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OmniSwitch CLI Reference Guide

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**This user guide documents release 6.4.2 of the OmniSwitch 6400 Series, OmniSwitch 6850 Series, OmniSwitch 6855 Series, OmniSwitch 9000 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 9000 Series, and OmniSwitch 9000E Series switches.

Supported Platforms

This information in this guide applies to the following products:

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

Note. This *OmniSwitch CLI Reference Guide* covers Release 6.4.2, which is supported on the OmniSwitch 6400 Series, OmniSwitch 6850 Series, OmniSwitch 6855 Series, OmniSwitch 9000 Series, and OmniSwitch 9000E Series switches.

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
- 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.

bold text	Indicates basic command and keyword syntax. Example: show snmp station
<i>italicized text</i>	Indicates user-specific information such as IP addresses, slot numbers, passwords, names, etc. Example: no snmp station <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: show aaa server [<i>server_name</i>] Here, you can enter either of the following options: show aaa server show aaa server <i>server_name</i> (where <i>server_name</i> is the user-specified server name, e.g., show aaa server myserver1) 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: port mirroring { enable disable } Here, you must choose one of the following: port mirroring enable or port mirroring disable

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

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 9000 Series Getting Started Guide*

Describes the hardware and software procedures for getting an OmniSwitch 9000 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 9000 Series Hardware Users Guide*

Complete technical specifications and procedures for all OmniSwitch 9000 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, 6800, 6850, 6855, 9000, 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'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 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.

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.

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



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.

Technical Support

An Alcatel 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 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'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's technical support, open a new case or access helpful release notes, technical bulletins, and manuals. For more information on Alcatel's Service Programs, see our web page at service.esd.alcatel-lucent.com, call us at 1-800-995-2696, or email us at esd.support@alcatel-lucent.com.

1 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
copy running-config working
write memory
write memory flash-synchro
copy working certified
copy flash-synchro
takeover
show running-directory
show reload
show microcode
show microcode history

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

primary secondary	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.
with-fabric	Performs a complete CMM reload. This parameter is available only on OmniSwitch chassis-based series switches.
in [<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.
at <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.
cancel	Cancels a pending time delayed reboot.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

rollback-timeout <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.
no rollback-timeout	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.
in [<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.
at <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, 6855, 9000, 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
```

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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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
```

takeover

The current secondary CMM assumes the role of primary CMM.

takeover [with-fabric]

Syntax Definitions

with-fabric Performs a complete CMM reload.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- This command causes the secondary CMM to take over the functions of the primary CMM. After this command, the old primary CMM is the new secondary CMM.
- Before issuing the **takeover** command, be sure that the secondary CMM has all software (i.e., image and configuration files) required to continue CMM operations.
- For information on synchronizing the primary and secondary CMM software before issuing the **takeover** command, see the [copy flash-synchro](#) command.
- When the CMM modules switch primary and secondary roles, the console session to the new primary CMM is disconnected. To continue managing the switch, be sure that you have physical connections to both CMMs *or* local access to the switch in order to move your Ethernet or serial cable from one CMM to the other.
- The CPM, CFM and CPU of CMM can be reset independently.
- If a takeover command is issued and the local/remote fabric module is in up state, only the CPM will be reset.
- If a takeover command is issued and the local/remote fabric module is in a down state, then the complete CMM will be reloaded.
- This command can also be used on the secondary CMM.
- 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 “Managing Stacks” in the *Hardware Users Guide*.

Note. The saved **boot.cfg** file will be overwritten if the **takeover** command is executed after the [write memory](#) command on an OmniSwitch set up with redundant CMMs. Refer to the “[NIs Reload On Takeover](#)” description on [page 1-17](#) for more information on the **takeover** command and redundant management modules.

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, 6855, 9000, 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 9000 switches:

```
-> show running-directory
```

```
CONFIGURATION STATUS
  Running CMM           : PRIMARY,
  CMM Mode              : MONO CMM,
  Current CMM Slot     : A,
  Running configuration : WORKING,
  Certify/Restore Status : CERTIFY NEEDED
SYNCHRONIZATION STATUS
  Running Configuration : SYNCHRONIZED,
  NIs Reload On Takeover : NONE
```

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

Running CMM	The CMM currently controlling the switch, either PRIMARY or SECONDARY.
CMM Mode	Displays whether the primary and secondary CMMs are synchronized. In the case that there is no secondary CMM, MONO-CMM-CHASSIS is shown.
Current CMM Slot	The slot number of the primary CMM.
Running Configuration	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.
Certify/Restore Status	Indicates if the CM has been certified (i.e., the Working directory matches the Certified directory).
Flash Between CMMs	Displays whether the Working and Certified directories are the same.
NIs Reload On Takeover Stacks Reload on Takeover	<p>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.</p> <p>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 copy flash-synchro 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.</p> <p>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).</p> <p>If the flash directories on the primary and secondary management modules are <i>not synchronized</i> (e.g., a copy flash-synchro 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.</p>

Release History

Release 6.1; command was introduced.

Related Commands

reload	Reboots the CMM to its startup software configuration.
write memory	Copies the running configuration (RAM) to the working directory.
copy flash-synchro	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, 6855, 9000, 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

working	Specifies the switch's working directory; only microcode information from the working directory will be displayed.
certified	Specifies the switch's certified directory; only microcode information from the certified directory will be displayed.
loaded	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, 6855, 9000, 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

Package	File name.
Release	Version number.
Size	File size.
Description	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, 6855, 9000, 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.

2 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:

Management Commands	<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>
Monitoring Commands	<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>
Licensing Commands	<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, 6855, 9000, 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

system name	Modifies the switch's current system name.
system location	Specifies the switch's current physical location.
show system	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 19 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, 6855, 9000, 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, 6855, 9000, 9000E.

Usage Guidelines

N/A

Examples

```
-> system location "NMS Test Lab"  
-> system location TestLab
```

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 name	Modifies the switch's current system name.
show system	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, 6855, 9000, 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 2-9](#).

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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

system date	Displays or modifies the switch's current system date.
system time	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

enable	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.
disable	Disables DST. The switch clock will not change for DST.
start	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.)
end	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.
by min	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, 6855, 9000, 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

system time	Displays or modifies the switch's current system time.
system timezone	Displays or modifies the timezone for the switch.
system date	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

uboot	Updates the uboot version.
cmm	Specifies that the update is performed for the Chassis Management Module (CMM). <i>Not supported on OmniSwitch 6850 switches</i>
ni	Specifies that the update is performed for the Network Interface (NI) Module.
all	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.
uboot-miniboot	Updates the uboot <i>and</i> the miniboot version on all available slots within a chassis or on all available switches within a stack.
fpga	Updates the FPGA version. <i>Not supported on OmniSwitch 6850 switches.</i>
miniboot	Updates the miniboot version.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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	k2Iminiboot.uboot
	Uboot and Miniboot	kuboot.bin k2Iminiboot.uboot
	FPGA	K2Ifpga.upgrade_kit
9000/9000E	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
```

```
OS9000-> update uboot ni all
OS9000-> update uboot-miniboot
OS9000-> update uboot cmm
OS9000-> update fpga cmm
OS9000-> update miniboot 2
```

```
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.
all	Updates all POE units in the switch.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

N/A

Examples

```
-> update lanpower 3  
-> update lanpower all
```

Release History

Release 6.1.3; command was introduced.

Related Commands

update	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

slot	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, 6855, 9000, 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

reload all	Reloads all the NIs and CMMs in a chassis.
power ni	Turns the power on or off for a specified Network Interface (NI) module.
show ni	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, 6855, 9000, 9000E.

Usage Guidelines

N/A

Examples

```
-> reload all
```

Release History

Release 6.1; command was introduced.

Related Commands

reload ni	Reloads a specific NI module.
power ni	Turns the power on or off for a specified Network Interface (NI) module.
show ni	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, 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

slot	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 9000, 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

reload ni	Reloads (i.e., reboots) a specified Network Interface (NI) module.
show ni	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 CPU 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 CPU warning temperature threshold is set. <i>This parameter is supported only on stackable switches.</i>

Defaults

parameter	default
<i>temp</i>	60

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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-slot saved-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.
<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.
reload	Optional command syntax. When reload 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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 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*.

Examples

```
-> stack set slot 2 saved-slot 3
-> stack set slot 1001 saved-slot 4 reload
```

Release History

Release 6.1; command was introduced.

Related Commands

- stack clear slot** Clears the current saved slot information for a switch within a stackable switch configuration.
- show stack topology** 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, 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, 6855, 9000, 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: 6.1.2.63.R02 Development, February 21, 2006.,
  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:       Kite_135,
  Location:   NMS_LABORATORY,
  Services:   72,
  Date & Time: FRI FEB 24 2006 16:21:30 (PST)
```

```
Flash Space:
  Primary CMM:
    Available (bytes): 31266816,
    Comments          : None
```

output definitions

System Description	The description for the current system. This description shows the current software version and the system date.
System Object ID	The SNMP object identifier for the switch.
System Up Time	The amount of time the switch has been running since the last system reboot.
System Contact	An user-defined administrative contact for the switch. This field is modified using the system contact command.
System Name	A user-defined text description for the switch. This field is modified using the system name command.

output definitions (continued)

System Location	The user-defined physical location of the switch. This field is modified using the system location command.
System Services	The number of current system services.
System Date & Time	The current system date and time. This field is modified using the system date and system time commands.
Flash Space: Primary CMM: Available (bytes)	The available flash memory space available on the switch's <i>primary</i> management module.
Flash Space: Primary CMM: Comments	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

system contact	Specifies the switch's administrative contact (e.g., an individual or a department).
system name	Modifies the switch's current system name.
system location	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, 6855, 9000, 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

CPU Type	The manufacturer and model number of the CPU used on the CMM.
Flash Manufacturer	The manufacturer of the flash memory used on the CMM.
Flash size	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.
RAM Manufacturer	The manufacturer of the RAM memory used on the CMM.
RAM size	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)

NVRAM Battery OK	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.
BootROM Version	The current BootROM version.
Backup Miniboot Version	The current backup miniboot version.
Default Miniboot Version	The current default miniboot version.
Product ID Register	The register number of the product ID.
Hardware Revision Register	The register number of the hardware revision.
CPLD Revision Register	The register number of the CPLD revision.
XFP Module ID	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, 6855, 9000, 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

Model Name	The factory-set model name for the switch. This field cannot be modified.
Description	The factory-set description for the switch. This field cannot be modified.
Part Number	The Alcatel-Lucent part number for the chassis.
Hardware Revision	The hardware revision level for the chassis.
Serial Number	The Alcatel-Lucent serial number for the chassis.
Manufacture Date	The date the chassis was manufactured.
Admin Status	The current power status of the chassis. Because chassis information is obtained from a running CMM, the value will always be POWER ON.
Operational Status	The current operational status of the chassis.
Number of Resets	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

show hardware info	Displays the current system hardware information.
show power	Displays the hardware information and current status for chassis power supplies.
show fan	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, 6855, 9000, 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 9000 switches, CMM-A-1 refers to the fabric board of a CMM installed in the left position; on OmniSwitch 9000 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

Model Name	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.
Description	A factory-defined description of the associated board (e.g., BBUS Bridge or PROCESSOR).
Part Number	The Alcatel-Lucent part number for the board.
Hardware Revision	The hardware revision level for the board.
Serial Number	The Alcatel-Lucent serial number for the board.
Manufacture Date	The date the board was manufactured.
Firmware Version	The firmware version for the board's ASICs.
Admin Status	The current power status of the CMM. Because information is obtained from a running CMM, the value will always be POWER ON.
Operational Status	The current operational status of the CMM.
Power Consumption	The current power consumption for the CMM.
Power Control Checksum	The current power control checksum for the corresponding CMM.
MAC Address	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

show chassis	Displays the basic configuration and status information for the switch chassis.
show ni	Displays the basic hardware and status information for Network Interface (NI) modules currently installed in the switch.
show module	Displays the basic information for either a specified module or all the modules installed in the chassis.
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.
show system	Displays the status and configuration of Switch Fabric Modules (SFMs) on OmniSwitch chassis-based switches.

show ni

Displays the basic hardware and status information for Network Interface (NI) modules currently installed in a standalone switch or in a stack.

show ni [*number*]

Syntax Definitions

number The slot number for a specific NI module installed in a standalone chassis or the switch number within a stack. If no slot number is specified, information for all the NI modules is displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 ni 1
Module in slot 1
  Model Name:           OS9-GNI-C20L,
  Description:         RJ45 (Upgd) SFP,
  Current mode of 10G ports:  uplink,
  Mode of 10G ports at next boot: stacking,
  Part Number:         902434-90,
  Hardware Revision:   A07,
  Serial Number:       H03Q0008,
  Manufacture Date:    JAN 31 2007,
  Firmware Version:
  Admin Status:       POWER ON,
  Operational Status:  UP,
  Power Consumption:  49,
  Power Control Checksum: 0x0,
  MAC Address:        00:e0:b1:6a:43:10,
  ASIC - Physical 1:   BCM56504_B2
  CPLD - Physical 1:   0010/00
  UBOOT Version :     6.1.5.354.R01
  UBOOT-miniboot Version : No Miniboot
  POE SW Version :    n/a
  C20L Upgd FailCount : 0
```

output definitions

Model Name	The NI's module name. For example, OS9-GNI-C24 indicates a twenty four-port 10/100/1000BaseT Ethernet module.
Description	A general description of the NI. For example, 24pt 10/100/1000BaseT Mod indicates a twenty four-port 10/100/1000BaseT Ethernet module.
Part Number	The Alcatel-Lucent part number for the NI.
Hardware Revision	The hardware revision level for the NI.
Serial Number	The Alcatel-Lucent serial number for the NI's printed circuit board (PCB).
Manufacture Date	The date the NI was manufactured.
Firmware Version	The firmware version for the NI's ASICs.
Admin Status	The current power status of the NI. Options include POWER ON or POWER OFF.
Operational Status	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.
Power Consumption	The current power consumption for the CMM.
Power Control Checksum	The current power control checksum for the corresponding NI.
MAC Address	The MAC address assigned to the NI.
ASIC - Physical	General information regarding the NI module's ASICs.
CPLD - Physical	General information regarding the CPLD.
UBOOT Version	UBOOT version of the NI.
UBOOT-miniboot Version	UBOOT-miniboot version of the NI.
POE SW Version	POE software version of the NI (POE modules only).
C20L Upgd FailCount	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

reload ni	Reloads (i.e., reboots) a specified Network Interface (NI) module.
power ni	Turns the power on or off for a specified Network Interface (NI) module.
show module	Displays the basic information for either a specified module or all modules installed in the chassis.
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.

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, 6855, 9000, 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

Slot	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 page 2-36 for additional information on CMM location callouts.
Part-Number	The Alcatel-Lucent part number for the module.
Serial #	The Alcatel-Lucent serial number for the module.
Rev	The hardware revision level for the module.
Date	The date the module was manufactured.
Model Name	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.

show module long

Displays the detailed information for either a specified module or all the 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 long [*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, detailed information for all the modules is displayed.

Defaults

N/A

Platforms Supported

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

Usage Guidelines

- When a module with a daughter board is viewed using the show module long command (e.g., an OS9-GNI-C24 module provides 24 10/100/1000 BaseT auto-sensing twisted-pair ports), information for the daughter board is also displayed.
- When a particular NI module is specified in the command line, output is the same as that of the **show ni** command.

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 long
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,

Module 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:   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

Model Name	The NI's module name. For example, OS9-GNI-C24 indicates a twenty four-port 10/100/1000BaseT Ethernet module.
Description	A general description of the NI. For example, 24pt 10/100/1000BaseT Mod indicates a twenty four-port 10/100/1000BaseT Ethernet module.
Part Number	The Alcatel-Lucent part number for the NI.
Hardware Revision	The hardware revision level for the NI.
Serial Number	The Alcatel-Lucent serial number for the NI's printed circuit board (PCB).
Manufacture Date	The date the NI was manufactured.
Firmware Version	The firmware version for NI's ASICs.
Admin Status	The current power status of the NI. Options include POWER ON or POWER OFF.
Operational Status	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.
Power Control Checksum	The current power control checksum for the corresponding NI.
MAC Address	The MAC address assigned to the NI.
ASIC - Physical	General information regarding the NI's ASICs.
CPLD - Physical	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.
-

show module status

Displays the basic status 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 status [*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, status information for all modules is displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 module status
```

Slot	Operational Status	Admin-Status	Firmware Rev	MAC
CMM-1	UP	POWER ON	N/A	00:d0:95:a3:e5:09
NI-1	UP	POWER ON	N/A	00:d0:95:a3:e5:0b

output definitions

Slot	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 Guide</i> . Refer to page 2-36 for additional information on CMM callouts.
Operational Status	The operational status of the module. Options include UP or DOWN. For NI and secondary CMM modules, the operational status can be DOWN while the power status is on, indicating a possible software issue.
Admin-Status	The current power status of the module. Options include POWER ON or POWER OFF.

output definitions (continued)

Firmware Rev	The firmware version for module's ASICs.
MAC	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

show module	Displays the basic information for either a specified module or all the modules installed in the chassis.
show module long	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

supply	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, 6855, 9000, 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

Model Name	The power supply's model number.
Description	A description of the associated power supply. This field will reflect the model name in most cases.
Part Number	The Alcatel-Lucent part number for the power supply.
Hardware Revision	The hardware revision level for the power supply.
Serial Number	The Alcatel-Lucent serial number for the power supply.
Manufacture Date	The date the power supply was manufactured.
Type	The type of power supply. Options include AC or IP.
Location	The location of the power supply. Options include Internal or External.
Operational Status	The operational status of the power supply. Options include UP or DOWN.
Power Provision	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, 9000, 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

Chassis	The number of the switch in a stack.
Fan	The fan number describing the fan position.
Status	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, 6855, 9000, 9000E.

Usage Guidelines

The *number* parameter is not an option when using this command on a single-chassis, standalone switch, such as the OmniSwitch 9000 and 9000E.

Examples

```
-> show temperature
```

```
Temperature for chassis 1
  Hardware Board Temperature (deg C)           = 41,
  Hardware Cpu Temperature (deg C)             = N/A,
  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,
  Hardware Cpu Temperature (deg C)             = N/A,
  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,
  Hardware Cpu Temperature (deg C)             = N/A,
  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

Hardware Board Temperature	The current chassis temperature as determined by the built-in temperature sensor. The temperature is displayed in degrees Centigrade (i.e., Celsius). This temperature is checked against the upper threshold value. If the threshold is exceeded, a warning is sent to the user.
Hardware Cpu Temperature	The current CPU temperature. The temperature is displayed in degrees Centigrade (i.e., Celsius).
Temperature Upper Threshold Range	The supported threshold range. When you specify a threshold for the switch via the temp-threshold command, values may range from 31–94.
Temperature Upper Threshold	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. Values may range from 15–94 on stackable switches and 15–70 on chassis-based switches. The default value is 60. For information on changing the upper threshold value, refer to the temp-threshold command on page 2-25 .
Temperature Range	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.
Temperature Danger Threshold	The factory-defined danger threshold. This field is not configurable. If the chassis temperature rises above 80 degrees Centigrade, 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 and the switch is manually booted.

Release History

Release 6.1; command was introduced.

Related Commands

[temp-threshold](#)

Sets the chassis warning temperature threshold.

[show fan](#)

Shows the hardware information and current status for the chassis fans.

