac_add}
    endpoint-list mep_id[-mep_id2]
no ethoam association association_name domain {domain_name | mac_add}
    endpoint-list mep_id[-mep_id2]
clear ethoam statistics [domain domain association association endpoint mep-id]
ethoam default-domain level {num}
no ethoam default-domain
ethoam default-domain mhf {none | default | explicit}
no ethoam default-domain
ethoam default-domain id-permission {none | chassisid}
no ethoam default-domain
ethoam default-domain primary-vlan {vlan-id} [level {no-level | num}] [mhf {none | default
    | explicit | defer}] [id-permission {none | chassisid | defer}]
no ethoam default-domain
ethoam endpoint mep-id domain md_name association ma_name direction { up | down } {port
    {slot/port | virtual | linkagg agg_id} [primary-vlan vlan_id]}
no ethoam endpoint mep-id domain md_name association ma_name
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name admin-
    state {enable | disable}
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name rfp
    {enable | disable}
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name
    ccm {enable | disable}
```

```
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name priority
    ccm_tm_priority
ethoam endpoint mep_id domain {md_name | mac_address} association ma_name lowest-
    priority-defect lowest_priority_defect
ethoam linktrace {target-macaddress mac_address | target-endpoint t-mepid}
    source-endpoint s-mepid domain {d-name | mac_add} association a-name [flag
    [fdb-mpdb | fdbonly]] [hop-count hop_count]
ethoam loopback {target-endpoint t-mepid | target-macaddress mac_add} source-endpoint s-
    mepid domain d-name association a-name [number num] [data string] [vlan-priority
    vlan-priority] [drop-eligible { true | false }]
ethoam fault-alarm-time centiseconds endpoint endpoint_id domain {md_name |
    mac_address}
    association ma_name
no ethoam fault-alarm-time endpoint endpoint_id domain {md_name | mac_address}
    association ma_name
ethoam fault-reset-time centiseconds endpoint endpoint_id domain {mac_add / d-
    name} association a-name
no ethoam fault-reset-time endpoint endpoint_id domain {mac_add / d-name}
    association a-name
ethoam one-way-delay {target-endpoint t-mepid | target-macaddress mac_add} source-
    endpoint s-mepid domain domain association association [vlan- priority vlan-priority]
ethoam two-way-delay {target-endpoint t-mepid | target-macaddress mac_add} source-
    endpoint s-mepid domain domain association association [vlan- priority vlan-priority]
clear ethoam {one-way-delay-table | two-way-delay-table}
show ethoam
show ethoam domain md_name
show ethoam domain md_name association ma_name
show ethoam domain md_name association ma_name end-point mep-id
show ethoam default-domain configuration
show ethoam default-domain [primary-vlan vlan_id]
show ethoam remote-endpoint domain d_name association a_name end-point s-
    mepid [remote-mep r-mepid]
show ethoam cfmstack {port slot/port | virtual | linkagg agg_num}
show ethoam linktrace-reply domain d-name association a-name endpoint s-mepid
    tran-id num
show ethoam linktrace-tran-id domain {domain_name | mac_address} association
    association_name endpoint mep_id
show ethoam vlan vlan-id
show ethoam statistics domain {domain_name | mac_address} [association
    association_name] [end-point endpoint_id]
show ethoam config-error [vlan vlan_id] [{port slot/port | linkagg agg_id}]
```

```
show ethoam one-way-delay domain domain association association endpoint s-mepid [mac-address mac-add]
show ethoam two-way-delay domain domain association association endpoint s-mepid [mac-address mac-add]
```

## LINK OAM Commands

```
efm-oam {enable | disable}
efm-oam port slot/port [-port2] status {enable | disable}
efm-oam port slot/port[-port2] mode {active | passive}
efm-oam port slot/port[-port2] keepalive-interval seconds
efm-oam port slot/port[-port2] hello-interval seconds
efm-oam port slot/port[-port2] remote-loopback {process | ignore}
efm-oam port slot/port remote-loopback {start | stop}
efm-oam port slot/port[-port2] propagate-events {critical-event | dying-gasp} {enable | disable}
efm-oam port slot/port[-port2] errored-frame-period [threshold threshold_symbols] [window window_frames] [notify {enable | disable}]
efm-oam port slot/port[-port2] errored-frame [threshold threshold_symbols] [window window_seconds] [notify {enable | disable}]
efm-oam port slot/port[-port2] errored-frame-seconds-summary [threshold threshold_seconds] [window window_seconds] [notify {enable | disable}]
efm-oam multiple-pdu-count count
efm-oam port slot/port ll-ping [num-frames number] [delay milliseconds] [start]
show efm-oam configuration
show efm-oam port [slot/port1-port2] [enable | disable] [active | passive]
show efm-oam port slot/port detail
show efm-oam port slot/port[-port2] statistics
show efm-oam port statistics
show efm-oam port slot/port remote detail
show efm-oam port slot/port history [log-type { link-fault | errored-frame | errored-frame-period | errored-frame-seconds | dying-gasp | critical } ]
show efm-oam port slot/port ll-ping detail
clear efm-oam statistics port slot/port[-port2]
clear efm-oam log-history port slot/port[-port2]
```

## Service Assurance Agent Commands