MIB Objects

```
chasChassisTable
  chasHardwareBoardTemp
  chasHardwareCpuTemp
  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, 6855

Usage Guidelines

N/A

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)

State	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 and has automatically entered pass-through mode), CLR-SLOT (the switch has been manually “cleared” via the stack clear slot 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).
Saved Slot	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 stack set slot command. To clear a switch and designate it for pass-through mode, use the stack clear slot command.
Link A State	The current status of the stacking cable link at the switch’s stacking port A. Options include UP, DOWN, or UNKNOWN.
Link A Remote NI	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.
Link A Remote Port	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.
Link B State	The current status of the stacking cable link at the switch’s stacking port B. Options include UP, DOWN, or UNKNOWN.
Link B Remote NI	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.
Link B Remote Port	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.

Related Commands

show stack status

Displays the current redundant stacking cable status and token availability for a stacked configuration.

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, 6855

Usage Guidelines

N/A

Examples

```
-> show stack status
```

```
Redundant cable status : present  
Tokens used            : 8  
Tokens available       : 24
```

output definitions

Redundant cable status	Indicates whether a redundant stacking cable is currently installed. Options include present and not present . 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> .
Tokens used	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> .
Tokens available	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]

hash-control extended no udp-tcp-port

Syntax Definitions

brief	Sets hashing to brief mode.
extended	Sets hashing to extended mode.
udp-tcp-port	Sets hashing to use UDP/TCP ports.

Defaults

parameter	default
hash-control (6400/6850/6855)	brief
hash-control (9000/9000E)	extended
udp-tcp-port	disabled

Platforms Supported

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

Usage Guidelines

- It is recommended to disable TCP-UDP port hashing when Server Load Balancing is configured due to SLB's use of dynamic port assignments.
- 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.

Examples

```
-> hash-control brief
-> hash-control extended
-> hash-control extended udp-tcp-port
-> hash-control extended no udp-tcp-port
```

Release History

Release 6.4.2; command was introduced.

Related Commands

[show hash-control](#)

Displays the current hash control setting for the switch.

MIB Objects

alaChasHashMode

alaChasUdpTcpPortMode

show hash-control

Displays the current hash control settings for the switch.

show hash-control

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show hash-control
```

```
Hash Mode      = brief,  
Udp-Tcp-Port  = disabled
```

output definitions

Hash Mode	The current hash mode.
Udp-Tcp-Port	Status of UDP/TCP hashing

Release History

Release 6.4.2; command was introduced.

Related Commands

[hash-control](#) Configures the hash mode of the switch..

MIB Objects

```
alaChasHashMode  
alaChasUdpTcpPortMode
```

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

show license info	Displays all the licensed applications installed on the switch.
show license file	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

Application	Displays the name of the licensed applications installed on the switch.
Type	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

MAC Address	Displays the base MAC address of the switch. An asterisk indicates the MAC address of the local switch.
Application	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
```

3 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: xx:xx:xx:xx:xx:xx , where x 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, 6855, 9000, 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
<code>enable disable</code>	disable

Platforms Supported

OmniSwitch 6400, 6850, 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, 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, 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

show mac-range

Displays the MAC range table.

show mac-range [*index*]

Syntax Definitions

index Identifies the MAC range by referring to its position in the MAC range table.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Because the switch currently supports one MAC address range only, index position 1 displays.

Examples

```
-> show mac range
```

Mac Range	Row Status	Local/Global	Start Mac Addr	End Mac Addr
01	ACTIVE	GLOBAL	00:d0:95:6a:79:6e	00:d0:95:6a:79:8d

output definitions

Mac Range	The MAC range index number (1). Because the switch currently supports one MAC address range only, index position 1 displays.
Row Status	The current status of the MAC range. The status ACTIVE refers to MAC addresses that are available for allocation to VLAN router ports and other applications.
Local/Global	The Local/Global status for MAC addresses in the range. Local MAC addresses have the local bit set in the first byte of the address. Global MAC addresses (also referred to as <i>EEPROM</i> MAC addresses) have the global bit set in the first byte of the address and are stored on the switch's EEPROM. Because the switch's default MAC range is stored on EEPROM, the status GLOBAL displays.
Start Mac Addr	The first MAC address in the MAC address range.
End Mac Addr	The last MAC address in the MAC address range.

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

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, 6855, 9000, 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

Range	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 page 3-7 for more information.
Mac Address	Current MAC address allocated for a specific application.

output definitions (continued)

Application	The application for which the allocated MAC address is being used. Current options include VLAN , 802.1X , and CHASSIS . VLAN refers to MAC addresses allocated to VLAN router ports in multiple MAC router mode. CHASSIS refers to MAC addresses used for the base chassis MAC address and the Ethernet Management Port (EMP).
Id	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, 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

Admin State	Displays the administrative status of MAC retention (Enabled or Disabled).
Trap admin state	Displays the administrative status of the duplicate MAC address trap (Enabled or Disabled).
Current MAC address	Displays the MAC address currently used by the switch.
MAC address source	Displays the source of the currently used MAC address. Options include EEPROM and Retained .
Topology Status	Displays the topology status of the stack. Options include Ring present and Ring Not Present .

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

4 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 lanpower stop 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, 9000

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, 9000

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

lanpower start	Activates inline power on a single specified PoE port <i>or</i> 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 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> (OS9000)	15400	3000-18000

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

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 4-8.
- 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
<i>watts</i> (OS6850 with 360w power supply)	240
<i>watts</i> (OS6850 with 510w power supply)	390
<i>watts</i> (OS6855-14)	66
<i>watts</i> (OS6855-24)	80
<i>watts</i> (OS9000)	260

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Before changing the maximum slot-wide power allowance, you must disable PoE for the slot via the **lanpower stop** command. Once the new value is assigned, re-enable PoE for the slot via the **lanpower start** command.
- To specify the maximum amount of inline power available to a *single port*, refer to the **lanpower power** command on page 4-6.
- 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

slot/port

The particular port on which a priority level is being configured.

critical

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.

high

Intended for 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.

low

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
low high critical	low

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

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

slot	The particular slot on which the priority disconnect function is being enabled or disabled.
enable	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> .
disable	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
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

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.
critical	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.
high	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.
low	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 9000

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

enable	Enables redundant power on the switch.
disable	Disables redundant power on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 9000

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, 9000

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 specification 802.3af. 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, 9000

Usage Guidelines

N/A

Examples

```
-> show lanpower 1
```

Port	Maximum(mW)	Actual Used(mW)	Status	Priority	On/Off
1	18000	0	Undefined	Low	OFF
2	18000	0	Undefined	Low	OFF
3	18000	0	Undefined	Low	OFF
4	18000	0	Undefined	Low	OFF
5	18000	0	Undefined	Low	OFF
6	18000	0	Undefined	Low	OFF
7	18000	0	Undefined	Low	OFF
8	18000	0	Undefined	Low	OFF
9	18000	0	Undefined	Low	OFF
10	18000	0	Undefined	Low	OFF
11	18000	0	Undefined	Low	OFF
12	18000	0	Undefined	Low	OFF
13	18000	0	Undefined	Low	OFF
14	18000	0	Undefined	Low	OFF
15	18000	0	Undefined	Low	OFF
16	18000	0	Undefined	Low	OFF
17	18000	0	Undefined	Low	OFF
18	18000	0	Undefined	Low	OFF
19	18000	0	Undefined	Low	OFF
20	18000	0	Undefined	Low	OFF
21	18000	0	Undefined	Low	OFF
22	18000	0	Undefined	Low	OFF
23	18000	0	Undefined	Low	OFF
24	18000	0	Undefined	Low	OFF

(Output continued on next page)

25	18000	0	Undefined	Low	OFF
26	18000	0	Undefined	Low	OFF
27	18000	0	Undefined	Low	OFF
28	18000	0	Undefined	Low	OFF
29	18000	0	Undefined	Low	OFF
30	18000	0	Undefined	Low	OFF
31	18000	0	Undefined	Low	OFF
32	18000	0	Undefined	Low	OFF
33	18000	0	Undefined	Low	OFF
34	18000	0	Undefined	Low	OFF
35	18000	0	Undefined	Low	OFF
36	18000	0	Undefined	Low	OFF
37	18000	0	Undefined	Low	OFF
38	18000	0	Undefined	Low	OFF
39	18000	0	Undefined	Low	OFF
40	18000	0	Undefined	Low	OFF
41	18000	0	Undefined	Low	OFF
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

Port	A PoE port for which current status and related statistics are being displayed.
Maximum (mW)	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 lanpower power command.
Actual Used (mW)	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.
Status	Displays the current operational status. Options include Powered On , Powered Off , and Undefined .

output definitions (continued)

Priority	The current priority level for the corresponding PoE port. Options include Critical , High , and Low . Critical 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. High 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. Low 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).
	The default value is Low. Priority levels can be changed using the lanpower priority command.
On/Off	Displays whether a port has been manually turned on or off by the user. ON indicates that the port has been turned on by the user via the lanpower start command. OFF indicates that the port has been turned off by the user via the lanpower stop command.
Max Watts	The maximum watts available to the corresponding slot. The maximum watts value for a slot can be changed using the lanpower maxpower command.
Total Power Budget Remaining	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.
Total Power Budget Available	The total amount of power remaining, based upon the number of power supplies installed and operating in the power shelf.
Power Shelf Power Supplies Available	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.

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, 9000

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, 9000

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
```

show lanpower slot-priority

Displays the inline power priority level for the specified slot number.

`show lanpower slot-priority slot`

Syntax Definitions

slot The slot number for which to display the priority level.

Defaults

N/A

Platforms Supported

OmniSwitch 9000

Usage Guidelines

This command is not supported on the stackable PoE switches.

Examples

```
-> show lanpower slot-priority 1  
slot 1 priority Low!
```

Release History

Release 6.1.3; command was introduced.

Related Commands

[lanpower slot-priority](#) Configures an inline power priority level for a slot

MIB Objects

alaPethMainPseTable
 alaPethMainPsePriority

5 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.
prefer	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
prefer	not preferred

Platforms Supported

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

enable	Enables NTP.
disable	Disables NTP.

Defaults

NTP protocol is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

default	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.
no-loopback0	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, 6855, 9000, 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.

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, 6855, 9000, 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, 6855, 9000, 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.
trusted	Signifies that the specified key is trusted and can be used for authentication.
untrusted	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, 6855, 9000, 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, 6855, 9000, 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

- | | |
|-------------------|---|
| ntp key | Labels the specified authentication key identification as trusted or untrusted. |
| ntp server | 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

enable	Enables authentication for NTP server.
disable	Disables authentication for NTP server.

Defaults

By default, NTP authentication is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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.
enable	Enables NTP server functionality on an interface.
disable	Disables NTP sever functionality on an interface.

Defaults

By default, NTP server functionality is enabled on all the interfaces.

Platforms Supported

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

[ntp broadcast-client](#)

Enables or disables the client's broadcast mode.

[ntp broadcast-delay](#)

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, 6855, 9000, 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, 6855, 9000, 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

Current time	The current time for the NTP client.
Last NTP update	The time of the last synchronization with an NTP server.
Client mode	Whether the NTP client software is enabled or disabled.
Broadcast client mode	What NTP mode the client is running in, either client or broadcast.
Broadcast delay	The number of microseconds in the advertised broadcast delay time. This field is absent if the client broadcast mode is disabled.

server qualification	Server qualification status.
Stratum	The stratum of the server. The stratum number is the number of hops from a UTC time source.
Max-Association	Maximum association on the switch that restricts the number of client/server and peer association
Authentication	Whether Authentication is enabled or disabled
Source IP Configuration	Source IP Configuration type which is configured.
Source IP	Source IP address for NTP that send updates to clients.

Release History

Release 6.4.2; command was introduced.

Related Command

ntp client	Enables or disables NTP operation on the switch.
ntp server	Specifies an NTP server from which the switch will receive updates
ntp server synchronized	Enables an NTP client to invoke tests for NTP server synchronization as specified by the NTP protocol.
ntp max-associations	Configures the maximum number of associations on the switch.
ntp master	Specifies the stratum value for unsynchronized switch
ntp broadcast-client	Enables or disables the client's broadcast mode.
show ntp client	Displays information about the current client NTP configuration.
show ntp client server-list	Displays a list of the servers with which the NTP client synchronizes
show ntp server client-list	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, 6855, 9000, 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

Current time	The current time for the NTP client.
Last NTP update	The time of the last synchronization with an NTP server.
Client mode	Whether the NTP client software is enabled or disabled.
Broadcast client mode	What NTP mode the client is running in, either client or broadcast.
Broadcast delay	The number of microseconds in the advertised broadcast delay time. This field is absent if the client broadcast mode is disabled.
Server Qualification	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, 6855, 9000, 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

IP Address	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
Ver	The version of NTP the server is using. Versions 3 and 4 are valid.
Key	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.
St	The stratum of the server.
Delay	The delay received from the server in its timestamp.
Offset	The offset received from the server in its timestamp.
Disp	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, 6855, 9000, 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

IP Address	The client IP address.
Ver	The version of NTP the server is using. Versions 3 and 4 are valid.
Key	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, 6855, 9000, 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

IP address	The server IP address.
Host mode	The host mode of this remote association.
Peer mode	The peer mode of this remote association.
Prefer	Whether this server is a preferred server or not. A preferred server is used to synchronize the client before a non-preferred server.
Version	The version of NTP the server is using. Versions 3 and 4 are valid.
Key	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.
Stratum	The stratum of the server. The stratum number is the number of hops from a UTC time source.
Minpoll	The minimum poll time. The client will poll the server for a time update every time this limit has been exceeded.
Maxpoll	The maximum poll time.
Delay	The delay received from the server in its timestamp.
Offset	The offset received from the server in its timestamp.
Dispersion	The dispersion value received from the server in its timestamp.
Root distance	The total round trip delay (in seconds) to the primary reference source.
Precision	The advertised precision of this association.
Reference IP	The IP address identifying the peer's primary reference source.
Status	The peer selection and association status.
Uptime count	The time period (in seconds) during which the local NTP server was associated with the switch.
Reachability	The reachability status of the peer.
Unreachable count	Number of times the NTP entity was unreachable.
Stats reset count	The time delay (in seconds) since the last time the local NTP server was restarted.
Packets sent	Number of packets sent.
Packets received	Number of packets received.
Duplicate packets	Number of duplicated packets received.
Bogus origin	Number of bogus packets.
Bad authentication	Number of NTP packets rejected for not meeting the authentication standards.
Bad dispersion	Number of bad dispersions.
Last Event	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, 6855, 9000, 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

Key	The key number corresponding to a key in the key file.
Status	Whether the key is trusted or untrusted.

Release History

Release 6.1; command was introduced.

Related Command

- | | |
|---------------------|---|
| ntp key | Labels the specified authentication key identification as trusted or untrusted. |
| ntp key load | 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, 6855, 9000, 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

IP Address	Peer IP Address
Ver	The version of NTP the server is using. Versions 3 and 4 are valid.
Key	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.
St	The stratum of the server.
Delay	The delay received from the server in its timestamp.
Offset	The offset received from the server in its timestamp.
Disp	The dispersion value received from the server in its timestamp.

Release History

Release 6.4.2; command was introduced.

Related Command

ntp client	Enables or disables NTP operation on the switch.
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

```
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, 6855, 9000, 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

6 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	OS-9000	OS-6850/OS-6855/ OS-6400	OS-6800 (supports only v4)
Telnet(v4 or v6)	4	4	4
FTP(v4 or v6)	4	4	4
SSH + SFTP(v4 or v6 secure sessions)	8	8	8
HTTP	4	4	4
Total Sessions	20	20	20
SNMP	50	50	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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> session login-attempt 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. |
| session login-timeout | Sets or resets the amount of time the user can take to accomplish a successful login to the switch. |
| session timeout | 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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> session login-timeout 30
```

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, default prompt value, login timer, and login attempt number.

[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 timeout](#) 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

cli	Creates/modifies the CLI banner file name.
ftp	Creates/modifies the FTP banner file name.
http	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, 6855, 9000, 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

cli	Sets the inactivity timeout for CLI sessions.
http	Sets the inactivity timeout for HTTP sessions.
ftp	Sets the inactivity timeout for FTP sessions.
<i>minutes</i>	Inactivity timeout value (in minutes). Valid range 1 to 596523.

Defaults

parameter	default
<i>minutes</i>	4

Platforms Supported

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

user	The name of the current user is displayed as part of the CLI prompt.
time	The current system time is displayed as part of the CLI prompt.
date	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.
prefix	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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

alias	Defines substitute command text for the switch's CLI command keywords.
prompt	Defines substitute command text for the switch's CLI command keywords.
more size	Specifies the number of lines that your console screen will display.
user profile reset	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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> user profile reset
```

Release History

Release 6.1; command was introduced.

Related Commands

alias	Defines substitute command text for the switch's CLI command keywords.
prompt	Defines substitute command text for the switch's CLI command keywords.
more size	Specifies the number of lines that your console screen will display.
user profile save	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, 6855, 9000, 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, 6855, 9000, 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

History Size	The size of the history buffer.
Current Size	The number of commands currently stored in the history buffer for this session.
Index Range	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

!	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, 6855, 9000, 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

enable	Creates a file called command.log in the switch's /flash directory. Any configuration commands entered on the command line will be recorded to this file until command logging is disabled.
disable	Disables logging of current session commands to the command.log file.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

show command-log	Displays the contents of the command.log file.
show command-log status	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, 6855, 9000, 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, 6855, 9000, 9000E

Usage Guidelines

If changes were made using the CLI and have not been saved with the [copy running-config working](#) command, a warning message appears asking to confirm the user exit. To save changes, enter **N** at the warning prompt and use the [copy running-config working](#) 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, 6855, 9000, 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

Session Number	The session number assigned to the user.
User name	User name.
Access type	Type of access protocol used to connect to the switch.
Access port	Switch port used for access during this session.
Ip Address	User IP address.
Read-only domains	The command domains available with the user's read-only access. See the table beginning on page 6-28 for a listing of valid domains.
Read-only families	The command families available with the user's read-only access. See the table beginning on page 6-28 for a listing of valid families.
Read-Write domains	The command domains available with the user's read-write access. See the table beginning on page 6-28 for a listing of valid domains.

output definitions

Read-Write families	The command families available with the user's read-write access. See the table beginning on page 6-28 for a listing of valid families.
End-User Profile	The name of an end-user profile associated with the user.

Possible values for command domains and families are listed here:

domain	families
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

who	Displays all active login sessions (e.g., Console, Telnet, FTP, HTTP, Secure Shell, and Secure Shell FTP).
kill	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, 6855, 9000, 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

Session Number	The session number assigned to the user.
User name	User name.
Access type	Type of access protocol used to connect to the switch.
Access port	Switch port used for access during this session.

output definitions (continued)

Ip Address	User IP address.
Read-only domains	The command domains available with the user's read-only access. See the table beginning on page 6-31 for a listing of valid domains.
Read-only families	The command families available with the user's read-only access. See the table beginning on page 6-31 for a listing of valid families.
Read-Write domains	The command domains available with the user's read-write access. See the table beginning on page 6-31 for a listing of valid domains.
Read-Write families	The command families available with the user's read-write access. See the table beginning on page 6-31 for a listing of valid families.
End-User Profile	The name of an end-user profile associated with the user.

Possible values for command domains and families are listed here:

domain	families
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

whoami	Displays current user session.
kill	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, 6855, 9000, 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

Cli Default Prompt	Default prompt displayed for CLI sessions.
Cli Banner File Name	Name of the file that contains the banner information that will appear during a CLI session.
Cli Inactivity Timer in minutes	Inactivity timer value (in minutes) for CLI sessions. The user is logged off when this value is exceeded.
Ftp Banner File Name	Name of the file that contains the banner information that will appear during an FTP session.
Ftp Inactivity Timer in minutes	Inactivity timer value (in minutes) for FTP sessions. The user is logged off when this value is exceeded.
Http Inactivity Timer in minutes	Inactivity timer value (in minutes) for HTTP (including WebView) sessions. The user is logged off when this value is exceeded.

output definitions (continued)

Login Timer in seconds	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.
Maximum number of Login Attempts	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

session prompt	Configures the default CLI prompt for console and Telnet sessions.
session banner	Sets the file name of the user-defined banner.
session timeout	Configures the inactivity timer for a CLI, HTTP (including Web-View), or FTP interface.
session login-attempt	Sets the number of times a user can attempt to log into the switch unsuccessfully before the TCP connection is closed.
session login-timeout	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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

show more

Shows the number of TTY lines and columns to be displayed.

more size

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, 6855, 9000, 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}
```

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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 6-1](#) 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*]

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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 6-1](#) 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.
enable	Administratively enables Secure Shell on the switch.
disable	Administratively disables Secure Shell on the switch.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You must have a valid username and password for the specified host.
- Refer to the table on [page 6-1](#) 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

telnet	Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.
sftp	Starts an SFTP session. An SFTP session provides a secure file transfer method.
ssh6	Invokes Secure Shellv6 on the switch. Secure Shellv6 is used to make a secured connection to an SSHv6 server.
show ssh config	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, 6855, 9000, 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 6-1](#) 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

telnet6	Invokes a Telnetv6 session. A Telnetv6 session is used to connect to a remote system or device over an IPv6 network
sftp6	Starts an SFTPv6 session. An SFTPv6 session provides a secure file transfer method.
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

```
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

enable Enforces only SSH public key authentication.

disable Enforces both SSH public key and password authentication.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

telnet Invokes a Telnet session. A Telnet session is used to connect to a remote system or device.

sftp 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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ssh config
SSH = Enabled
SCP/SFTP = Enabled
Public Key Authentication Enforced = False
```

output definitions

SSH	Displays the SSH status (enabled or disabled).
SCP/SFTP	Displays the SCP/SFTP status (enabled or disabled).
Public Key Authentication Enforced	Displays whether the Public Key Authentication is enforced. Options include true or false .

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 6-24](#).

show command-log

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Command	The exact syntax of the command, as entered by the user.
UserName	The name of the user session that entered the command. For more information on different user session names, refer to the user command on page 58-45 , or the “Managing Switch User Accounts” chapter in the <i>OmniSwitch AOS Release 6 Switch Management Guide</i> .
Date	The date and time, down to the second, when the command was entered.
IpAddr	The IP address of the terminal from which the command was entered.
Result	The outcome of the command entry. Options include SUCCESS and ERROR . 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

command-log	Enables or disables command logging on the switch.
show command-log status	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 6-24](#).

show command-log status

Syntax Definitions

N/A

Defaults

Command logging is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show command-log status
CLI command logging : Enable
```

output definitions

CLI command logging	The current status of command logging on the switch. Options include Disable and Enable . Disable indicates that the command logging function is currently disabled (default). Enable indicates that the command logging function has been enabled via the command-log command. For more information, refer to page 6-24 .
----------------------------	--

Release History

Release 6.1; command was introduced.

Related Commands

command-log	Enables or disables command logging on the switch.
show ssh config	Displays the contents of the command.log file.

MIB Objects

sessionCliCommandLogStatus

7 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:

File System	cd pwd mkdir rmdir ls dir rename rm delete cp scp mv move chmod attrib freespace fsck newfs rcp rrm rls
System Services	vi view tty show tty more ftp ftp6 scp-sftp show ssh config sftp sftp6 tftp rz

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, 6855, 9000, 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

<code>pwd</code>	Displays the switch's current working directory.
<code>mkdir</code>	Creates a new directory.
<code>rmdir</code>	Deletes an existing directory.
<code>ls</code>	Displays the contents of a specified directory or the current working directory.
<code>dir</code>	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, 6855, 9000, 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

cd	Changes the switch's current working directory.
mkdir	Creates a new directory.
rmdir	Deletes an existing directory.
ls	Displays the contents of a specified directory or the current working directory.
dir	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, 6855, 9000, 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

cd	Changes the switch's current working directory.
pwd	Displays the switch's current working directory.
rmdir	Deletes an existing directory.
ls	Displays the contents of a specified directory or the current working directory.
dir	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

path

The path containing the directory to be removed. If no path is specified, the command assumes the current path.

dir

The name of the existing directory being removed. Up to thirty-two (32) characters may be used (e.g., **test_directory**).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

cd	Changes the switch's current working directory.
pwd	Displays the switch's current working directory.
mkdir	Creates a new directory.
ls	Displays the contents of a specified directory or the current working directory.
dir	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

-r	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 ls and -r (i.e., ls -r).
<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, 6855, 9000, 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

cd	Changes the switch's current working directory.
pwd	Displays the switch's current working directory.
mkdir	Creates a new directory.
rmdir	Deletes an existing directory.
dir	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, 6855, 9000, 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

cd	Changes the switch's current working directory.
pwd	Displays the switch's current working directory.
mkdir	Creates a new directory.
rmdir	Deletes an existing directory.
ls	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, 6855, 9000, 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

-r	Syntax that <i>recursively</i> removes directories, as well as any associated subdirectories and files. Be sure to include a space between the syntax rm and -r (i.e., rm -r).
<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., test_config_file).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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 7-19](#).
- 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, 6855, 9000, 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, 6855, 9000, 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

+w	Enables read-write privileges for the file.
-w	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, 6855, 9000, 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, 6855, 9000, 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

/flash	Indicates that the file system check will be performed on the /flash directory.
no-repair	Performs only the file system check on the /flash directory.
repair	Performs file system check on the /flash directory and also repairs any errors found on the file system.

Defaults

parameter	default
no-repair repair	no-repair

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 a complete **/flash** file system and all files within it, replacing it with a new, empty **/flash** file system. Use this command when you want to reload all files in the file system or in the unlikely event that the **/flash** file system becomes corrupt.

newfs /flash

Syntax Definitions

/flash Required syntax. This indicates that the complete flash file system will be replaced.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
```

Release History

Release 6.1; command was introduced.

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.
cmm-b:	Specifies the secondary CMM. This parameter is available on OmniSwitch chassis-based switches only.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855-U24X, 9000, 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, 6855-U24X, 9000, 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, 6855-U24X, 9000, 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 9000 switches:

```
-> rls /flash
-rw      327  Sep 13 16:46  boot.params
drw     1024  Sep 13 16:46  certified/
drw     1024  Sep 13 16:45  working/
-rw    64000  Sep 13 16:46  swlog1.log
-rw    64000  Sep  8 21:24  swlog2.log
drw     1024  Sep 13 16:45  switch/
drw     1024  Sep 10 17:34  network/
-rw      256  Sep 13 16:41  random-seed
drw     1024  Jun 22  1986  tk.dir/
```

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, 6855, 9000, 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

path

The path directory leading to the file being viewed. If no path is specified, the command assumes the current directory.

filename

The name of the existing file being viewed. Up to thirty-two (32) characters may be used (e.g., **test_config_file**).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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:

ascii	Set transfer type to ASCII (7-bit).
binary	Set transfer type to binary (8-bit).
bye	Close session gracefully.
cd	Change to a new directory on the remote machine.
delete	Delete a file on the remote machine.
dir	Obtain a long listing on the remote machine.
get	Retrieve a file from the remote machine.
hash	Print the hash symbol (#) for every block of data transferred. (This command toggles hash enabling and disabling.)
ls	Display summary listing of the current directory on the remote host.
put	Send a file to the remote machine.
pwd	Display the current working directory on the remote host.
quit	Close session gracefully.
remotehelp	List the commands that the remote FTP server supports.
user	Send new user information.
lpwd	Display the current working directory on the local host.
?	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

sftp	Starts an SFTP session.
ftp6	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, 6855, 9000, 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:

ascii	Set transfer type to ASCII (7-bit).
binary	Set transfer type to binary (8-bit).
bye	Close session gracefully.
cd	Change to a new directory on the remote machine.
close	Terminate the ftp session.
delete	Delete a file on the remote machine.
dir	Obtain a long listing on the remote machine.
get	Retrieve a file from the remote machine.
hash	Print the hash symbol (#) for every block of data transferred. (This command toggles hash enabling and disabling.)
help	Display list of available FTP commands.
lcd	Change to a new directory on the local machine.

ls	Display summary listing of the current directory on the remote host.
?	Display list of available FTP commands.
mgets	Receive multiple files.
mputs	Receive multiple files.
prompt	Enable/disable interactive prompting.
put	Send a file to the remote machine.
pwd	Print current working directory.
quit	Close session gracefully.
remotehelp	List the commands that the remote FTP server supports.
user	Send new user information.
ls	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, 6855, 9000, 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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ssh config
SSH = Enabled
SCP/SFTP = Enabled
Public Key Authentication Enforced = False
```

output definitions

SSH	Displays the SSH status (enabled or disabled).
SCP/SFTP	Displays the SCP/SFTP status (enabled or disabled).
Public Key Authentication Enforced	Displays whether the Public Key Authentication is enforced. Options include true or false .

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, 6855, 9000, 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:

cd path	Change remote path to 'path'.
lcd path	Change local directory to 'path'.
chmod mode path	Change permissions of file 'path' to 'mode'.
help	Display command help information.
get remote-path [local path]	Download a file from the remote path to the local path.
lls [path]	Display local directory listing.
ln oldpath newpath	Creates a symbolic link (symlink) to the remote file.
symlink oldpath newpath	Creates a symbolic link (symlink) to the remote file.
mkdir path	Create local directory.
lpwd	Print local working directory.
ls [path]	Display remote directory listing.
mkdir path	Create remote directory.
put local-path [remote-path]	Upload file.
pwd	Display remote working directory.
exit	Quit the sftp mode.

quit	Exit the sftp mode.
rename oldpath newpath	Rename a remote file.
rmdir path	Remove remote directory.
rm path	Delete remote file.
version	Show the current SFTP version.
?	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

ftp	Starts an FTP session.
ssh	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, 6855, 9000, 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:

cd path	Change remote path to 'path'.
lcd path	Change local directory to 'path'.
chmod mode path	Change permissions of file 'path' to 'mode'.
help	Display command help information.
get remote-path [local path]	Download a file from the remote path to the local path.
lls [path]	Display local directory listing.
ln oldpath newpath	Creates a symbolic link (symlink) to the remote file.
symlink oldpath newpath	Creates a symbolic link (symlink) to the remote file.
mkdir path	Create local directory.
lpwd	Print local working directory.
ls [path]	Display remote directory listing.

mkdir path	Create remote directory.
put local-path [remote-path]	Upload file.
pwd	Display remote working directory.
exit	Quit the sftp mode.
quit	Exit the sftp mode.
rename oldpath newpath	Rename a remote file.
rmdir path	Remove remote directory.
rm path	Delete remote file.
version	Show the current SFTP version.
?	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

ftp6	Starts an FTP6 session.
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
```

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.
get	Specifies to download the file from the TFTP server.
put	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.
ascii	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, 6855, 9000, 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, 6855, 9000, 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
```

8 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, 6855, 9000, 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

http ssl	Enables/disables SSL on the switch.
debug http sessiondb	Displays web management session information.
show http	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, 6855, 9000, 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

ip	Optional syntax.
default	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, 6855, 9000, 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

http server	Enables/disables web management on the switch.
show http	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.
<i>port</i>	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, 6855, 9000, 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, 6855, 9000, 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

Sess	The first number is the session number.
SessName	Unique ID assigned by the browser.
Name	User name.
TimeOut	User-configured inactivity timer, in minutes.
Status	Session status. If the user has successfully logged in, the status is "Authenticated."
URL Name&StatMsg	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, 6855, 9000, 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

Web Management	Indicates whether web management is enabled (on) or disabled (off) on the switch.
Force SSL	Indicates whether Force SSL is enabled (on) or disabled (off) on the switch. If this is set to on 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.
Web Management Http Port	The port configured for the HTTP connection.
Web Management Https Port	The port configured for a secure HTTP connection (SSL enabled).

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.
http port	Changes the port number for the embedded Web server in the switch.
https port	Changes the default secure HTTP (HTTPS) port for the embedded Web server.

MIB Objects

```
alaIND1WebMgtConfigMIBGroup
  alaInd1WebMgtAdminStatus
  alaInd1WebMgtSsl
  alaInd1WebMgtHttpPort
  alaInd1WebMgtHttpsPort
```

9 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., newfile1).
at <i>hh:mm</i> { <i>dd month / 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 month 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.
in <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.
verbose	When verbose 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, 6855, 9000, 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 58-49](#).

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
```

configuration error-file limit

Specifies the maximum number of configuration error files allowed in the switch's **/flash** directory. Error files are normally generated when a configuration file is applied to the switch. Error files are identified by their **.err** extension. When the maximum number of **.err** files is exceeded, any new error file will overwrite the **.err** file with the oldest timestamp.

configuration error-file limit *number*

Syntax Definitions

number Indicate the number of error files allowed in the **/flash** directory. The valid range is from 1 to 25 files.

Defaults

parameter	default
<i>number</i>	1

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- When the error file limit is set to 1 (the default value), the next error file generated by the switch will replace the existing one.
- When the error file limit is set to a value greater than 1, when a new error file that exceeds the maximum limit is created, the switch will automatically remove the error file with the smallest timestamp.
- The error files generated by the switch have the **.err** extension.
- If you want to save an error file, you may change the file name so that it does not have the **.err** extension, or you can move it from the **/flash** directory.

Examples

```
-> configuration error-file limit 2
-> configuration error-file limit 1
```

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.

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, 6855, 9000, 9000E

Usage Guidelines

- A timer session can be scheduled using the [configuration apply](#) command. For more information, refer to [page 9-2](#).
- 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, 6855, 9000, 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, 6855, 9000, 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

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		

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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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
```

10 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:

SNMP station commands	snmp station snmp source ip preferred show snmp station
SNMP community map commands	snmp community map snmp community map mode show snmp community map
SNMP security commands	snmp security show snmp security show snmp statistics show snmp mib family
SNMP trap commands	snmp trap absorption snmp trap to webview snmp trap replay snmp trap filter snmp authentication trap show snmp trap replay show snmp trap filter snmp authentication trap show snmp trap config

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.
<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.
v1	Specifies that traps are sent using SNMP version 1.
v2	Specifies that traps are sent using SNMP version 2.
v3	Specifies that traps are sent using SNMP version 3.
enable	Enables the specified SNMP station.
disable	Disables the specified SNMP station.

Defaults

parameter	default
<i>udp_port</i>	162
v1 v2 v3	v3
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

default	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.
no-loopback	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, 6855, 9000, 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.

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, 6855, 9000, 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

IPAddress	IP Address of the SNMP management station that replayed the trap. Note: OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
UDP Port	UDP port number.
Status	The Enabled/Disabled status of the SNMP management station.
Protocol	The version of SNMP set for this management station.
User	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.
enable	Enables SNMP community string mapping.
disable	Disables SNMP community string mapping.

Defaults

By default, SNMP community map authentication is enabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enables SNMP community map database.
disable	Disables SNMP community map database.

Defaults

By default, SNMP community strings database is enabled.

Platforms Supported

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

Status	The Enabled/Disabled status of the community string.
Community String	The text that defines the community string.
User Name	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

no security	The switch will accept all SNMP v1, v2, and v3 requests.
authentication set	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.
authentication all	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.
privacy set	The switch will accept <i>only</i> authenticated SNMP v3 get, get-next and encrypted v3 set requests. All other requests will be rejected.
privacy all	The switch will accept only encrypted v3 get, get-next, and set requests. All other requests will be rejected.
trap only	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, 6855, 9000, 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
no security	accepted	accepted	accepted	accepted	accepted	accepted
authentication set	rejected	accepted	accepted	accepted	accepted	accepted
authentication all	rejected	rejected	accepted	accepted	accepted	accepted
privacy set	rejected	rejected	rejected	accepted	accepted	accepted
privacy all	rejected	rejected	rejected	rejected	accepted	accepted
trap only	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, 6855, 9000, 9000E

Usage Guidelines

Refer to the command on page [10-12](#) 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, 6855, 9000, 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

From RFCxxxx	Displays the RFC number that defines the SNMP MIB objects listed.
MIB Objects	Name of the MIB object listed as an SNMP statistic.
= (integer)	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

show snmp mib family

Displays SNMP MIB information. Information includes MIP ID number, MIB table name, and command family.

```
show snmp mib family [table_name]
```

Syntax Definitions

table_name The name of the MIB table to be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If a table name is not specified in the command syntax, all MIB table names will be displayed.
- If the command family is not valid for the entire MIB table, the command family will be displayed on a per-object basis.
- Table names are case-sensitive. Therefore, use the exact table names from the MIB database.

Examples

```
-> show snmp mib family trapStationTable
MIP ID   MIB TABLE NAME                               FAMILY
-----+-----+-----
 73733   trapStationTable                             snmp
```

output definitions

MIP ID	Identification number for the MIP associated with this MIB Table.
MIB Table Name	Name of the MIB table.
Family	Command family to which this MIB table belongs.

Release History

Release 6.1; command was introduced.

Related Commands

[show snmp trap filter](#) Displays the SNMP trap filter information.

snmp trap absorption

Enables or disables the trap absorption function.

snmp trap absorption {enable | disable}

Syntax Definitions

enable	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.
disable	Disables SNMP trap absorption.

Defaults

By default, trap absorption is enabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	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.
disable	Disables WebView forwarding.

Defaults

By default, WebView forwarding is enabled.

Platforms Supported

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

[show snmp trap filter](#)

Displays the current SNMP trap filter status.

[show snmp trap config](#)

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

enable	Enables authentication failure trap forwarding. When enabled, the standard authentication failure trap is sent each time an SNMP authentication failure is detected.
disable	Disables authentication failure trap forwarding.

Defaults

By default, authentication failure trap forwarding is disabled.

Platforms Supported

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

IPAddress	IP address of the SNMP station manager that replayed the trap. Note: OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
Oldest Replay Number	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, 6855, 9000, 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

IPAddress	IP address of the SNMP management station that recorded the traps. Note: OmniSwitch stackable and chassis-based switches support both IP and IPv6 SNMP stations.
TrapId List	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, 6855, 9000, 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, 6855, 9000, 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

Id	Identification number for the trap.
Trap Name	Name of the trap.
Family	Family to which the trap belongs.
Absorption	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

11 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, 6855, 9000, 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

ip name-server	Specifies the IP addresses of up to three servers to query on a host lookup.
ipv6 name-server	Specifies 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.
show dns	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.
all	Removes all configured DNS servers.

Defaults

N/A

Platforms Supported

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

ip domain-name

Sets or deletes the default domain name for DNS lookups.

ip domain-name *name*

no ip domain-name

Syntax Definitions

name The default domain name for host lookups.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to delete the default domain name.
- Use this command to set the default domain name for DNS lookups.

Examples

```
-> ip domain-name company.com  
-> no ip domain-name
```

Release History

Release 6.1; command was introduced.

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	Specifies the IPv6 addresses of up to three IPv6 DNS servers to query on a host lookup.
show dns	Displays the current DNS resolver configuration and status.

MIB Objects

```
systemDNS  
  systemDNSDomainName
```

show dns

Displays the current DNS resolver configuration and status.

show dns

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Resolver is	Indicates whether the DNS resolver is enabled or disabled.
domainName	Indicates the default domain name assigned to the DNS lookups. This value is set using the ip domain-name command.
IPv4 nameServer(s)	Indicates the IP address(es) of the IPv4 DNS server(s). These addresses are set using the ip name-server command. Note: This field is represented as nameServer(s) in OmniSwitch 6800.
IPv6 nameServer(s)	Indicates the IPv6 address(es) of the IPv6 DNS server(s). These addresses are set using the ipv6 name-server 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

12 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:

Static link aggregates	static linkagg size static linkagg name static linkagg admin state static agg agg num
Dynamic link aggregates	lACP linkagg size lACP linkagg name lACP linkagg admin state lACP linkagg actor admin key lACP linkagg actor system priority lACP linkagg actor system id lACP linkagg partner system id lACP linkagg partner system priority lACP linkagg partner admin key lACP agg actor admin key lACP agg actor admin state lACP agg actor system id lACP agg actor system priority lACP agg partner admin state lACP agg partner admin system id lACP agg partner admin key lACP agg partner admin system priority lACP agg actor port priority lACP agg partner admin port lACP agg partner admin port priority
Static and dynamic	show linkagg show linkagg port

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”).
enable	Specifies that the static aggregate group is active and is able to aggregate links.
disable	Specifies that the static aggregate group is inactive and not able to aggregate links.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 12-9](#) 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, 6855, 9000, 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

static linkagg size	Creates a static aggregate group.
show linkagg	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.
enable	Specifies that the static aggregate group is active and is able to aggregate links.
disable	Specifies that the static aggregate group is inactive and not able to aggregate links.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

static linkagg size	Creates a static aggregate group.
show linkagg	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 | gigaethernet] slot/port agg num agg_num
```

```
static agg no [ethernet | fastethernet | gigaethernet] slot/port
```

Syntax Definitions

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaethernet	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, 6855, 9000, 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 **gigaethernet** keywords do not modify a port's configuration. See [Chapter 19, "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”).
enable	Specifies that the dynamic aggregate group is active and is able to aggregate links.
disable	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, 6855, 9000, 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 12-3](#) 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, 6855, 9000, 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.
enable	Specifies that the dynamic aggregate group is active and is able to aggregate links.
disable	Specifies that the operation of a dynamic aggregate group cannot be performed.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

lacp linkagg size

Creates a dynamic aggregate group.

show linkagg

Displays information about static and dynamic (LACP) aggregate groups.

show linkagg port

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

agg_num

The number corresponding to the dynamic aggregate group.

actor_admin_key

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, 6855, 9000, 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

[lacp linkagg size](#)

Creates a dynamic aggregate group.