```
saa string [descr description] [interval interval]
no saa string
saa string type ip-ping destination-ip ipv4 addr source-ip ipv4 addr type-of-service tos [num-pkts count] [inter-pkt-delay delay] [payload-size size]
```

```
saa string type ethoam-loopback {target-endpoint tmep_id | target-mac address mac} source-endpoint smep_id domain domain association assoc vlan-priority priority [drop-eligible {true | false}] [data data] [num-pkts num] [inter-pkt-delay delay]
saa string type {ethoam-two-way-delay} {target-endpoint tmep_id | target-mac address mac} source-endpoint smep_id domain domain association assoc vlan-priority priority [num-pkts num] [inter-pkt-delay delay]
saa string start [at yyyy-mm-dd,hh:mm:ss.ds]
saa string stop [never | at yyyy-mm-dd,hh:mm:ss.ds]
show saa [string | {descr description}]
show saa [string] type {ip-ping | ethoam-loopback | ethoam-two-way-delay} config
show saa [string] statistics [aggregate | history]
```

## MPLS LDP Commands

```
configure router ldp {no shutdown | shutdown}
configure router ldp interface-parameters interface ip-intf-name
configure router ldp interface-parameters no interface ip-intf-name
configure router ldp interface-parameters interface ip-intf-name {no shutdown | shutdown}
configure router ldp interface-parameters [interface ip-intf-name] hello timeout factor
configure router ldp interface-parameters [interface ip-intf-name] no hello
configure router ldp interface-parameters [interface ip-intf-name] keepalive timeout factor
configure router ldp interface-parameters [interface ip-intf-name] no keepalive
configure router ldp interface-parameters interface ip-intf-name transport-address {system / interface}
configure router ldp interface-parameters interface ip-intf-name no transport-address
configure router ldp targeted-session hello time factor
configure router ldp targeted-session no hello
configure router ldp targeted-session keepalive timeout factor
configure router ldp targeted-session no keepalive
configure router ldp graceful-restart-helper
configure router ldp no graceful-restart-helper
configure router ldp reconnect-time seconds
configure router ldp no reconnect-time
configure router ldp fwd-state-holding-time seconds
configure router ldp no fwd-state-holding-time
configure router ldp maximum-recovery-time seconds
configure router ldp no maximum-recovery-time
configure router ldp neighbor-liveness-time seconds
configure router ldp no neighbor-liveness-time
[configure] oam lsp-ping prefix ip_prefix/mask [size octets] [ttl label-ttl] [timeout timeout] [interval interval] [send-count send-count]
[configure] oam lsp-trace prefix ip_prefix/mask [size octets] [min-ttl min-label-ttl] [max-ttl max-label-ttl] [max-fail no-response-count] [probe-count probes-per-hop] [timeout timeout] [interval interval]
```

```

show router ldp bindings
show router ldp bindings fec-type {fec-number / services | prefixes} [session ip-
address[:label-space]]
show router ldp bindings ingress-label start-label [end-label]
show router ldp bindings egress-label start-label [end-label]
show router ldp bindings prefix ip-prefix/mask [session ip-address[:label-space]]
show router ldp bindings active [prefix ip-prefix/mask]
show router ldp bindings vc-type vc-type [vc-id vc-id [session ip-address [:label-space]]]
show router ldp bindings service-id service-id
show router ldp discovery [state {trying | established | down}] [detail]
show router ldp discovery peer ip-address [state {trying | established | down}] [detail]
show router ldp discovery interface ip-intf-name [state {trying | established | down}] [detail]
show router ldp interface [ip-intf-name / ip-address] [detail]
show router parameters
show router ldp peer [ip-address] [detail]
show router ldp session [ip-address[:label-space]] [detail | statistics [packet-type]]
show router ldp status

```

## MPLS Static LSP and FRR Commands