[show linkagg](#)

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, 6855, 9000, 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

lacp linkagg size	Creates a dynamic aggregate group.
show linkagg	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, 6855, 9000, 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

lacp linkagg size	Creates a dynamic aggregate group.
show linkagg	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, 6855, 9000, 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, 6855, 9000, 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

lacp linkagg size	Creates a dynamic aggregate group.
show linkagg	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, 6855, 9000, 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

lacp linkagg size	Creates a dynamic aggregate group.
show linkagg	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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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.
actor admin state	See the lacp agg actor admin state command on page 12-25 .
<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.
partner admin state	See the lacp agg partner admin state command on page 12-31 .
<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, 6855, 9000, 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 19, "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

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
  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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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.
active	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.
timeout	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.
aggregate	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.
synchronize	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.
collect	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.
distribute	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.
default	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, 6855, 9000, 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 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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

parameter	default
<i>actor_system_id</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaethernet	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

parameter	default
<i>actor_system_priority</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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.
active	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.
timeout	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.
aggregate	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.
synchronize	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.
collect	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.
distribute	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.
default	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, 6855, 9000, 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 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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

parameter	default
<i>partner_admin_system_id</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaethernet	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

parameter	default
<i>partner_admin_key</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 19, "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

lacp linkagg size

Creates a dynamic aggregate group.

show linkagg port

Displays detailed information about ports associated with a particular aggregate group or all aggregate groups.

show linkagg port

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 | gigaehternet] slot/port partner admin system priority
partner_admin_system_priority
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin system priority
```

Syntax Definitions

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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

parameter	default
<i>partner_admin_system_priority</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 **gigaehternet** keywords do not modify a port's configuration. See [Chapter 19, "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 | gigaethernet] slot/port actor port priority actor_port_priority
```

```
lacp agg [ethernet | fastethernet | gigaethernet] slot/port no actor port priority
```

Syntax Definitions

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaethernet	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

parameter	default
<i>actor_port_priority</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 **gigaethernet** keywords do not modify a port's configuration. See [Chapter 19, "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 | gigaehternet] slot/port partner admin port partner_admin_port
```

```
lacp agg [ethernet | fastethernet | gigaehternet] slot/port no partner admin port
```

Syntax Definitions

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaehternet	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, 6855, 9000, 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 **gigaehternet** keywords do not modify a port's configuration. See [Chapter 19, "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

ethernet	Documents that the port is 10 Mbps Ethernet.
fastethernet	Documents that the port is 100 Mbps Fast Ethernet.
gigaethernet	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, 6855, 9000, 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 19, "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

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, 6855, 9000, 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

Number	The aggregate group number.
Aggregate	The type of aggregate group, which can be Static or Dynamic .
SNMP Id	The SNMP ID associated with the aggregate group.
Size	The number of links in this aggregate group.

output definitions (continued)

Admin State	The current administrative state of the aggregate group, which can be ENABLED or DISABLED . You can modify this parameter with the static linkagg admin state command (see page 12-6) for static aggregate groups and with the lacp linkagg admin state command (see page 12-13) for dynamic aggregate groups.
Oper State	The current operational state of the aggregate group, which can be UP or DOWN .
Att Ports	The number of ports actually attached to this aggregate group.
Sel Ports	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 fields are defined here:

output definitions

SNMP Id	The SNMP ID associated with this static aggregate group.
Aggregate Number	The group number.
SNMP Descriptor	The standard MIB name for this static aggregate group.
Name	The name of this static aggregate group. You can modify this parameter with the static linkagg name command (see page 12-5).
Admin State	The administrative state of this static aggregate group, which can be ENABLED or DISABLED . You can modify this parameter with the static linkagg admin state command (see page 12-6).
Operational State	The operational state of this static aggregate group, which can be UP or DOWN .
Aggregate Size	The number of links configured for this static aggregate group.
Number of Selected Ports	The number of ports that could possibly attach to this static aggregate group.
Number of Reserved Ports	The total number of ports reserved for use in link aggregation by this static aggregate group. (Note: This field is not relevant for static aggregate groups.)

output definitions (continued)

Number of Attached Ports	The number of ports actually attached to this static aggregate group.
Primary Port	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
```

Output fields are defined here:

output definitions

SNMP Id	The SNMP ID associated with this dynamic aggregate group.
Aggregate Number	The group number of this dynamic aggregate group.
SNMP Descriptor	The standard MIB name for this dynamic aggregate group.
Name	The name of this dynamic aggregate group. You can modify this parameter with the lacp linkagg name command (see page 12-12).
Admin State	The administrative state of this dynamic aggregate group, which can be ENABLED or DISABLED . You can modify this parameter with the lacp linkagg admin state command (see page 12-13).
Operational State	The operational state of this dynamic aggregate group, which can be UP or DOWN .
Aggregate Size	The number of links configured for this dynamic aggregate group.
Number of Selected Ports	The number of ports available to this dynamic aggregate group.
Number of Reserved Ports	The total number of ports reserved for use in link aggregation by this dynamic aggregate group.
Number of Attached Ports	The number of ports actually attached to this dynamic aggregate group.

output definitions (continued)

Primary Port	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.
MACAddress	The MAC address associated with the primary port.
Actor System Id	The MAC address of this dynamic aggregate group. You can modify this parameter with the lACP linkagg actor system id command (see page 12-17).
Actor System Priority	The priority of this dynamic aggregate group. You can modify this parameter with the lACP linkagg actor system priority command (see page 12-16).
Actor Admin Key	The administrative key associated with this dynamic aggregate group. You can modify this parameter with the lACP linkagg actor admin key command (see page 12-15).
Actor Oper Key	The operational key associated with this dynamic aggregate group.
Partner System Id	The MAC address of the remote dynamic aggregate group. You can modify this parameter with the lACP linkagg partner system id command (see page 12-18).
Partner System Priority	The priority of the remote system to which this dynamic aggregation group is attached. You can modify this parameter with the lACP linkagg partner system priority command (see page 12-20).
Partner Admin Key	The administrative key for this dynamic aggregation group's remote partner. You can modify this parameter with the lACP linkagg partner admin key command (see page 12-21).
Partner Oper Key	The operational key of the remote system to which the dynamic aggregation group is attached.

Release History

Release 6.1; command was introduced.

Related Commands

static linkagg size	Creates a static aggregate group.
lACP linkagg size	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

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 static linkagg size or lACP linkagg size 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, 6855, 9000, 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
1/9	Static	1009	ATTACHED	1	UP	UP	YES
1/10	Static	1010	ATTACHED	1	UP	UP	NO
1/11	Static	1011	ATTACHED	2	UP	UP	YES

```
-> show linkagg 1 port
```

Slot/Port	Aggregate	SNMP Id	Status	Agg	Oper	Link	Prim
1/9	Static	1009	ATTACHED	1	UP	UP	YES
1/10	Static	1010	ATTACHED	1	UP	UP	NO

Output fields are defined here:

output definitions

Slot/Port	The slot/port associated with the aggregate group.
Aggregate	The type of aggregate group associated with the port, either Static or Dynamic .
SNMP Id	The SNMP ID associated with the aggregate group.
Status	The current status of the port (ATTACHED, CONFIGURED, PENDING, SELECTED, or RESERVED).
Agg	The number of the aggregate groups associated with this port.
Oper	The current operational state of the port (UP or DOWN).
Link	The current operational state of the link from this port to its remote partner (UP or DOWN).
Prim	Whether or not the port is the primary port in the link agg.

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 fields are defined here:

output definitions

SNMP Id	The SNMP ID associated with this port.
Slot/Port	The slot and port number.
Administrative State	The current administrative state of this port (ENABLED or DISABLED).
Operational State	The current operational state of the port (UP or DOWN).
Port State	The current operational state of the port (CONFIGURED, PENDING, SELECTED, or RESERVED).
Link State	The current operational state of the link from this port to its remote partner (UP or DOWN).
Selected Agg Number	The number associated with the static aggregate group to which the port is attached.
Port position in the aggregate	The rank of this port within the static aggregate group (0–15).
Primary Port	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
```

Output fields are defined here:

output definitions

SNMP Id	The SNMP ID associated with this port.
Slot/Port	The slot and port number.
Administrative State	The current administrative state of this port (ENABLED or DISABLED).
Operational State	The current operational state of the port (UP or DOWN).
Port State	The current operational state of the port (CONFIGURED , PENDING , SELECTED , or AGGREGATED).
Link State	The current operational state of the link from this port to its remote partner (UP or DOWN).
Selected Agg Number	The number associated with the dynamic aggregate group to which the port is attached.
Primary Port	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.

output definitions (continued)

Actor System Priority	The actor system priority of this port. Configured through the lACP agg actor system priority command.
Actor System Id	The actor system ID (i.e., MAC address) of this port. Configured through the lACP agg actor system id command.
Actor Admin Key	The actor administrative key value for this port. Configured through the lACP agg actor admin key command.
Actor Oper Key	The actor operational key associated with this port.
Partner Admin System Priority	The administrative priority of the remote system to which this port is attached. Configured through the lACP agg partner admin system priority command.
Partner Oper System Priority	The operational priority of the remote system to which this port is attached.
Partner Admin System Id	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 lACP agg partner admin system id command.
Partner Oper System id	The MAC address that corresponds to the remote partner's system ID.
Partner Admin Key	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 lACP agg partner admin key command.
Partner Oper Key	The current operational value of the key for the protocol partner.
Attached Agg ID	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.
Actor Port	The port number locally assigned to this port.
Actor Port Priority	The actor priority value assigned to the port. Configured through the lACP agg actor port priority command.
Partner Admin Port	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 lACP agg partner admin port command.
Partner Oper Port	The operational port number assigned to the port by the port's protocol partner.
Partner Admin Port Priority	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 lACP agg partner admin port priority command.
Partner Oper Port Priority	The priority value assigned to the this port by the partner.
Actor Admin State	The administrative state of the port. Configured through the lACP agg actor admin state command.

output definitions (continued)

Actor Oper State	The current operational state of the port.
Partner Admin State	The administrative state of the partner's port. Configured through the lACP agg partner admin state command.
Partner Oper State	The current operational state of the partner's port.

Release History

Release 6.1; command was introduced.

Release 6.3.4; *agg_num* parameter added.

Related Commands

static agg agg num	Configures a slot and port for a static aggregate group.
lACP agg actor admin key	Configures a slot and port for a dynamic aggregate group.
show linkagg	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

```

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:

Mapping Adjacency Protocol	amap
	amap discovery time
	amap common time
	show amap

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

enable	Enables AMAP.
disable	Disables AMAP.

Defaults

By default, AMAP is enabled on the switch.

Platforms Supported

OmniSwitch 6400, 6800, 6850, 6855, 9000

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

amap discovery time	Sets the discovery transmission time interval used by active Spanning Tree ports in the discovery transmission state.
amap common time	Sets the common transmission time interval used by active Spanning Tree ports in the common transmission state.
show amap	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, 9000, 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

amap	Enables (default) or disables AMAP on a switch.
amap common time	Sets the common transmission time interval used by active Spanning Tree ports in the common transmission state.
show amap	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, 9000, 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

amap	Enables (default) or disables AMAP on a switch.
amap discovery time	Sets the discovery transmission time interval used by the active Spanning Tree ports in the discovery transmission state.
show amap	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, 9000, 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

AMAP is currently	The AMAP status: enabled (default) or disabled . Use the amap command to change the AMAP status for the switch.
AMAP Common Phase Timeout Interval (seconds)	The number of seconds to wait between each Hello packet transmission during the common phase. Use the amap common time command to change this value.

output definitions (continued)

AMAP Discovery Phase Time-out Interval (seconds)	The number of seconds to wait between each Hello packet transmission during the discovery phase. Use the amap discovery time command to change this value.
Remote Host Description	The system name for the adjacent switch.
Remote Host Base MAC	The chassis base MAC address for the adjacent switch.
Local Interface	The local switch port/VLAN that received the AMAP packet.
Remote Interface	The adjacent switch port/VLAN that sent the AMAP packet.
Remote IP Address Configured	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

amap	Enables (default) or disables AMAP on a switch.
amap discovery time	Sets the discovery transmission time interval used by active Spanning Tree ports in the discovery transmission state.
amap common time	Sets the common transmission time interval used by the active Spanning Tree ports in the common transmission state.

14 802.1Q 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 21, "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, 9000, 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 21, "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 12, "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.
all	Configures this port to accept all frames.
tagged	Configures this port to accept only VLAN-tagged frames.

Defaults

parameter	default
all tagged	all

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

- | | |
|--------------------|---|
| vlan 802.1q | Creates, modifies, or deletes 802.1Q tagging on a single port or an aggregate of ports. |
| show 802.1q | Displays 802.1Q tagging status and configuration. |

MIB Objects

```
DOT1QPORTVLAN  
  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 Chapter 12, “Link Aggregation Commands” for more information on link aggregation.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Acceptable Frame Type	The acceptable frame type for this port, which can be Any Frame Type or Tagged Only Frame Type .
Force Tag Internal	This field displays if adding the default VLAN ID (VID) to tagged frames is turned on or off .

output definitions (continued)

Tagged VLANs	The 802.1Q tag number for this port.
Internal Description	The description of this 802.1Q tag. You can modify this description with the vlan 802.1q command, which is described on page 14-2 .

Release History

Release 6.1; command was introduced.

Related Commands

vlan 802.1q	Creates, modifies, or deletes 802.1Q tagging on a single port or an aggregate of ports.
vlan 802.1q frame type	Configures a port to accept only VLAN-tagged frames or all frames.

MIB Objects

QPORTVLANTABLE

```
qPortVlanSlot  
qPortVlanPort  
qPortVlanStatus  
qPortVlanTagValue  
qPortVlanDescription  
qAggregateVlanTagValue  
qAggregateVlanAggregateId  
qAggregateVlanStatus  
qAggregateVlanDescription
```

15 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 up to 16 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 128 rings 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:

Implicit bridge commands	bridge mode bridge protocol bridge priority bridge hello time bridge max age bridge forward delay bridge bpdu-switching bridge path cost mode bridge auto-vlan-containment show spantree
Explicit bridge commands	bridge cist protocol bridge 1x1 protocol bridge cist priority bridge msti priority bridge 1x1 priority bridge cist hello time bridge 1x1 hello time bridge cist max age bridge 1x1 max age bridge cist forward delay bridge 1x1 forward delay show spantree cist show spantree msti show spantree 1x1
Implicit port commands	bridge slot/port bridge slot/port priority bridge slot/port path cost bridge slot/port mode bridge slot/port connection bridge port 10gig os8800optimized show spantree ports

Explicit port commands	<code>bridge cist slot/port</code> <code>bridge 1x1 slot/port</code> <code>bridge cist slot/port priority</code> <code>bridge msti slot/port priority</code> <code>bridge 1x1 slot/port priority</code> <code>bridge cist slot/port path cost</code> <code>bridge msti slot/port path cost</code> <code>bridge 1x1 slot/port path cost</code> <code>bridge cist slot/port mode</code> <code>bridge 1x1 slot/port mode</code> <code>bridge cist slot/port connection</code> <code>bridge 1x1 slot/port connection</code> <code>bridge cist slot/port admin-edge</code> <code>bridge 1x1 slot/port admin-edge</code> <code>bridge cist slot/port auto-edge</code> <code>bridge 1x1 slot/port auto-edge</code> <code>bridge cist slot/port restricted-role</code> <code>bridge 1x1 slot/port restricted-role</code> <code>bridge cist slot/port restricted-tcn</code> <code>bridge 1x1 slot/port restricted-tcn</code> <code>bridge cist txholdcount</code> <code>bridge 1x1 txholdcount</code> <code>show spantree cist ports</code> <code>show spantree msti ports</code> <code>show spantree 1x1 ports</code>
MST region commands	<code>bridge mst region name</code> <code>bridge mst region revision level</code> <code>bridge mst region max hops</code> <code>show spantree mst region</code>
MST instance commands	<code>bridge msti</code> <code>bridge msti vlan</code> <code>show spantree msti vlan-map</code> <code>show spantree cist vlan-map</code> <code>show spantree map-msti</code> <code>show spantree mst port</code>
RRSTP commands	<code>bridge rrstp</code> <code>bridge rrstp ring</code> <code>bridge rrstp ring vlan-tag</code> <code>bridge rrstp ring status</code> <code>show bridge rrstp configuration</code> <code>show bridge rrstp ring</code>
PVST+ commands	<code>bridge mode 1x1 pvst+</code> <code>bridge port pvst+</code>

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

flat	One Spanning Tree instance per switch.
1x1	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, 6855, 9000, 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 will block 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 in that it will have 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 21, “VLAN Management Commands”](#)). Note that active ports associated with such a VLAN are excluded from any Spanning Tree calculations and will remain in a forwarding state.

Examples

```
-> bridge mode flat  
-> bridge mode 1x1
```

Release History

Release 6.1; command was 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 (bridge 1–4094).
stp	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
rstp	IEEE 802.1W Rapid Spanning Tree Protocol.
mstp	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, 6855, 9000, 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.
- Note that 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.
- Deleting all existing MSTIs is required before changing the protocol from MSTP to STP or RSTP.

- Note that when changing the protocol to/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
-> bridge protocol rstp
-> bridge protocol stp
```

Release History

Release 6.1; command was introduced.
Release 6.1.2; default protocol changed to RSTP.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist protocol	Explicit command for changing the Spanning Tree protocol for the flat mode instance.
bridge 1x1 protocol	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

stp	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
rstp	IEEE 802.1w Rapid Spanning Tree Protocol.
mstp	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, 6855, 9000, 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.
- Note that 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.
- Note that when changing the protocol to/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.
- 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 that 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
```


Release History

Release 6.1; command was introduced.

Release 6.1.2; default protocol changed to RSTP.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge protocol	Implicit command for changing the Spanning Tree protocol for the flat mode instance or for a 1x1 mode VLAN instance.
bridge 1x1 protocol	Explicit command for changing the Spanning Tree protocol for a VLAN instance.

MIB Objects

```
vStpInsTable  
  vStpInsNumber  
  vStpInsProtocolSpecification
```

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 (1–4094).
stp	IEEE 802.1D standard Spanning Tree Algorithm and Protocol.
rstp	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, 6855, 9000, 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 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 was introduced.
Release 6.1.2; default protocol changed to RSTP.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge protocol	Implicit command for changing the Spanning Tree protocol for the flat mode instance or for a 1x1 mode VLAN instance.
bridge cist protocol	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 (e.g. "Alcatel-Lucent Marketing").

Defaults

By default, the MST region name is left blank.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was 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, 6855, 9000, 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 was introduced.

Related Commands

bridge mst region name	Defines the name 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
  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, 6855, 9000, 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 was 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 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
 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 (e.g. “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, 6855, 9000, 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 was 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 (e.g. 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, 6855, 9000, 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. The MSTI configuration, however, 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 was 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	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.

parameter	default
<i>instance</i>	flat mode instance

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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/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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist priority	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
bridge msti priority	Explicit command for changing the Spanning Tree priority for an MSTI when the switch is operating in either the flat or 1x1 mode.
bridge 1x1 protocol	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, 6855, 9000, 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/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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge priority	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
bridge msti priority	Explicit command for changing the Spanning Tree priority for an MSTI when the switch is operating in either the flat or 1x1 mode.
bridge 1x1 protocol	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, 6855, 9000, 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/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 was introduced.

Related Commands

bridge mode	Selects a flat Spanning Tree or 1x1 (per VLAN) Spanning Tree operating mode for the switch.
bridge priority	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
bridge cist priority	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
bridge 1x1 priority	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects a flat Spanning Tree or 1x1 (per VLAN) Spanning Tree operating mode for the switch.
bridge priority	Implicit command for changing the Spanning Tree priority for the flat mode CIST instance or a 1x1 mode VLAN instance.
bridge cist priority	Explicit command for changing the Spanning Tree priority for the CIST instance when the switch is operating in either the flat or 1x1 mode.
bridge msti priority	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.

parameter	default
<i>instance</i>	flat mode instance

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was 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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge hello time	Implicit command for changing the Spanning Tree hello time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
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  
  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

vid An existing VLAN ID number (1–4094).
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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge hello time	Implicit command for changing the Spanning Tree hello time value for the flat mode CIST instance or for a 1x1 mode VLAN instance.
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.

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.

parameter	default
<i>instance</i>	flat mode instance

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was 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, 6855, 9000, 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 was 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, 6855, 9000, 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 was 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 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.

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

instance The flat mode CIST instance or an existing VLAN ID number (1–4094).
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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
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.
bridge 1x1 forward delay	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.
show spantree	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, 6855, 9000, 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 was 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 1x1 forward delay

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, 6855, 9000, 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 was 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 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).
enable	Enables BPDU switching for the specified instance.
disable	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, 6855, 9000, 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* will return 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 was introduced.

Related Commands

<code>vlan stp</code>	Enables or disables Spanning Tree instance for the specified VLAN.
<code>show spantree</code>	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

auto	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).
32bit	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, 6855, 9000, 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 will have 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 was introduced.

Related Commands

bridge slot/port path cost	Defines a Spanning Tree path cost for a port.
bridge protocol	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).
enable	Enables automatic VLAN containment.
disable	Disables automatic VLAN containment.

Defaults

By default, automatic VLAN containment is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was introduced.

Related Commands

bridge slot/port 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 slot/port

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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	The Link aggregate ID number (0–31).
enable	Enables Spanning Tree on the specified port for the specified instance.
disable	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, 6855, 9000, 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 slot/port** 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port	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.
bridge 1x1 slot/port	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.
vlan stp	Enables or disables the Spanning Tree instance for a VLAN.
bridge bpdu-switching	Enables or disables BPDU switching for the specified VLAN.

MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

bridge cist slot/port

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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	The Link aggregate ID number (0–31).
enable	Enables Spanning Tree on the specified port for the CIST instance.
disable	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port	Implicit command for configuring the Spanning Tree status on a port for the flat mode CIST instance or for a 1x1 mode VLAN instance.
bridge 1x1 slot/port	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.
vlan stp	Enables or disables the Spanning Tree instance for a VLAN.
bridge bpdu-switching	Enables or disables BPDU switching for the specified VLAN.

MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

bridge 1x1 slot/port

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 (1–4094).
<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>logical_port</i>	The Link aggregate ID number (0–31).
enable	Enables Spanning Tree on the specified port for the specified instance.
disable	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port	Implicit command for configuring the Spanning Tree status on a port for the flat mode CIST instance or for a 1x1 mode VLAN instance.
bridge cist slot/port	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.
vlan stp	Enables or disables Spanning Tree instance for the specified VLAN.
bridge bpdu-switching	Enables or disables BPDU switching for the specified VLAN.

MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortEnable
```

bridge slot/port 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 (1–4094).
<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>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, 6855, 9000, 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 slot/port 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port priority	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.
bridge msti slot/port priority	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.
bridge 1x1 slot/port priority	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 slot/port 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 (e.g., 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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port priority	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.
bridge msti slot/port priority	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.
bridge 1x1 slot/port priority	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 slot/port 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 (e.g., 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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port priority	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.
bridge cist slot/port priority	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.
bridge 1x1 slot/port priority	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 slot/port 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 (1–4094).
<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>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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port priority	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.
bridge slot/port path cost	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.
bridge msti slot/port priority	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 slot/port 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 (1–4094).
<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>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, 6855, 9000, 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 slot/port 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:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge path cost mode	Selects a 32-bit or automatic path cost mode for the switch.
bridge cist slot/port path cost	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.
bridge msti slot/port path cost	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.
bridge 1x1 slot/port path cost	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 slot/port 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 (e.g., 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, 6855, 9000, 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:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge path cost mode	Selects a 32-bit or automatic path cost mode for the switch.
bridge slot/port path cost	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.
bridge msti slot/port path cost	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.
bridge 1x1 slot/port path cost	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 slot/port 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 mst 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 (e.g., 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, 6855, 9000, 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. Using a 16-bit path cost value is not an option.
- If zero is entered for the *path_cost* value, then the following recommended default path cost values based on link speed are used:

Link Speed	IEEE 802.1D Recommended Value
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 based on link speed and link aggregate size are used:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
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 lxl
-> bridge msti 0 1/24 path cost 200000
-> bridge msti 2 1/24 path cost 20000
```

Release History

Release 6.1; command was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port path cost	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.
bridge cist slot/port path cost	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.
bridge 1x1 slot/port path cost	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 slot/port 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 (e.g., 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, 6855, 9000, 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.
- 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 IEEE 892.1S recommended default path cost values based on link speed are used:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	IEEE 802.1D Recommended Value
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:

Link Speed	Aggregate Size (number of links)	Default Path Cost Value
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 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port path cost	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.
bridge cist slot/port path cost	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.
bridge msti slot/port path cost	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
forwarding	Set port state to forwarding.
blocking	Set port state to blocking.
dynamic	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, 6855, 9000, 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 slot/port mode** command instead.
- Note that for Multiple Spanning Tree Instances (MSTI), the port Spanning Tree mode is inherited from the CIST instance and is not a configurable parameter.
- When 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port mode	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.
bridge 1x1 slot/port mode	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
dynamic	Port state is determined by Spanning Tree algorithm.
blocking	Sets port state to blocking.
forwarding	Sets port state to forwarding.

Defaults

By default, the port Spanning Tree mode is set to dynamic.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was introduced.

Related Commands

bridge mode

Selects the Spanning Tree operating mode (flat or 1x1) for the switch.

bridge slot/port 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 slot/port 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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
dynamic	Port state is determined by Spanning Tree algorithm.
blocking	Sets port state to blocking.
forwarding	Sets port state to forwarding.

Defaults

By default, the port Spanning Tree mode is set to dynamic.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port mode	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.
bridge cist slot/port mode	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 slot/port 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 (e.g., 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>
noptp	Defines port connection type as no point to point link.
ptp	Defines port connection type as point to point link.
autoptp	Specifies that switch software will automatically define connection type as point to point or no point to point.
edgeport	<i>This parameter is currently not supported.</i> Use the bridge cist slot/port admin-edge or bridge cist slot/port auto-edge 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, 6855, 9000, 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 slot/port 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's 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 was introduced.
Release 6.1.3; **edgeport** parameter was deprecated.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port connection	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.
bridge 1x1 slot/port connection	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.
bridge cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge cist slot/port auto-edge	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
noptp	Defines port connection type as no point to point link.
ptp	Defines port connection type as point to point link.
autoptp	Specifies that switch software will automatically define connection type as point to point or no point to point.
edgeport	<i>This parameter is currently not supported.</i> Use the bridge cist slot/port admin-edge or bridge cist slot/port auto-edge 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, 6855, 9000, 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's 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 was introduced.
Release 6.1.3; **edgeport** parameter was deprecated.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge slot/port connection	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.
bridge cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge cist slot/port auto-edge	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
noptp	Defines port connection type as no point to point link.
ptp	Defines port connection type as point to point link.
autoptp	Specifies that switch software will automatically define connection type as point to point or no point to point <i>and</i> whether or not the port is an edge port.
edgeport	<i>This parameter is currently not supported.</i> Use the bridge 1x1 slot/port admin-edge or bridge 1x1 slot/port auto-edge 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, 6855, 9000, 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's 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 was introduced.
Release 6.1.3; **edgeport** parameter was deprecated.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
bridge slot/port connection	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.
bridge cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge cist slot/port auto-edge	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Turns on the administrative edge port status for the specified port-CIST instance.
off	Turns off the administrative edge port status for the specified port-CIST instance.
enable	Enables the administrative edge port status for the specified port-CIST instance.
disable	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, 6855, 9000, 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's 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 will connect to a host (PC, workstation, server, etc.) as edge ports to avoid unnecessary topology changes when these ports go active. This will also prevent 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 will operationally revert back to a no point to point connection type.

Examples

```
-> bridge mode flat
-> bridge cist 15 admin-edge on
-> 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
bridge 1x1 slot/port admin-edge	Configures the administrative edge port status for a port or an aggregate of ports for a specific VLAN instance.
bridge cist slot/port auto-edge	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.
bridge 1x1 slot/port 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.

MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminEdge
```

bridge 1x1 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Turns on the administrative edge port status for the specified port-VLAN instance.
off	Turns off the administrative edge port status for the specified port-VLAN instance.
enable	Enables the administrative edge port status for the specified port-VLAN instance.
disable	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, 6855, 9000, 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's 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 will connect to a host (PC, workstation, server, etc.) as edge ports to avoid unnecessary topology changes when these ports go active. This will also prevent 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 will operationally revert 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
bridge cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge cist slot/port auto-edge	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.
bridge 1x1 slot/port 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.

MIB Objects

```
vStpInsPortTable
  vStpInsPortNumber
  vStpInsPortAdminEdge
```

bridge cist slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Spanning Tree automatically determines edge port status.
off	Spanning Tree does not automatically determine edge port status.
enable	Spanning Tree automatically determines edge port status.
disable	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, 6855, 9000, 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's 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 will connect to a host (PC, workstation, server, etc.) as edge ports to avoid unnecessary topology changes when these ports go active. This will also prevent 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 will operationally revert 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch
bridge 1x1 slot/port 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 cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge 1x1 slot/port admin-edge	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 slot/port 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Spanning Tree automatically determines edge port status.
off	Spanning Tree does not automatically determine edge port status.
enable	Spanning Tree automatically determines edge port status.
disable	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, 6855, 9000, 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's 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 will connect to a host (PC, workstation, server, etc.) as edge ports to avoid unnecessary topology changes when these ports go active. This will also prevent 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 will operationally revert 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port auto-edge	Configures whether or not Spanning Tree automatically determines the operational edge status of a port or an aggregate of ports for the CIST instance.
bridge cist slot/port admin-edge	Configures the administrative edge port status for a port or aggregate of ports for the CIST instance.
bridge 1x1 slot/port admin-edge	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 slot/port 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 will 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
root-guard	Optional command syntax. Enter root-guard instead of restricted-role ; both parameters specify the same functionality for this command.
on	Turns on (enables) the restricted role status for the specified port.
off	Turns off (disables) the restricted role status for the specified port.
enable	Enables the restricted role status for the specified port.
disable	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, 6855, 9000, 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 was introduced.
Release 6.3.3; **root-guard** parameter was added.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge 1x1 slot/port restricted-role	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 slot/port 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 will 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
root-guard	Optional command syntax. Enter root-guard instead of restricted-role ; both parameters specify the same functionality for this command.
on	Turns on (enables) the restricted role status for the specified port-VLAN instance.
off	Turns off (disables) the restricted role status for the specified port-VLAN instance.
enable	Enables the restricted role status for the specified port-VLAN instance.
disable	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, 6855, 9000, 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 was introduced.
Release 6.3.3; **root-guard** parameter was added.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port restricted-role	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 slot/port 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 will 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Turns on (enables) the restricted TCN status for the specified port-CIST instance.
off	Turns off (disables) the restricted TCN status for the specified port-CIST instance.
enable	Enables the restricted TCN status for the specified port-CIST instance.
disable	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge 1x1 slot/port restricted-tcn	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 slot/port 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 will 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>logical_port</i>	Link aggregate ID number (0–31).
on	Turns on (enables) the restricted TCN status for the specified port-VLAN instance.
off	Turns off (disables) the restricted TCN status for the specified port-VLAN instance.
enable	Enables the restricted TCN status for the specified port-VLAN instance.
disable	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist slot/port 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).

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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge 1x1 txholdcount	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, 6855, 9000, 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 was introduced.

Related Commands

bridge mode	Selects the Spanning Tree operating mode (flat or 1x1) for the switch.
bridge cist txholdcount	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 port 10gig os8800optimized

Enables or disables interoperability between a 10 GB OmniSwitch stackable or chassis-based switch port and a 10 GB OmniSwitch 8800 port.

bridge port *slot/port* 10gig os8800optimized {enable | disable}

Syntax Definitions

<i>slot/port</i>	The physical slot and port number of the 10 GB port.
enable	Enables the interoperability status for the 10 GB port.
disable	Disables the interoperability status for the 10 GB port.

Defaults

By default, the 10 GB port interoperability status is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Enabling interoperability on a 10 GB port connection between an OmniSwitch stackable or chassis-based switch and an OmniSwitch 8800 is required to ensure proper Spanning Tree control of the connection.
- It is highly recommended that this type of connection not be configured without first enabling 10 GB interoperability.
- Note that this command only applies to 10 GB ports on the OmniSwitch stackable or chassis-based switch and is not available on the OmniSwitch 8800.

Examples

```
-> bridge port 1/49 10gig os800optimized enable
-> bridge port 1/50 10gig os800optimized disable
```

Release History

Release 6.1; command was introduced.

Related Commands

[show spantree ports](#) Displays Spanning Tree port information.

MIB Objects

```
vStpPortConfigTable
  vStpPortConfigTenGigOs8800Opt
```

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, 6855, 9000, 9000E

Usage Guidelines

Use the **no** form of this command to disable RRSTP on the switch.

Examples

```
-> bridge rrstp  
-> no bridge rrstp
```

Release History

Release 6.2.1; command was 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.
enable	Enables the RRSTP ring.
disable	Disables the RRSTP ring.

Defaults

Parameters	Defaults
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 i.e. either 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 was 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, 6855, 9000, 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 was introduced.

Related Commands

bridge rrstp ring	Creates a RRSTP ring consisting of two ports.
show bridge rrstp ring	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.
enable	Enables the RRSTP ring.
disable	Disables the RRSTP ring.

Defaults

Parameters	Defaults
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was introduced.

Related Commands

bridge rrstp ring	Creates a RRSTP ring consisting of two ports.
show bridge rrstp ring	Displays information for all the rings or a specific ring present in the system.

MIB Objects

```
vStpRrstpRingConfigTable  
  vStpRrstpRingId  
  vStpRrstpRingState  
  vStpRrstpRingRowStatus
```

show spantree

Displays Spanning Tree bridge information for the flat mode Common and Internal Spanning Tree (CIST) instance or a 1x1 mode VLAN instance.

show spantree [*instance*]

Syntax Definitions

instance The flat mode CIST instance or an existing VLAN ID number (1–4094).

Defaults

parameter	default
<i>instance</i>	all instances

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If an instance number is *not* specified, this command displays the Spanning Tree status, protocol, and priority values for all 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 bridge 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](#) or [show spantree msti](#) commands instead.

Examples

```
-> bridge mode flat
-> bridge protocol rstp
-> show spantree
    Spanning Tree Path Cost Mode : AUTO
    Bridge STP Status Protocol Priority(Prio:SysID)
-----+-----+-----+-----
      1      ON      RSTP      32768 (0x8000:0x0000)
```

```

-> show spantree 1
Spanning Tree Parameters
Spanning Tree Status : ON,
Protocol : IEEE Rapid STP,
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

Spanning Tree Path Cost Mode	The Spanning Tree path cost mode for the switch (32 BIT or AUTO). Configured through the bridge path cost mode command.
Bridge	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.
Spanning Tree Status	The Spanning Tree state for the CIST instance (ON or OFF).
Protocol	The Spanning Tree protocol applied to the instance (STP or RSTP). Configured through the bridge protocol command.
Mode	The Spanning Tree operating mode for the switch (1x1 or flat). Configured through the bridge mode command.
Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge priority command.
Bridge ID	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
Designated Root	The bridge identifier for the root of the Spanning Tree for this instance.
Cost to Root Bridge	The cost of the path to the root for this Spanning Tree instance.
Root Port	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
Next Best Root Cost	The cost of the next best root port for this Spanning Tree instance.
Next Best Root Port	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
Tx Hold Count	The count to limit the transmission of BPDU through the port.

output definitions (continued)

Topology Changes	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
Topology age	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance (hh:mm:ss or dd days and hh:mm:ss).
Max Age	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the bridge max age command.
Forward Delay	The amount of time (in seconds) that a port will remain 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 bridge forward delay command.
Hello Time	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 bridge hello time command.
System Max Age	The Max Age value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.
System Hello Time	The Hello Time value for the root bridge.

```

-> bridge mode flat
-> bridge protocol mstp
-> 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)
  3      ON      MSTP    32771 (0x8000:0x0003)

```

output definitions

Spanning Tree Path Cost Mode	The Spanning Tree path cost mode for the switch (32 BIT or AUTO) Configured through the bridge path cost mode command.
Msti	The Multiple Spanning Tree Instance (MSTI) instance number. Configured through the bridge msti command. Note that MSTI 0 also represents the CIST instance that is always present on the switch.
Spanning Tree Status Protocol	The Spanning Tree state for the MSTI (ON or OFF).
Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge priority command.

```

-> 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)
  4      ON      STP   32768 (0x8000)
  5      ON      STP   32768 (0x8000)
  6      ON      STP   32768 (0x8000)
  7      ON      STP   32768 (0x8000)