```

configure router mpls {no shutdown | shutdown}
configure router mpls interface ip-intf-name
configure router mpls no interface ip-intf-name
configure router mpls interface ip-intf-name {no shutdown | shutdown}
configure router mpls interface ip-intf-name label-map in-label
configure router mpls interface ip-intf-name no label-map in-label
configure router mpls interface ip-intf-name label-map in-label swap out-label next-hop ip-
address
configure router mpls interface ip-intf-name label-map in-label no swap
configure router mpls interface ip-intf-name label-map in-label pop
configure router mpls interface ip-intf-name label-map in-label no pop
configure router mpls interface ip-intf-name label-map in-label {no shutdown | shutdown}
configure router mpls static-lsp lsp-name
configure router mpls no static-lsp lsp-name
configure router mpls static-lsp lsp-name {no shutdown | shutdown}
configure router mpls static-lsp lsp-name to ip-address
configure router mpls static-lsp lsp-name push out-label next-hop ip-address
configure router mpls static-lsp lsp-name no push out-label
configure router mpls interface ip-intf-name label-map in-label protect-swap out-label next-
hop ip-address
configure router mpls interface ip-intf-name label-map in-label no protect-swap
show router mpls interface [ip-intf-name] [label-map label [protect-swap [out-label]]]
show router mpls label start-label [end-label [label-filter]]
show router mpls label-range

```

```

show router mpls static-lsp [lsp-name | transit | terminate | count]
show router mpls status

```

## Virtual Private LAN Service (VPLS) Commands

```

configure service customer customer-id create
configure service no customer customer-id
configure service customer customer-id contact contact-info
configure service customer customer-id no contact
configure service customer customer-id phone phone-info
configure service customer customer-id no phone
configure service customer customer-id description desc-info
configure service customer customer-id no description
configure service sdp sdp-id [mpls] create
configure service no sdp sdp-id
configure service sdp sdp-id description desc-info
configure service sdp sdp-id no description
configure service sdp sdp-id far-end ip-address
configure service sdp sdp-id no far-end
configure service sdp sdp-id {no shutdown | shutdown}
configure service sdp sdp-ip ldp
configure service sdp sdp-ip no ldp
configure service sdp sdp-ip signaling {off | tldp}
configure service sdp sdp-ip lsp lsp-name
configure service sdp sdp-ip no lsp lsp-name
configure service sdp sdp-ip adv-mtu-override
configure service sdp sdp-ip no adv-mtu-override
configure service sdp sdp-ip path-mtu bytes
configure service sdp sdp-ip no path-mtu
configure service vpls service-id customer customer-id create
configure service no vpls service-id
configure service vpls service-id [customer customer-id] description desc-info
configure service vpls service-id [customer customer-id] no description
configure service vpls service-id [customer customer-id] {no shutdown | shutdown}
configure service vpls service-id [customer customer-id] def-mesh-vc-id vc-id
configure service no vpls service-id [customer customer-id] no def-mesh-vc-id
configure service vpls service-id [customer customer-id] send-flush-on-failure
configure service no vpls service-id [customer customer-id] no send-flush-on-failure
configure service vpls service-ip [customer customer-id] service-mtu bytes
configure service vpls service-ip [customer customer-id] no service-mtu
configure service vpls service-id mesh-sdp sdp-id[:vc-id] [vc-type {ether | vlan} create
configure service vpls service-id no mesh-sdp sdp-id
configure service vpls service-id mesh-sdp sdp-id[:vc-id] {no shutdown | shutdown}
configure service vpls service-id mesh-sdp sdp-id[:vc-id] egress vc-label egress-vc-label

```



```

configure service vpls service-id no mesh-sdp sdp-id no egress vc-label
configure service vpls service-id mesh-sdp sdp-id[:vc-id] ingress vc-label ingress-vc-label
configure service vpls service-id no mesh-sdp sdp-id no ingress vc-label
configure service vpls service-id mesh-sdp sdp-id[:vc-id] static-mac mac-address
configure service vpls service-id mesh-sdp sdp-id no static-mac mac-address
configure service l2profile profile-name [create] {stp | 802.1x | 802.1ab | 802.3ad | gvrp | mvrp
| amap} {peer | discard | tunnel}
configure service no l2profile profile-name
configure service port {slot/port | linkagg agg_num} mode access
configure service port {slot/port | linkagg agg_num} no mode
configure service port {slot/port | linkagg agg_num} l2profile {default | profile-name}
configure service port {slot/port | linkagg agg_num} encap-type {null | dot1q}
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] create
configure service vpls service-id no sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1]
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1]
description
desc-info
configure service vpls service-id no sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] no
description
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1]
trusted
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] no
trusted
priority value
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] {no
shutdown | shutdown}
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] static-
mac mac-address
configure service vpls service-id sap {slot/port | linkagg agg_num} [:0 | :all | :qtag1] no
static-mac mac-address
clear service id service-id fdb {all | mac mac-address | sap {slot/port | linkagg agg_num}
[:0 | :all | :qtag1] | mesh-sdp sdp-id[:vc-id]}
clear service id service-id mesh-sdp sdp-id[:vc-id] ingress-vc-label
show service l2profile [profile-name]
show service port [slot/port | linkagg agg_num]
configure service customer [customer-id]
show service sdp [sdp-id] [detail]
show service id service-id all
show service id service-id base
show service id service-id labels
show service id service-id sap [slot/port | linkagg agg_num] [:0 | :all | :qtag1]
show service id service-id sdp [sdp-id[:vc-id] | far-end ip-address] [detail]
show service sap-using [sap {slot/port | linkagg agg_num}] [:0 | :all | :qtag1]
show service sdp-using [sdp-id[:vc-id] | far-end ip-address]

```