```

```

-> show spantree 2
Spanning Tree Parameters for Vlan 2
  Spanning Tree Status : ON,
  Protocol              : IEEE STP,
  mode                  : PVST+ (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

Spanning Tree Path Cost Mode	The Spanning Tree path cost mode for the switch (32 BIT or AUTO). Configured through the bridge path cost mode command.
Spanning Tree PVST+ Mode	Indicates whether the PVST + status is enabled or disabled. Configured through the bridge mode 1x1 pvst+ command.
Vlan	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the vlan commands
STP Status	The Spanning Tree state for the instance (ON or OFF). Configured through the vlan stp command.
Protocol	The Spanning Tree protocol applied to this instance (STP or RSTP). Configured through the bridge protocol command.
Mode	The Spanning Tree operating mode for the switch (PVST+ , 1x1 or flat). Configured through bridge mode 1x1 pvst+ or bridge mode command.

output definitions (continued)

Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge priority command.
Bridge ID	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
Designated Root	The bridge identifier for the root of the Spanning Tree for this instance.
Cost to Root Bridge	The cost of the path to the root for this Spanning Tree instance.
Root Port	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
Next Best Root Cost	The cost of the next best root port for this Spanning Tree instance.
Next Best Root Port	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
Tx Hold Count	The count to limit the transmission of BPDU through the port.
Topology Changes	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
Topology age	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance (hh:mm:ss or dd days and hh:mm:ss).
Max Age	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the bridge max age command.
Forward Delay	The amount of time (in seconds) that a port will remain 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 bridge forward delay command.
Hello Time	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 bridge hello time command.
System Max Age	The Max Age value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.
System Hello Time	The Hello Time value for the root bridge.

Release History

Release 6.1; command was 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, 6855, 9000, 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

STP Status	The Spanning Tree state for the instance (on or off).
Protocol	The Spanning Tree protocol applied to the CIST (STP , RSTP , or MSTP). Configured through the bridge protocol command.
Mode	The Spanning Tree operating mode for the switch (1x1 or flat). Configured through the bridge mode command.
Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge priority command.
Bridge ID	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
CST Designated Root	The bridge identifier for the root of the flat mode CIST instance. This field only appears when MSTP is active on the switch.
Cost to CST Root	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.
Next CST Best Cost	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.
Designated Root	The bridge identifier for the root of the Spanning Tree for this instance.
Cost to Root Bridge	The cost of the path to the root for this Spanning Tree instance.
Root Port	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
Next Best Root Cost	The cost of the next best root port for this Spanning Tree instance.
Next Best Root Port	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
Tx Hold Count	The count to limit the transmission of BPDU through the port.
Topology Changes	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
Topology age	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance (hh:mm:ss or dd days and hh:mm:ss).
Max Age	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the bridge max age command.

output definitions (continued)

Forward Delay	The amount of time (in seconds) that a port will remain 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 bridge forward delay command.
Hello Time	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 bridge hello time command.
System Max Age	The Max Age value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.

Release History

Release 6.1; command was introduced.

Release 6.1.3; **Tx Hold Count** field added.

Related Commands

show spantree	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
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
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, 6855, 9000, 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 will fail 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

Spanning Tree Path Cost Mode	The Spanning Tree path cost mode for the switch (32 BIT or AUTO). Configured through the bridge path cost mode command.
Msti	The Multiple Spanning Tree Instance (MSTI) number. MSTI 0 represents the CIST. Configured through the bridge msti command.
STP Status	The Spanning Tree state for the instance (ON or OFF).
Protocol	The Spanning Tree protocol applied to the instance (STP , RSTP , or MSTP). This value is not configurable for an MSTI. Configured through the bridge protocol command.
Mode	The Spanning Tree operating mode for the switch (1x1 or flat). Configured through the bridge mode command.
Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge msti priority command.
Bridge ID	The bridge identifier for this Spanning Tree instance. Consists of the bridge priority value (in hex) concatenated with the dedicated bridge MAC address.
CST Designated Root	The bridge identifier for the root of the flat mode CIST instance. This field only appears when MSTP is active on the switch.
Cost to CST Root	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.
Next CST Best Cost	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.
Designated Root	The bridge identifier for the root of the Spanning Tree for this instance.
Cost to Root Bridge	The cost of the path to the root for this Spanning Tree instance.
Root Port	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
Next Best Root Cost	The cost of the next best root port for this Spanning Tree instance.

output definitions (continued)

Next Best Root Port	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
TxHoldCount	The count to limit the transmission of BPDU through the port.
Topology Changes	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
Topology age	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance (hh:mm:ss or dd days and hh:mm:ss).
Max Age	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.
Forward Delay	The amount of time (in seconds) that a port will remain 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.
Hello Time	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.
System Max Age	The Max Age value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.

Release History

Release 6.1; command was introduced.

Release 6.1.3; **Tx Hold Count** field added.

Related Commands

show spantree	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
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 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
- 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, 6855, 9000, 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 (e.g., **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 1x1
  Spanning Tree Path Cost Mode : AUTO
  Vlan STP Status Protocol Priority
-----+-----+-----+-----+
   1     ON      STP   32768 (0x8000)
   2     ON      STP   32768 (0x8000)
   3     ON      STP   32768 (0x8000)
   4     ON      STP   32768 (0x8000)
   5     ON      STP   32768 (0x8000)
   6     ON      STP   32768 (0x8000)
```

```

-> show spantree 1x1 7
Spanning Tree Parameters for Vlan 7
  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

```

```

-> 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

Spanning Tree Path Cost Mode	The Spanning Tree path cost mode for the switch (32 BIT or AUTO) Configured through the bridge path cost mode command.
Vlan	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the vlan commands
STP Status	The Spanning Tree state for the instance (ON or OFF).
Protocol	The Spanning Tree protocol applied to the VLAN instance (STP or RSTP). Note that MSTP is not supported for a VLAN instance. Configured through the bridge protocol command.
Mode	The Spanning Tree operating mode for the switch (1x1 or flat). Configured through the bridge mode command.
Priority	The Spanning Tree bridge priority for the instance. The lower the number, the higher the priority. Configured through the bridge priority command.
Bridge ID	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)

Designated Root	The bridge identifier for the root of the Spanning Tree for this instance.
Cost to Root Bridge	The cost of the path to the root for this Spanning Tree instance.
Root Port	The port that offers the lowest cost path from this bridge to the root bridge for this Spanning Tree instance.
Next Best Root Cost	The cost of the next best root port for this Spanning Tree instance.
Next Best Root Port	The port that offers the next best (second lowest) cost path to the root bridge for this Spanning Tree instance.
Tx Hold Count	The count to limit the transmission of BPDU through the port.
Topology Changes	The number of topology changes detected by this Spanning Tree instance since the management entity was last reset or initialized.
Topology age	The amount of time (in hundredths of seconds) since the last topology change was detected by this Spanning Tree instance (hh:mm:ss or dd days and hh:mm:ss).
Max Age	The amount of time (in seconds) that Spanning Tree Protocol information is retained before it is discarded. Configured through the bridge max age command.
Forward Delay	The amount of time (in seconds) that a port will remain 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 bridge forward delay command.
Hello Time	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 bridge hello time command.
System Max Age	The Max Age value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.
System Forward Delay	The Forward Delay value for the root bridge.

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 6.1.3; **Tx Hold Count** field added.

Related Commands

show spantree	Implicit command for displaying the Spanning Tree bridge configuration for the flat mode CIST instance or a 1x1 mode VLAN instance.
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 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).
forwarding	Displays Spanning Tree operational port parameters for ports that are forwarding for the specified instance.
blocking	Displays Spanning Tree operational port parameters for ports that are blocked for the specified instance.
active	Displays a list of active ports associated with the specified instance.
configured	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
forwarding blocking active configured	all ports

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

```
-> bridge mode flat
```

```
-> show spantree ports
```

```
Bridge Port Oper Status Path Cost Role
-----+-----+-----+-----+-----
  1  1/1      FORW          19  ROOT
  1  1/2      DIS           0   DIS
  1  1/3      DIS           0   DIS
  1  1/4      DIS           0   DIS
  1  1/5      DIS           0   DIS
  1  1/6      DIS           0   DIS
  1  1/7      DIS           0   DIS
  1  1/8      DIS           0   DIS
  1  1/9      DIS           0   DIS
  1  1/10     DIS           0   DIS
  1  1/11     DIS           0   DIS
  1  1/12     DIS           0   DIS
```

```
-> show spantree 1 ports
```

```
Spanning Tree Port Summary
```

```
      Oper Path  Desig      Prim. Op Op
Port  St  Cost   Cost   Role Port  Cnx Edg Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----
  1/1  FORW   19    52  ROOT  1/1  PTP EDG 8000-00:30:f1:5b:37:73
  1/2  DIS     0     0  DIS  1/2  NS  NO 0000-00:00:00:00:00:00
  1/3  DIS     0     0  DIS  1/3  NS  NO 0000-00:00:00:00:00:00
  1/4  DIS     0     0  DIS  1/4  NS  NO 0000-00:00:00:00:00:00
  1/5  DIS     0     0  DIS  1/5  NS  NO 0000-00:00:00:00:00:00
  1/6  DIS     0     0  DIS  1/6  NS  NO 0000-00:00:00:00:00:00
  1/7  DIS     0     0  DIS  1/7  NS  NO 0000-00:00:00:00:00:00
  1/8  DIS     0     0  DIS  1/8  NS  NO 0000-00:00:00:00:00:00
  1/9  DIS     0     0  DIS  1/9  NS  NO 0000-00:00:00:00:00:00
  1/10 DIS     0     0  DIS  1/10 NS  NO 0000-00:00:00:00:00:00
  1/11 DIS     0     0  DIS  1/11 NS  NO 0000-00:00:00:00:00:00
  1/12 DIS     0     0  DIS  1/12 NS  NO 0000-00:00:00:00:00:00
```

```
-> show spantree 1 ports active
```

```
Spanning Tree Port Summary
```

```
      Oper Path  Desig      Prim. Op Op
Port  St  Cost   Cost   Role Port  Cnx Edg Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----
  1/1  FORW   19    52  ROOT  1/1  PTP EDG 8000-00:30:f1:5b:37:73
```

output definitions

Bridge

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.

Port

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 (e.g., 0/31).

Oper St

The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, learning, and forwarding.

output definitions (continued)

Path Cost	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 bridge slot/port path cost command.
Desig Cost	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.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root, designated, alternate, and backup .
Prim. Port	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.
Op Cnx	Operational connection type: PTP, NPT, or NS (nonsignificant). Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Op Edg	Operational connection type: EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Desig Bridge ID	The bridge identifier for the designated bridge for this port's segment.

```

-> show spantree msti 1 ports configured
Spanning Tree Port Admin Configuration
      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   DIS
1/2   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/3   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/4   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/5   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/6   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/7   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/8   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/9   7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/10  7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/11  7   ENA  No    0  AUT  No  Yes  No   No   DIS
1/12  7   ENA  No    0  AUT  No  Yes  No   No   DIS

```

output definitions

Port	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 (e.g., 0/31).
Port Pri	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the bridge slot/port priority command.
Adm St	The Spanning Tree administrative status of the port: enabled or disabled . Configured through the bridge slot/port command to enable or disable Spanning Tree on a port.

output definitions

Man. Mode	The manual mode setting for the port: yes indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; no indicates that the Spanning Tree Algorithm is managing the port state. Configured through the bridge slot/port mode command.
Config Cost	The configured path cost value for this port. Configured through the bridge slot/port path cost command.
Adm Cnx	The administrative connection type: PTP , NPT , or AUT . Configured through the bridge slot/port connection command.
Adm Edg	The edge port administrative status: yes indicates that the port is an admin edge port; no indicates that the port is not an admin edge port. Configured through the bridge slot/port connection command.
Aut Edg	The edge port automatic status: yes indicates that the port is an automatic edge port; no indicates that the port is not an automatic edge port. Configured through the bridge cist slot/port auto-edge or bridge 1x1 slot/port auto-edge command.
Rstr Tcn	The restricted TCN capability: yes indicates that the port supports the restricted TCN capability; no indicates that the port does not support the restricted TCN capability. Configured through the bridge cist slot/port restricted-tcn or bridge 1x1 slot/port restricted-tcn command.
Rstr Role	The restricted role port status: yes indicates that the port is a restricted role port; no indicates that the port is not a restricted role port. Configured through the bridge cist slot/port restricted-role or bridge 1x1 slot/port restricted-role command.
OS8800 10G Opt.	Indicates whether the 10 GB port interoperability status is enabled (ENA) or disabled (DIS). Configured through the bridge port 10gig os8800optimized command.

```

-> bridge mode flat
-> bridge protocol mstp
-> show spantree ports
Msti  Port Oper Status  Path Cost  Role
-----+-----+-----+-----+-----
0  1/1      FORW      200000    ROOT
0  1/2      DIS        0         DIS
0  1/3      DIS        0         DIS
0  1/4      DIS        0         DIS
0  1/5      DIS        0         DIS
0  1/6      DIS        0         DIS
0  1/7      DIS        0         DIS
0  1/8      DIS        0         DIS
0  1/9      DIS        0         DIS
0  1/10     DIS        0         DIS
0  1/11     DIS        0         DIS
0  1/12     DIS        0         DIS
0  1/13     DIS        0         DIS
0  1/14     DIS        0         DIS
0  1/15     DIS        0         DIS
0  1/16     DIS        0         DIS
0  1/17     DIS        0         DIS
0  1/18     DIS        0         DIS
0  1/19     DIS        0         DIS

```

```

0 1/20    DIS      0    DIS
0 1/21    DIS      0    DIS
0 1/22    DIS      0    DIS
0 1/23    DIS      0    DIS
0 1/24    DIS      0    DIS
0 5/1     DIS      0    DIS
0 5/2     DIS      0    DIS
1 1/1     FORW     200000  MSTR
1 1/2     DIS      0    DIS
1 1/3     DIS      0    DIS
1 1/4     DIS      0    DIS
1 1/5     DIS      0    DIS
1 1/6     DIS      0    DIS
1 1/7     DIS      0    DIS
1 1/8     DIS      0    DIS
1 1/9     DIS      0    DIS
1 1/10    DIS      0    DIS
1 1/11    DIS      0    DIS
1 1/12    DIS      0    DIS
1 1/13    DIS      0    DIS
1 1/14    DIS      0    DIS
1 1/15    DIS      0    DIS
1 1/16    DIS      0    DIS
1 1/17    DIS      0    DIS
1 1/18    DIS      0    DIS
1 1/19    DIS      0    DIS
1 1/20    DIS      0    DIS
1 1/21    DIS      0    DIS
1 1/22    DIS      0    DIS
1 1/23    DIS      0    DIS
1 1/24    DIS      0    DIS

```

```
-> show spantree ports active
```

```

Msti  Port Oper Status  Path Cost  Role
-----+-----+-----+-----+-----
0 1/1   FORW   200000  ROOT
1 1/1   FORW   200000  MSTR
2 1/1   FORW   200000  MSTR

```

output definitions

Msti	The Multiple Spanning Tree Instance (MSTI) instance number. Configured through the bridge msti command. Note that MSTI 0 also represents the CIST instance that is always present on the switch.
Port	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 (e.g., 0/31).
Oper St	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, learning, and forwarding.
Path Cost	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 bridge slot/port path cost command.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , and backup .

```

-> bridge mode 1x1
-> show spantree ports
  Vlan  Port Oper Status  Path Cost  Role
-----+-----+-----+-----+-----+-----
   1    1/1     DIS         0         0     DIS
   1    1/2     DIS         0         0     DIS
   1    1/3     DIS         0         0     DIS
   1    1/4     DIS         0         0     DIS
   1    1/5     DIS         0         0     DIS
   1    1/6     DIS         0         0     DIS
   1    1/7     DIS         0         0     DIS
   1    1/8     DIS         0         0     DIS
   1    1/9     DIS         0         0     DIS
   1    1/10    DIS         0         0     DIS
   1    1/11    DIS         0         0     DIS
   1    1/12    FORW        19        19    ROOT

-> show spantree 1 ports
Spanning Tree Port Summary for Vlan 1
  Oper Path  Desig      Prim. Op  Op
Port  St  Cost   Cost   Role Port  Cnx  Edg  Desig Bridge ID
-----+-----+-----+-----+-----+-----
 1/1  DIS     0     0  DIS 1/1  NS  EDG  0000-00:00:00:00:00:00
 1/2  DIS     0     0  DIS 1/2  NS  NO   0000-00:00:00:00:00:00
 1/3  DIS     0     0  DIS 1/3  NS  NO   0000-00:00:00:00:00:00
 1/4  DIS     0     0  DIS 1/4  NS  NO   0000-00:00:00:00:00:00
 1/5  DIS     0     0  DIS 1/5  NS  NO   0000-00:00:00:00:00:00
 1/6  DIS     0     0  DIS 1/6  NS  NO   0000-00:00:00:00:00:00
 1/7  DIS     0     0  DIS 1/7  NS  NO   0000-00:00:00:00:00:00
 1/8  DIS     0     0  DIS 1/8  NS  NO   0000-00:00:00:00:00:00
 1/9  DIS     0     0  DIS 1/9  NS  NO   0000-00:00:00:00:00:00
 1/10 DIS     0     0  DIS 1/10 NS  NO   0000-00:00:00:00:00:00
 1/11 DIS     0     0  DIS 1/11 NS  NO   0000-00:00:00:00:00:00
 1/12 FORW    19     0  ROOT 1/12 PTP  NO   0001-00:d0:95:6a:79:50

-> show spantree 1 ports active
Spanning Tree Port Summary for Vlan 1
  Oper Path  Desig      Prim. Op  Op
Port  St  Cost   Cost   Role Port  Cnx  Edg  Desig Bridge ID
-----+-----+-----+-----+-----+-----
 1/12 FORW    19     0  ROOT 1/12 PTP  EDG  0001-00:d0:95:6a:79:50

```

output definitions

Vlan	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the vlan commands
Port	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 (e.g., 0/31).
Oper St	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, listening, learning, and forwarding.
Path Cost	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 bridge slot/port path cost command.

output definitions (continued)

Desig Cost	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.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , and backup .
Prim. Port	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.
Op Cnx	Operational connection type: PTP , NPT , or NS (nonsignificant). Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Op Edg	Operational connection type: EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Desig Bridge ID	The bridge identifier for the designated bridge for this port's segment.

```
-> 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 Stst
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
 3/1   7  ENA  No     0  AUT  No  Yes  No   No  DIS  AUT/ON
 3/3   7  ENA  No     0  AUT  No  Yes  No   No  DIS  AUT/OFF
 0/9   7  ENA  No     0  AUT  No  Yes  No   No  DIS  AUT/ON
```

output definitions

Port	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 (e.g., 0/31).
Port Pri	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the bridge slot/port priority command.
Adm St	The Spanning Tree administrative status of the port: enabled or disabled . Configured through the bridge slot/port command to enable or disable Spanning Tree on a port.
Man. Mode	The manual mode setting for the port: yes indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; no indicates that the Spanning Tree Algorithm is managing the port state. Configured through the bridge slot/port mode command.
Config Cost	The configured path cost value for this port. Configured through the bridge slot/port path cost command.
Adm Cnx	The administrative connection type: PTP , NPT , or AUT . Configured through the bridge slot/port connection command.
Adm Edg	The edge port administrative status: yes indicates that the port is an admin edge port; no indicates that the port is not an admin edge port. Configured through the bridge slot/port connection command.

output definitions (continued)

Aut Edg	The edge port automatic status: yes indicates that the port is an automatic edge port; no indicates that the port is not an automatic edge port. Configured through the bridge cist slot/port auto-edge or bridge 1x1 slot/port auto-edge command.
Rstr Tcn	The restricted TCN capability: yes indicates that the port supports the restricted TCN capability; no indicates that the port does not support the restricted TCN capability. Configured through the bridge cist slot/port restricted-tcn or bridge 1x1 slot/port restricted-tcn command.
Rstr Role	The restricted role port status: yes indicates that the port is a restricted role port; no indicates that the port is not a restricted role port. Configured through the bridge cist slot/port restricted-role or bridge 1x1 slot/port restricted-role command.
OS8800 10G Opt.	Indicates whether the 10 GB port interoperability status is enabled (ENA) or disabled (DIS). Configured through the bridge port 10gig os8800optimized command.
PVST+ Cfg	Indicates the current PVST+ port configuration (auto , enable or disable).
PVST+ Stat	Indicates the current status of the PVST+ port (On or Off).

Release History

Release 6.1; command was introduced.

Release 6.1.3; fields added.

Release 6.3.1; PVST+ field added.

Related Commands

show spantree cist ports	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.
show spantree msti ports	Explicit command for displaying Spanning Tree port information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.
show spantree 1x1 ports	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

forwarding	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
blocking	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
active	Displays a list of active ports associated with the specified instance.
configured	Displays Spanning Tree administrative port parameters for the CIST instance.

Defaults

parameter	default
forwarding blocking active configured	all ports

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 for Cist
      Oper Path  Desig      Prim. Op Op
Port  St  Cost   Cost   Role Port Cnx Edg  Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
 1/1  FORW 200000    52 ROOT 1/1  PTP  EDG  8000-00:30:f1:5b:37:73
 1/2  DIS    0      0  DIS 1/2  NS   No   0000-00:00:00:00:00:00
 1/3  DIS    0      0  DIS 1/3  NS   EDG  0000-00:00:00:00:00:00
 1/4  DIS    0      0  DIS 1/4  NS   No   0000-00:00:00:00:00:00
 1/5  DIS    0      0  DIS 1/5  NS   EDG  0000-00:00:00:00:00:00
 1/6  DIS    0      0  DIS 1/6  NS   EDG  0000-00:00:00:00:00:00
 1/7  DIS    0      0  DIS 1/7  NS   EDG  0000-00:00:00:00:00:00
 1/8  DIS    0      0  DIS 1/8  NS   No   0000-00:00:00:00:00:00
```

```
-> show spantree cist ports active
Spanning Tree Port Summary for Cist

      Oper Path  Desig      Prim. Op Op
Port   St  Cost   Cost   Role Port  Cnx Edg  Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
1/1  FORW 200000      52 ROOT  1/1  PTP  EDG  8000-00:30:f1:5b:37:73
```

output definitions

Port	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 (e.g., 0/31).
Oper St	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, listening, learning, and forwarding.
Path Cost	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 bridge slot/port path cost command.
Desig Cost	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.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , and backup .
Prim. Port	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.
Op Cnx	Operational connection type: PTP , NPT , or NS (nonsignificant). Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Op Edg	Operational connection type: EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Desig Bridge ID	The bridge identifier for the designated bridge for this port's segment.

```
-> show spantree cist 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
```

output definitions

Port	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 (e.g., 0/31).
Port Pri	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the bridge slot/port priority command.
Adm St	The Spanning Tree administrative status of the port: enabled or disabled . Configured through the bridge slot/port command to enable or disable Spanning Tree on a port.
Man. Mode	The manual mode setting for the port: yes indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; no indicates that the Spanning Tree Algorithm is managing the port state. Configured through the bridge slot/port mode command.
Config Cost	The configured path cost value for this port. Configured through the bridge slot/port path cost command.
Adm Cnx	The administrative connection type: PTP , NPT , or AUT . Configured through the bridge slot/port connection command.
Adm Edg	The edge port administrative status: yes indicates that the port is an admin edge port; no indicates that the port is not an admin edge port. Configured through the bridge slot/port connection command.
Aut Edg	The edge port automatic status: yes indicates that the port is an automatic edge port; no indicates that the port is not an automatic edge port. Configured through the bridge cist slot/port auto-edge or bridge 1x1 slot/port auto-edge command.
Rstr Tcn	The restricted TCN capability: yes indicates that the port supports the restricted TCN capability; no indicates that the port does not support the restricted TCN capability. Configured through the bridge cist slot/port restricted-tcn or bridge 1x1 slot/port restricted-tcn command.
Rstr Role/Root Guard	The restricted status of the port: Yes indicates that the port is restricted from becoming the root; No indicates that the port is not restricted from becoming the root. Configured through the bridge cist slot/port restricted-role or bridge 1x1 slot/port restricted-role command.
OS8800 10G Opt.	Indicates whether the 10 GB port interoperability status is enabled (ENA) or disabled (DIS). Configured through the bridge port 10gig os8800optimized command.
PVST+ Cfg Stat	The PVST+ status on the switch: enabled or disabled . Configured through the bridge mode 1x1 pvst+ command to enable or disable PVST+ mode on the switch.
PVST+ Stat	Indicates whether or not the PVST+ interoperability status is enabled (ENA) or disabled (DIS) for the port. Configured through the bridge mode 1x1 pvst+ command.