```

show service egress-label start-label [end-label]
show service ingress-label start-label [end-label]
show service fdb-info
show service fdb-mac [mac-address]

```

## Switch Logging Commands

```

swlog
no swlog
swlog syslog-facility-id {facility_id | integer}
swlog appid {app_id | integer} level {level | integer}
no swlog appid app_id
swlog remote command-log {enable | disable}
swlog output {console | flash | socket [ip_address [remote command-log]]}
no swlog output {console | flash | socket [ip_address]}
swlog output flash file-size bytes
swlog clear
show log swlog
show log swlog [session session_id] [timestamp start_time [end_time]] [appid appid] [level
level]
show swlog

```

## Health Monitoring Commands

```

health threshold {rx percent | txrx percent | memory percent | cpu percent | temperature
degrees}
health interval seconds
health statistics reset
show health threshold [rx | txrx | memory | cpu | temperature]
show health interval
show health [slot/port] [statistics]
show health all {memory | cpu | rx | txrx}
show health slice slot
show health fabric slot 1[-slot2]

```

## CMM Commands

```

reload [primary | secondary] [with-fabric] [in [hours:] minutes | at hour:minute [month day /
day month]]
reload [primary | secondary] [with-fabric] cancel
reload working {rollback-timeout minutes | no rollback-timeout} [in [hours:] minutes | at
hour:minute]
reload issu [in [hours:] minutes | at hour:minute]
[configure] copy running-config working

```

```

[configure] write memory
[configure] write memory flash-synchro
[configure] copy working certified [flash-synchro]
[configure] copy flash-synchro
takeover [with-fabric]
show running-directory
show reload [status]
show microcode [working | certified | loaded]
show microcode history [working | certified]
show microcode issu
usb {enable | disable}
usb auto-copy {enable | disable}
usb disaster-recovery {enable | disable}
mount [/uflash]
umount /uflash
show usb statistics

```

## Chassis Management and Monitoring Commands

```

system contact text_string
system name text_string
system location text_string
system date [mm/dd/yyyy]
system time [hh:mm:ss]
system time-and-date synchro
system timezone [timezone_abbrev | offset_value | time_notation]
system daylight savings time [{enable | disable} | start {week} {day} in {month} at {hh:mm}
    end {week} {day} in {month} at {hh:mm} [by min]]
reload ni [slot] number
reload all [in [hours:] minutes | at hour:minute [month day / day month]]
reload all cancel
reload pass-through slot-number
power ni [slot] slot-number
no power ni [slot] slot-number
temp-threshold temp slot slot-number
stack set slot slot-number {saved-mode {OS6850E | OS6850} | saved-slot slot-number
    [reload]}
stack clear slot slot-number
show system
show hardware info
show chassis [number]
show cmm [number]
show ni [number]
show module [number]

```

```

show module long [number]
show module status [number]
show power [supply] [number]
show fan [number]
show temperature [number]
show stack topology [slot-number]
show stack status
hash-control {brief | extended [udp-tcp-port] | load-balance non-ucast {enable | disable}}
hash-control extended no udp-tcp-port
show hash-control [non-ucast]
license apply
show license info
show license file

```

## Chassis MAC Server (CMS) Commands

```

mac-range eeprom start_mac_address count
mac-retention status {enable | disable}
mac-retention dup-mac-trap {enable | disable}
mac release
show mac-range [index]
show mac-range [index] alloc
show mac-retention status

```

## Network Time Protocol Commands