Release History

Release 6.1; command was introduced.

Release 6.1.3; fields added.

Release 6.3.3; fields added.

Related Commands

[show spantree ports](#)

Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.

[show spantree msti ports](#)

Explicit command for displaying Spanning Tree port information for an MSTI when the switch is operating in the 1x1 or flat Spanning Tree mode.

[show spantree 1x1 ports](#)

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).
forwarding	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
blocking	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
active	Displays a list of active ports associated with the specified instance.
configured	Displays Spanning Tree administrative port parameters for the CIST instance.

Defaults

parameter	default
<i>msti_id</i>	all MSTIs
forwarding blocking active configured	all ports

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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, if MSTP is not the selected flat mode protocol, this command will fail.
- 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 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

-> show spantree msti ports

Msti	Port	Oper	Status	Path Cost	Role
0	1/1		FORW	200000	ROOT
0	1/2		DIS	0	DIS
0	1/3		DIS	0	DIS
0	1/4		DIS	0	DIS
0	1/5		DIS	0	DIS
0	1/6		DIS	0	DIS
0	1/7		DIS	0	DIS
0	1/8		DIS	0	DIS
0	1/9		DIS	0	DIS
0	1/10		DIS	0	DIS
0	1/11		DIS	0	DIS
0	1/12		DIS	0	DIS
0	1/13		DIS	0	DIS
0	1/14		DIS	0	DIS
0	1/15		DIS	0	DIS
0	1/16		DIS	0	DIS
0	1/17		DIS	0	DIS
0	1/18		DIS	0	DIS
0	1/19		DIS	0	DIS
0	1/20		DIS	0	DIS
0	1/21		DIS	0	DIS
0	1/22		DIS	0	DIS
0	1/23		DIS	0	DIS
0	1/24		DIS	0	DIS
0	5/1		DIS	0	DIS
0	5/2		DIS	0	DIS
1	1/1		FORW	200000	MSTR
1	1/2		DIS	0	DIS
1	1/3		DIS	0	DIS
1	1/4		DIS	0	DIS
1	1/5		DIS	0	DIS
1	1/6		DIS	0	DIS
1	1/7		DIS	0	DIS
1	1/8		DIS	0	DIS
1	1/9		DIS	0	DIS
1	1/10		DIS	0	DIS
1	1/11		DIS	0	DIS
1	1/12		DIS	0	DIS
1	1/13		DIS	0	DIS
1	1/14		DIS	0	DIS
1	1/15		DIS	0	DIS
1	1/16		DIS	0	DIS
1	1/17		DIS	0	DIS
1	1/18		DIS	0	DIS
1	1/19		DIS	0	DIS
1	1/20		DIS	0	DIS
1	1/21		DIS	0	DIS
1	1/22		DIS	0	DIS
1	1/23		DIS	0	DIS
1	1/24		DIS	0	DIS
1	5/1		DIS	0	DIS
1	5/2		DIS	0	DIS

```
-> show spantree msti 2 ports
```

```
Spanning Tree Port Summary for Msti 2
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/1	FORW	200000	0	MSTR	1/1	PTP	EDG	8002-00:d0:95:57:3a:9e	
1/2	DIS	0	0	DIS	1/2	NS	NO	0000-00:00:00:00:00:00	
1/3	DIS	0	0	DIS	1/3	NS	NO	0000-00:00:00:00:00:00	
1/4	DIS	0	0	DIS	1/4	NS	NO	0000-00:00:00:00:00:00	
1/5	DIS	0	0	DIS	1/5	NS	NO	0000-00:00:00:00:00:00	
1/6	DIS	0	0	DIS	1/6	NS	NO	0000-00:00:00:00:00:00	
1/7	DIS	0	0	DIS	1/7	NS	NO	0000-00:00:00:00:00:00	
1/8	DIS	0	0	DIS	1/8	NS	NO	0000-00:00:00:00:00:00	
1/9	DIS	0	0	DIS	1/9	NS	NO	0000-00:00:00:00:00:00	
1/10	DIS	0	0	DIS	1/10	NS	NO	0000-00:00:00:00:00:00	
1/11	DIS	0	0	DIS	1/11	NS	NO	0000-00:00:00:00:00:00	
1/12	DIS	0	0	DIS	1/12	NS	NO	0000-00:00:00:00:00:00	
1/13	DIS	0	0	DIS	1/13	NS	NO	0000-00:00:00:00:00:00	
1/14	DIS	0	0	DIS	1/14	NS	NO	0000-00:00:00:00:00:00	
1/15	DIS	0	0	DIS	1/15	NS	NO	0000-00:00:00:00:00:00	
1/16	DIS	0	0	DIS	1/16	NS	NO	0000-00:00:00:00:00:00	
1/17	DIS	0	0	DIS	1/17	NS	NO	0000-00:00:00:00:00:00	
1/18	DIS	0	0	DIS	1/18	NS	NO	0000-00:00:00:00:00:00	
1/19	DIS	0	0	DIS	1/19	NS	NO	0000-00:00:00:00:00:00	
1/20	DIS	0	0	DIS	1/20	NS	NO	0000-00:00:00:00:00:00	
1/21	DIS	0	0	DIS	1/21	NS	NO	0000-00:00:00:00:00:00	
1/22	DIS	0	0	DIS	1/22	NS	NO	0000-00:00:00:00:00:00	
1/23	DIS	0	0	DIS	1/23	NS	NO	0000-00:00:00:00:00:00	
1/24	DIS	0	0	DIS	1/24	NS	NO	0000-00:00:00:00:00:00	
5/1	DIS	0	0	DIS	5/1	NS	NO	0000-00:00:00:00:00:00	
5/2	DIS	0	0	DIS	5/2	NS	NO	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	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/1	FORW	200000	0	MSTR	1/1	PTP	EDG	8002-00:d0:95:57:3a:9e	

output definitions

Msti	The Multiple Spanning Tree Instance (MSTI) number. MSTI 0 represents the CIST. Configured through the bridge msti command.
Port	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 (e.g., 0/31).
Oper St	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, listening, learning, and forwarding.
Path Cost	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 bridge msti slot/port path cost command.

output definitions (continued)

Desig Cost	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.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , master , and backup .
Prim. Port	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.
Op Cnx	Operational connection type: PTP , NPT , or NS (nonsignificant). Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Op Edg	Operational connection type: EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Desig Bridge ID	The bridge identifier for the designated bridge for this port's segment.

```
-> 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   DIS
1/2   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/3   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/4   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/5   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/6   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/7   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/8   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/9   7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/10  7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/11  7   ENA  No      0  AUT  No  Yes  No   No   DIS
1/12  7   ENA  No      0  AUT  No  Yes  No   No   DIS
```

output definitions

Port	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 (e.g., 0/31).
Port Pri	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the bridge msti slot/port priority command.
Adm St	The Spanning Tree administrative status of the port: enabled or disabled . Configured through the bridge slot/port command to enable or disable Spanning Tree on a port.

output definitions (continued)

Man. Mode	The manual mode setting for the port: yes indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; no indicates that the Spanning Tree Algorithm is managing the port state. Configured through the bridge slot/port mode command.
Config Cost	The configured path cost value for this port. Configured through the bridge msti slot/port path cost command.
Adm Cnx	The administrative connection type: PTP , NPT , or AUT . Configured through the bridge slot/port connection command.
Adm Edg	The edge port administrative status: yes indicates that the port is an admin edge port; no indicates that the port is not an admin edge port. Configured through the bridge slot/port connection command.
Aut Edg	The edge port automatic status: yes indicates that the port is an automatic edge port; no indicates that the port is not an automatic edge port. Configured through the bridge cist slot/port auto-edge or bridge 1x1 slot/port auto-edge command.
Rstr Tcn	The restricted TCN capability: yes indicates that the port supports the restricted TCN capability; no indicates that the port does not support the restricted TCN capability. Configured through the bridge cist slot/port restricted-tn or bridge 1x1 slot/port restricted-tn command.
Rstr Role	The restricted role port status: yes indicates that the port is a restricted role port; no indicates that the port is not a restricted role port. Configured through the bridge cist slot/port restricted-role or bridge 1x1 slot/port restricted-role command.
OS8800 10G Opt.	Indicates whether the 10 GB port interoperability status is enabled (ENA) or disabled (DIS). Configured through the bridge port 10gig os8800optimized command.

Release History

Release 6.1; command was introduced.
 Release 6.1.3; fields added.

Related Commands

show spantree ports	Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.
show spantree cist ports	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.
show spantree 1x1 ports	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).
forwarding	Displays Spanning Tree operational port parameters for ports that are forwarding for the CIST instance.
blocking	Displays Spanning Tree operational port parameters for ports that are blocked for the CIST instance.
active	Displays a list of active ports associated with the specified instance.
configured	Displays Spanning Tree administrative port parameters for the CIST instance.

Defaults

parameter	default
<i>vid</i>	all VLAN instances
forwarding blocking active configured	all ports

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 (e.g., **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 lxl ports
```

Vlan	Port	Oper	Status	Path	Cost	Role
1	1/1		DIS		0	DIS
1	1/2		DIS		0	DIS
1	1/3		DIS		0	DIS
1	1/4		DIS		0	DIS
1	1/5		DIS		0	DIS
1	1/6		DIS		0	DIS
1	1/7		DIS		0	DIS
1	1/8		DIS		0	DIS
1	1/9		DIS		0	DIS
1	1/10		DIS		0	DIS
1	1/11		DIS		0	DIS
1	1/12		FORW		19	DIS

```
-> show spantree lxl 1 ports
```

```
Spanning Tree Port Summary for Vlan 1
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/1	DIS	0	0	DIS	1/1	NS	EDG	0000-00:00:00:00:00:00	
1/2	DIS	0	0	DIS	1/2	NS	NO	0000-00:00:00:00:00:00	
1/3	DIS	0	0	DIS	1/3	NS	NO	0000-00:00:00:00:00:00	
1/4	DIS	0	0	DIS	1/4	NS	NO	0000-00:00:00:00:00:00	
1/5	DIS	0	0	DIS	1/5	NS	NO	0000-00:00:00:00:00:00	
1/6	DIS	0	0	DIS	1/6	NS	NO	0000-00:00:00:00:00:00	
1/7	DIS	0	0	DIS	1/7	NS	NO	0000-00:00:00:00:00:00	
1/8	DIS	0	0	DIS	1/8	NS	NO	0000-00:00:00:00:00:00	
1/9	DIS	0	0	DIS	1/9	NS	NO	0000-00:00:00:00:00:00	
1/10	DIS	0	0	DIS	1/10	NS	NO	0000-00:00:00:00:00:00	
1/11	DIS	0	0	DIS	1/11	NS	NO	0000-00:00:00:00:00:00	
1/12	FORW	19	0	DIS	1/12	PTP	NO	0001-00:d0:95:6a:79:50	

```
-> show spantree lxl 1 ports active
```

```
Spanning Tree Port Summary for Vlan 1
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/12	FORW	19	0	DIS	1/12	PTP	EDG	0001-00:d0:95:6a:79:50	

```
-> show spantree lxl 10-13 ports
```

```
Spanning Tree Port Summary for Vlan 10
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/46	DIS	0	0	DIS	1/46	NS	EDG	0000-00:00:00:00:00:00	

```
Spanning Tree Port Summary for Vl 11
```

Port	Oper St	Path Cost	Desig Cost	Role	Prim. Port	Op Cnx	Op Edg	Desig	Bridge ID
1/36	DIS	0	0	DIS	1/36	NS	EDG	0000-00:00:00:00:00:00	
1/37	DIS	0	0	DIS	1/37	NS	NO	0000-00:00:00:00:00:00	

```

Spanning Tree Port Summary for Vlan 12
  Oper Path  Desig      Prim. Op  Op
Port  St  Cost   Cost   Role Port  Cnx Edg Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  1/42 DIS     0     0  DIS 1/42  NS  EDG 0000-00:00:00:00:00:00
  1/43 DIS     0     0  DIS 1/43  NS   NO 0000-00:00:00:00:00:00
Spanning Tree Port Summary for Vlan 13
  Oper Path  Desig      Prim. Op  Op
Port  St  Cost   Cost   Role Port  Cnx Edg Desig Bridge ID
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  1/38 DIS     0     0  DIS 1/38  NS  EDG 0000-00:00:00:00:00:00

```

output definitions

Vlan	The VLAN ID associated with the VLAN Spanning Tree instance. Configured through the vlan commands
Port	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 (e.g., 0/31).
Oper St	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, listening, learning, and forwarding.
Path Cost	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 bridge 1x1 slot/port path cost command.
Desig Cost	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.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , master , and backup .
Prim. Port	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.
Op Cnx	Operational connection type: PTP , NPT , or NS (nonsignificant). Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Op Edg	Operational connection type: EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Desig Bridge ID	The bridge identifier for the designated bridge for this port's segment.

```
-> 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   No   DIS  AUT OFF
1/2   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/3   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/4   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/5   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/6   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/7   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/8   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/9   7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/10  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/11  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/12  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
```

```
-> show spantree 1x1 10-13 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
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/46  7  ENA  No       0  AUT  No  Yes  No   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
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/36  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/37  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
Spanning Tree Port Admin Configuration for Vlan 12
      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
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/42  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
1/43  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
Spanning Tree Port Admin Configuration for Vlan 13
      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
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
1/38  7  ENA  No       0  AUT  No  Yes  No   No   No   DIS  AUT OFF
```

output definitions

Port	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 (e.g., 0/31).
Port Pri	The Spanning Tree priority for the port (0–15). The lower the number, the higher the priority. Configured through the bridge 1x1 slot/port priority command.
Adm St	The Spanning Tree administrative status of the port: enabled or disabled . Configured through the bridge slot/port command to enable or disable Spanning Tree on a port.

output definitions (continued)

Man. Mode	The manual mode setting for the port: yes indicates that the blocking or forwarding state of the port was manually set and the port does not participate in the Spanning Tree Algorithm; no indicates that the Spanning Tree Algorithm is managing the port state. Configured through the bridge slot/port mode command.
Config Cost	The configured path cost value for this port. Configured through the bridge 1x1 slot/port path cost command.
Adm Cnx	The administrative connection type: PTP , NPT , or AUT . Configured through the bridge slot/port connection command.
Adm Edg	The edge port administrative status: yes indicates that the port is an admin edge port; no indicates that the port is not an admin edge port. Configured through the bridge slot/port connection command.
Aut Edg	The edge port automatic status: yes indicates that the port is an automatic edge port; no indicates that the port is not an automatic edge port. Configured through the bridge cist slot/port auto-edge or bridge 1x1 slot/port auto-edge command.
Rstr Tcn	The restricted TCN capability: yes indicates that the port supports the restricted TCN capability; no indicates that the port does not support the restricted TCN capability. Configured through the bridge cist slot/port restricted-tcn or bridge 1x1 slot/port restricted-tcn command.
Rstr Role/Root Guard	The restricted status of the port: Yes indicates that the port is restricted from becoming the root; No indicates that the port is not restricted from becoming the root. Configured through the bridge cist slot/port restricted-role or bridge 1x1 slot/port restricted-role command.
OS8800 10G Opt.	Indicates whether the 10 GB port interoperability status is enabled (ENA) or disabled (DIS). Configured through the bridge port 10gig os8800optimized command.
PVST+ Cfg	The type of BPDU used on the port: AUTO indicates that IEEE BPDUs are used until a PVST+ BPDU is detected; ENA indicates that PVST+ BPDUs are used; DIS indicates that IEEE BPDUs are used. Configured through the bridge port pvst+ command.
PVST+ Stat	Indicates whether or not the PVST+ interoperability status is enabled (ENA) or disabled (DIS) for the port. Configured through the bridge mode 1x1 pvst+ command.

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 6.1.3; fields added.

Release 6.3.3; fields added.

Related Commands

show spantree ports	Implicit command for displaying Spanning Tree port information for the flat mode CIST instance or a 1x1 mode VLAN instance.
show spantree cist ports	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.
show spantree msti ports	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, 6855, 9000, 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   : Region 1
Revision Level      : 0
Configuration Digest : 0xac36177f 50283cd4 b83821d8 ab26de62
Revision Max hops   : 20
Cist Instance Number : 0
```

output definitions

Configuration Name	An alphanumeric string up to 32 characters that identifies the name of the MST region. Use the bridge mst region name command to define this value.
Revision Level	A numeric value (0–65535) that identifies the MST region revision level for the switch.
Configuration Digest	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 bridge msti and bridge msti vlan commands to define VLAN to MSTI associations.

output definitions (continued)

Revision Max hops	The number of maximum hops authorized for region information. Configured through the bridge mst region max hops command.
Cist Instance Number	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. Note that this instance is also known as the flat mode instance and is known as bridge 1 when using STP or RSTP.

Release History

Release 6.1; command was introduced.

Related Commands

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.
show spantree map-msti	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, 6855, 9000, 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
Spanning Tree Msti/Cist 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

Cist Instance	Identifies MSTI VLAN mapping information for the CIST instance.
Msti	The MSTI ID number that identifies an association between a Spanning Tree instance and a range of VLANs.
Name	An alphanumeric value that identifies an MSTI name. Use the bridge msti command to define an MSTI name.
VLAN list	The range of VLAN IDs that are associated with this MSTI.

Release History

Release 6.1; command was introduced.