```

no ntp server {ip_address}
ntp server synchronized
ntp server unsynchronized
ntp client {enable | disable}
ntp src-ip preferred {default | no-loopback0 | ip_address}
no ntp src-ip preferred
ntp broadcast {enable | disable}
ntp broadcast-delay microseconds
ntp key key [trusted | untrusted]
ntp key load
ntp authenticate {enable | disable}
ntp master {stratum-number}
ntp interface {interface-ip} {enable | disable}
ntp max-associations {number}
ntp broadcast {broadcast-addr} [version version] [minpoll poll interval]
no ntp broadcast {broadcast-addr}
ntp peer {ip-address} [key keyid] [version version] [minpoll poll interval]
no ntp peer {ip-address}

```

```
show ntp status
show ntp client
show ntp client server-list
show ntp server client-list
show ntp server status [ip_address]
show ntp keys
```

## Session Management Commands

```
session login-attempt integer
session login-timeout seconds
session banner {cli | ftp | http} file_name
session banner no {cli | ftp | http}
session timeout {cli | http | ftp} minutes
session prompt default [string]
session xon-xoff {enable | disable}
prompt [user] [time] [date] [string string] [prefix]
no prompt
show prefix
alias alias command_name
show alias
user profile save
user profile reset
history size number
show history [parameters]
!! | n}
command-log {enable | disable}
kill session_number
exit
whoami
who
show session config
show session xon-xoff
more size lines
more
no more
show more
telnet {host_name | ip_address} [port port]
ssh {host_name | ip_address / enable / disable}
ssh enforce pubkey-auth {enable | disable}
show ssh config
show command-log
show command-log status
```

## File Management Commands

```
cd [path]
pwd
mkdir [path/]dir
rmdir [path/]dir
ls [-r] [[path/]dir]
dir [[path/]dir]
rename [path/]old_name [path/]new_name
rm [-r] [path/]filename
delete [path/]filename
cp [-r] [path/]orig_filename [dest_path/]dupl_filename
scp user_name@remote_ip_addr:[path/]source [path/]target
scp [path/]source user_name@remote_ip_addr:[path/]target
mv {[path/]filename dest_path/new_filename} | [path/]dir dest_path/new_dir}
move {[path/]filename dest_path/new_filename} | [path/]dir dest_path/new_dir}
chmod {+w | -w} [path/]file
attrib {+w | -w} [path/]file
freespace [/flash]
fsck /flash [no-repair | repair]
newfs {/flash | /uflash}
rep [cmm-b: | slot:] source_filepath [cmm-b: | slot:] destination_filepath
rrm slot filepath
rls slot directory [file_name]
vi [path/]filename
view [path/]filename
tty lines columns
show tty
more [path/]file
ftp {host_name | ip_address}
scp-sftp {enable / disable}
show ssh config
tftp {host_name | ip_address} {get | put} source-file [src_path/]src_file [destination-
file [dest_path/] dest_file] [ascii]
rz
```

## Web Management Commands

```
{[ip] http | https} server
no {[ip] http | https} server
{[ip] http | https} ssl
no {[ip] http | https} ssl
[ip] http port {default | port}
https port {default | port}
```

```
debug http sessiondb
show [ip] http
```

## Configuration File Manager Commands

```
configuration apply filename [at hh:mm month dd [year]] | [in hh[:mm]] [verbose]
configuration error-file limit number
show configuration status
configuration cancel
configuration syntax check path/filename [verbose]
configuration snapshot feature_list [path/filename]
show configuration snapshot [feature_list]
write terminal
```

## SNMP Commands

```
snmp station {ip_address | ipv6_address} {[udp_port] [username] [v1 | v2 | v3] [enable |
disable]}
no snmp station {ip_address | ipv6_address}
snmp source ip preferred {default | no-loopback | ip_address}
no snmp source ip preferred
show snmp station
snmp community map community_string {[user useraccount_name] | {enable | disable}}
no snmp community map community_string
snmp community map mode {enable | disable}
show snmp community map
snmp security {no security | authentication set | authentication all | privacy set | privacy all |
trap only}
show snmp security
show snmp statistics
show snmp mib family [table_name]
snmp trap absorption {enable | disable}
snmp trap to webview {enable | disable}
snmp trap replay {ip_address | ipv6_address} [seq_id]
snmp trap filter {ip_address | ipv6_address} trap_id_list
no snmp trap filter {ip_address | ipv6_address} trap_id_list
snmp authentication trap {enable | disable}
show snmp trap replay
show snmp trap filter
show snmp authentication trap
show snmp trap config
```

## DNS Commands

```
ip domain-lookup
no ip domain-lookup
ip name-server server-address1 [server-address2 [server-address3]]
no ip name-server {server-address1 [server-address2 [server-address3]] | all}
ipv6 name-server server-ipv6_address1 [server-ipv6_address2 [server-ipv6_address3]]
ip domain-name name
no ip domain-name
show dns
```

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