Related Commands

show spantree mst region	Displays the MST region information for the switch.
show spantree cist vlan-map	Displays the range of VLANs associated to the CIST instance.
show spantree map-msti	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, 6855, 9000, 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
Spanning Tree Cist Vlan map
```

```
-----
Cist
Name      :
VLAN list : 1-9,14-4094
```

output definitions

Name	An alphanumeric value that identifies the name of the CIST. Use the bridge msti command to define a name for this instance.
VLAN list	The range of VLAN IDs that are associated with the CIST instance.

Release History

Release 6.1; command was 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 map-msti	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, 6855, 9000, 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 was 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 (e.g., 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, 6855, 9000, 9000E

Usage Guidelines

- This command is only available when the switch is running in the flat Spanning Tree mode.
- Note that MST 0 also represents the flat mode CIST instance, which all ports are associated with when the switch is running in the flat Spanning Tree mode.

Examples

```
-> bridge mode flat
-> show spantree mst port 1/10
MST parameters for interface 1/10:
  Connection Type: NS
  Edge Port: YES
  Boundary Port: YES
```

MST	Role	State	Pth Cst	Vlans
0	DIS	DIS	0	200
2	DIS	DIS	0	

```
-> show spantree mst port 1/1
MST parameters for interface 1/1 :
  Connection Type: PTP
  Edge Port: NO
  Boundary Port: YES
```

MST	Role	State	Pth Cst	Vlans
0	ROOT	FORW	19	1

```
-> bridge mode 1x1
-> show spantree mst port 1/10
Current STP mode is 1x1, MSTI instances are inactive
```

output definitions

Connection Type	Operational connection type: PTP , NPT , NS (nonsignificant) or EDG . Shows the current operational state of the port's connection type. See the bridge slot/port connection command on page 15-87 for more information.
Edge Port	Indicates whether or not the port is an edge port (YES or NO).
Boundary Port	Indicates whether or not the port is a boundary port (YES or NO). A boundary port connects an MST bridge to a LAN that belongs to a different MST region.
MST	The Multiple Spanning Tree Instance (MSTI) number that is associated with this port.
Role	The role of the port for this Spanning Tree instance. Possible port roles are: root , designated , alternate , master , and backup .
State	The port operational state as defined by application of the Spanning Tree Protocol. Possible port operational states include: disabled, blocking, listening, learning, and forwarding.
Pth Cst	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.
Vlans	The VLAN ID of the default VLAN for the port.

Release History

Release 6.1; command was introduced.

Related Commands

show spantree cist ports	Displays Spanning Tree port information for the flat mode Common and Internal Spanning Tree (CIST) instance.
show spantree msti ports	Displays Spanning Tree port information for a flat mode Multiple Spanning Tree Instance (MSTI).
show spantree 1x1 ports	Displays Spanning Tree port information for a 1x1 mode VLAN instance.

MIB Objects

```
vStpInsPortTable
  vStpInsPortAdminConnectionType
  vStpInsPortAdminEdge
  vStpInsPortAutoEdge
  vStpMstInstanceNumber
  vStpInsPortRole
  vStpInsPortState
  vStpInsPortPathCost
vStpMstVlanAssignmentTable
  vStpMstVlanAssignmentVlanNumber
```

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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show bridge rrstp configuration  
RRSTP Global state is Enabled
```

Release History

Release 6.2.1; command was 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

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, 6855, 9000, 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

RingId	The numeric ID of the RRSTP ring.
Vlan-Tag	The VLAN to which the RRSTP ring frames are tagged.
Ring-Port-1	The first port in the RRSTP ring.
Ring-Port-2	The second port in the RRSTP ring.
Ring Status	The current state of the RRSTP ring (Enabled or Disabled).

Release History

Release 6.2.1; command was 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

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

enable	Enables the pvst+ mode.
disable	Disables the pvst+ mode.

Defaults

PVST+ is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 was 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 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 (e.g., 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 will be used.
<i>disable</i>	Specifies that IEEE BPDUs will be used.

Defaults

parameters	default
auto enable disable	auto

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 will send and receive 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 was introduced.

Related Commands**bridge mode 1x1 pvst+**

Enables or disables PVST+ mode on the switch.

MIB Objects

vStpPortConfigTable

vStpPortConfigIfInedx

 vStpPortConfigPVST

16 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.
enable	Administratively enables the ERP ring.
disable	Administratively disables the ERP ring.

Defaults

parameter	default
<i>guard_timer</i>	50
<i>wtr_timer</i>	5
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

show erp	Displays the ERP ring configuration for the switch.
show erp protected-vlan	Displays the protected VLAN configuration for the switch.
show erp statistics	Displays ERP ring statistics.
ethernet-service svlan nni	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, 9000, 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

erp-ring	Configures an ERP ring.
show erp	Displays the ERP ring configuration for the switch.
show erp protected-vlan	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, 9000, 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

erp-ring	Configures an ERP ring.
erp-ring wait-to-restore	Configures the wait-to-restore timer value for the Ring Protection Link (RPL) node.
show erp	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, 9000, 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

erp-ring	Configures an ERP ring.
erp-ring rpl-node	Configures a Ring Protection Link (RPL) port connection.
show erp	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

erp-ring	Configures an ERP ring.
show erp	Displays the ERP ring configuration for the switch.
show erp statistics	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, 9000, 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

Ring ID	The ERP ring ID number.
Ring Ports	The slot and port number of the ring ports.
Ring Status	The ring status (enabled or disabled).
Service VLAN	The Service VLAN ID.
WTR Timer	The wait-to-restore timer value in minutes for RPL node.
Guard Timer	The guard timer value in centi-secs for the ring node.
MEG Level	The Service VLAN Management Entity Group (MEG) level.
Ring State	Indicates the state of the ring.
Ring Node Type	Indicates the type of the ring node.
Last State Change	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

Ring ID	The ERP ring ID number.
Ring Port Status	The status of the ring port (blocking or forwarding).
Ring Port Type	The type of ring port (RPL or non-RPL).
Ethoam Event	Indicates whether or not the ring port will accept Ethernet OAM loss of connectivity events (enabled or disabled).
Rmepid	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
```

show erp protected-vlan

Displays the protected VLAN configuration for all ERP rings or for a specific ring.

show erp [ring *ring_id*] protected-vlan

Syntax Definitions

ring_id An existing ERP ring ID number. The valid range is 1- 2147483647.

Defaults

By default, the protected VLAN configuration is displayed for all ERP rings in the switch configuration.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Enter a ring ID to display the protected VLANs for a specific ring.
- The specified ring ID must already exist in the switch configuration.

Examples

```
-> show erp protected-vlan
Ring Id       : 1,
Protected VLAN : 10 20 30-40
Ring Id       : 2,
Protected VLAN : 50
```

```
-> show erp ring 3 protected-vlan
Ring Id       : 3,
Protected VLAN : none
```

output definitions

Ring ID	The ERP ring ID number.
Protected VLAN	The VLAN IDs of the protected VLANs associated with the ring ID.

Release History

Release 6.3.4; command was introduced.

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, 9000, 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

Ring ID	The ERP ring ID number.
Ring Port	The slot and port number of the ring port.
R-APS	The type of Ring Automatic Switching Protocol (R-APS) event message (NR = no request, RB = RPL is blocked, SF = signal failure). APS is the protocol ERP uses to monitor and control ring links.
Send	Total number of R-APS messages sent.
Recv	Total number of R-APS messages received.
Drop	Total number of R-APS messages dropped.

Release History

Release 6.3.4; command was introduced.

Related Commands

<code>show erp</code>	Displays the ERP ring configuration for the switch.
<code>show erp protected-vlan</code>	Displays the protected VLAN configuration for the switch.
<code>clear erp statistics</code>	Clears ERP ring statistics.

MIB Objects

```
alaERPClearStats  
alaERPRingClearStats  
alaErpRingPortClearStats  
alaErpRingId  
  alaErpRingPortIfIndex  
  alaErpStatsSignalFailPduTx  
  alaErpStatsSignalFailPduRx  
  alaErpStatsSignalFailPduDrop  
  alaErpStatsNoRequestPduTx  
  alaErpStatsNoRequestPduRx  
  alaErpStatsNoRequestPduDrop  
  alaErpStatsRPLBlockPDUTx  
  alaErpStatsRPLBlockPDURx  
  alaErpStatsRPLBlockPDUDrop  
  alaErpStatsPDUErr
```

17 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

permanent	Defines a permanent static MAC Address that is not removed when the switch reboots.
learned	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 Chapter 12, “Link Aggregation Commands.”
<i>vid</i>	VLAN ID number (1–4094).
bridging	Specifies that all packets to or from this MAC address are bridged.
filtering	Specifies that all packets to or from this MAC address are dropped.

Defaults

parameter	default
permanent	permanent
bridging filtering	bridging

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 17-10](#)) 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

mac-address-table aging-time	Configures aging time, in seconds, for static and dynamically learned MAC addresses.
show mac-address-table	Displays Source Learning MAC Address Table information.
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

```
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).
learned	Specifies that the MAC address is a dynamically learned address. This option is only available with the no 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

- | | |
|---|--|
| show mac-address-table all | Displays Source Learning MAC Address Table contents for the VLAN and VPLS domain. |
| show mac-address-table vpls sap | 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.
learned	Specifies that the MAC address is a dynamically learned address. This option is only available with the no 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

show mac-address-table	Displays Source Learning MAC Address Table information.
show mac-address-table vpls mesh-sdp	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 Chapter 12, “Link Aggregation Commands.”
<i>vid</i>	VLAN ID number (1–4094).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

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

- | | |
|--|---|
| show mac-address-table | Displays Source Learning MAC Address Table information. |
| show mac-address-table static-multicast | Displays a list of static multicast MAC addresses that are configured in the Source Learning MAC Address Table. |
| show mac-address-table count | 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, 9000, 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 17-2](#)) to configure a static MAC address, then the aging time value is not applied to the static MAC address.
- The MAC address table aging time is also used as the timeout value for the Address Resolution Protocol (ARP) table. This timeout value determines how long the switch retains dynamically learned ARP table entries.

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

mac-address-table	Configures a static destination Unicast MAC address for a VLAN bridge.
show mac-address-table	Displays Source Learning MAC Address Table information.
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

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.
enable	Enables source learning.
disable	Disables source learning.

Defaults

By default, source learning is enabled on all ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enables distributed MAC source learning mode.
disable	Disables distributed MAC source learning mode.

Defaults

By default distributed MAC source learning mode is disabled for the chassis.

Platforms Supported

OmniSwitch 9000, 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

permanent	Display static MAC addresses with a permanent status.
learned	Display dynamically learned MAC addresses.
quarantined	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 Chapter 12, “Link Aggregation Commands.”
<i>vid</i>	A single 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 MAC addresses contained in the table.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Domain	The domain to which the MAC address belongs (VLAN or VPLS).
VLAN/SrvId	Vlan ID number or VPLS ID number associated with the MAC address.
Mac Address	MAC address that is currently learned or statically assigned.
Type	MAC address management status: learned , permanent , or quarantined . Configured through the mac-address-table command.
Protocol	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

Operation	The disposition of the MAC address: bridging (default) or filtering . Configured through the mac-address-table command.
Interface	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

```
sLMacAddressTable
  sLMacAddress
  sLMacAddressManagement
  sLMacAddressDisposition
  sLMacAddressProtocol
```

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

Domain	The domain to which the MAC address belongs (VLAN or VPLS).
VLAN/SrvId	Vlan ID number or VPLS ID number associated with the MAC address.
Mac Address	MAC address that is currently learned or statically assigned.

Type	MAC address management status: learned, permanent, or quarantined.
Protocol	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
Operation	The disposition of the MAC address: bridging (default), filtering , or servicing .
Interface	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

mac-address-table	Configures a static destination Unicast MAC address for a VLAN bridge.
mac-address-table vpls permanent sap	Configures a static MAC address for a VPLS SAP.
mac-address-table vpls permanent mesh-sdp	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.
permanent	Display static MAC addresses.
learned	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

Domain	The domain to which the MAC address belongs: VLAN or VPLS .
VLAN/SrvId	VLAN ID number or VPLS ID number associated with the MAC address.
Mac Address	MAC address that is currently learned or statically assigned.
Type	MAC address management status: learned or permanent .
Protocol	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
Operation	The disposition of the MAC address: bridging (default), filtering , or servicing .
Interface	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

Domain	The domain to which the MAC address belongs: VLAN or VPLS .
VLAN/SrvId	The VPLS ID number associated with the MAC address.
Mac Address	MAC address that is currently learned or statically assigned.
Type	MAC address management status: learned or permanent .
Protocol	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

Operation	The disposition of the MAC address: bridging (default), filtering , or servicing .
Interface	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

Domain	The domain to which the MAC address belongs: VLAN or VPLS .
VLAN/SrvId	The VPLS ID number associated with the MAC address.

output definitions (continued)

Mac Address	MAC address that is currently learned or statically assigned.
Type	MAC address management status: learned or permanent .
Protocol	Protocol type for the MAC address entry. Note that if the hardware source learning mode is active for the port, this field is blank.
Operation	The disposition of the MAC address: bridging (default), filtering , or servicing .
Interface	The VPLS mesh-SDP binding to which the MAC address is associated.

Release History

Release 6.4.2; command introduced

Related Commands

mac-address-table vpls permanent mesh-sdp	Configures a static MAC for a VPLS mesh-SDP binding.
show source-learning chassis-distributed	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, 9000, 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

Domain	The domain to which the MAC address belongs: VLAN or VPLS .
VLAN/SrvId	The VPLS ID number associated with the MAC address.
Mac Address	The multicast MAC address that is statically assigned to the VLAN and slot/port.
Type	Indicates the MAC address is a static multicast (static-mcast) address. Configured through the mac-address-table static-multicast command.
Protocol	Protocol type for the MAC address entry.
Operation	The disposition of the MAC address: bridging (default) or filtering . Note that this value is always set to bridging for static multicast addresses.
Interface	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 Chapter 12, “Link Aggregation Commands.”
<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, 9000, 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

Permanent Address Count	The number of static MAC addresses configured on the switch with a permanent management status (MAC address is never aged out).
DeleteOnReset Address Count	The number of static MAC addresses configured on the switch with a reset management status (MAC address is deleted on the next switch reboot).
DeleteOnTimeout Address Count	The number of static MAC addresses configured on the switch with a timeout management status (MAC address ages out according to the MAC address table aging timer value).
Dynamic Learned Address Count	The number of MAC addresses learned by the switch. These are MAC addresses that are not statically configured addresses.
Total MAC Address In Use	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

show mac-address-table	Displays Source Learning MAC Address Table information.
show mac-address-table aging-time	Displays the current aging time value for the Source Learning MAC Address Table.
show mac-address-table all count	Displays the Source Learning MAC Address Table statistics for both VLAN and VPLS MAC addresses.
show mac-address-table vpls count	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

Permanent VPLS Address Count	The number of static VPLS MAC addresses configured on the switch with a permanent management status (MAC address is never aged out).
Dynamic Learned VPLS Address Count	The number of VPLS MAC Addresses learned by the switch. These addresses are not user-configured permanent addresses.
Total MAC Address In Use	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

Permanent Address Count	The number of static MAC addresses configured on the switch with a permanent management status (MAC address is never aged out).
DeleteOnReset Address Count	The number of static MAC addresses configured on the switch with a reset management status (MAC address is deleted on the next switch reboot).
DeleteOnTimeout Address Count	The number of static MAC addresses configured on the switch with a timeout management status (MAC address ages out according to the MAC address table aging timer value).
Dynamic Learned Address Count	The number of MAC addresses learned by the switch. These are MAC addresses that are not statically configured addresses.

output definitions (continued)

Static Multicast Address Count	The number of static multicast addresses configured on the switch.
Permanent VPLS Address Count	The number of static VPLS MAC addresses configured on the switch with a permanent management status (MAC address is never aged out).
Dynamic Learned VPLS Address Count	The number of VPLS MAC Addresses learned by the switch. These addresses are not user-configured permanent addresses.
Total MAC Address In Use	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

show mac-address-table count	Displays Source Learning MAC Address Table statistics for VLAN MAC addresses.
show mac-address-table vpls count	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, 9000, 9000E

Usage Guidelines

- The MAC Address Table aging time applies to static MAC addresses that were defined using the **time-out** parameter (see [page 17-2](#)) 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, 9000, 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

port	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).
source-learning	The source learning status of the port or link aggregate (enabled or disabled). Configured through the source-learning 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 9000, 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
```

18 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

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*] [**enable** | **disable**]

port-security chassis 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).
enable	Enables LPS on the specified port(s).
disable	Disables LPS on the specified port(s).
chassis disable	Disables all LPS-eligible ports on the chassis.

Defaults

By default, LPS is disabled on all switch ports.

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove LPS *and* clear all entries from the table. This command enables learning of new MAC addresses.
- 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.
- 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 enable
-> port-security 2/1-10 enable
-> port-security 2/11-15 disable
-> no port-security 1/1-12
```

Release History

Release 6.1; command was introduced.

Release 6.1.5; **chassis** parameter was added.

Related Commands

port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
port-security maximum	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
port-security shutdown	Configures the amount of time in minutes to allow source learning on all LPS ports.
port-security violation	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 *minutes* [**convert-to-static** {**enable** | **disable**}]

Syntax Definitions

<i>minutes</i>	The number of minutes that defines the amount of time in which LPS allows source learning across all LPS ports.
enable	Enables the conversion of dynamic MAC addresses to static MAC addresses on the LPS port.
disable	Disables the conversion of dynamic MAC addresses to static MAC addresses on the LPS port.

Defaults

By default, the LPS source learning time limit is not set for the switch.

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LPS source learning time window is started and/or reset each time the **port-security shutdown** command is issued.
- To automatically start the timer on switch reboot, save this command to the **boot.cfg** file for the switch. Each time the switch reboots, the timer is restarted. It is still possible at any time, however, to reset the timer by issuing the command again.
- Note that the LPS source learning time window has a higher priority over the maximum number of MAC addresses allowed. For example, if the maximum number of MAC addresses allowed is set at 30 and the learning interval expires when the port has only learned 15, then the port will *not* learn anymore 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
-> port-security shutdown 2 convert-to-static enable
-> port-security shutdown 2 convert-to-static disable
```

Release History

Release 6.1; command was introduced.

Release 6.1.5; **convert-to-static, enable and disable** parameters added.

Related Commands

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
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

```
learnedPortSecurityGlobalGroup
  lpsLearningWindowTime
  lpsLearningWindowTimeWithStaticConversion
```

port-security maximum

Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.

port-security *slot/port[-port2]* **maximum** *number*

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>number</i>	The number of source MAC addresses (1–100) that are allowed on this port.

Defaults

By default, the number of MAC addresses allowed is set to 1.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 an LPS port will handle violating traffic.
- 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
```

Release History

Release 6.1; command was introduced.

Related Commands

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
port-security shutdown	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.
port-security violation	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** *number*

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>number</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, 6855, 9000, 9000E

Usage Guidelines

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.

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).
chassis	Specifies all the LPS-eligible ports on the chassis.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
<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 for the port is used.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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 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
```

Release History

Release 6.1; command was introduced.

Release 6.1.5; **vlan** parameter was added.

Related Commands

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
port-security shutdown	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.
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

```
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 / 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).
low <i>mac_address</i>	MAC address that defines the low end of a range of MACs (e.g., 00:20:95:00:10:2A).
high <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
high <i>mac_address</i>	ff:ff:ff:ff:ff:ff
low <i>mac_address</i>	00:00:00:00:00:00

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security shutdown	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.
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
  lpsLoMacRange
  lpsHiMacRange
  lpsRowStatus
```

port-security violation

Selects the method for handling traffic that does not comply with LPS restrictions for the specified port(s).

port-security *slot/port[-port2]* violation {restrict | shutdown}

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).
restrict	Filters (blocks) unauthorized traffic but allows traffic that complies with LPS restrictions to forward on the port.
shutdown	The port is disabled when the port receives unauthorized traffic; 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, 6855, 9000, 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 an LPS port is disabled (**shutdown**) or unauthorized traffic received on the port is filtered (**restrict**) due to a security violation, use the [port-security release](#) command to restore the port to normal operation.

Examples

```
-> port-security 2/14 violation restrict
-> port-security 4/10-15 violation shutdown
```

Release History

Release 6.1; command was introduced.

Related Commands

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security release	Releases a port that was shut down due to an LPS violation
port-security maximum	Specifies the maximum number of source MAC addresses that an LPS port(s) is allowed to learn.
port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
port-security shutdown	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 and/or the entire module.

port-security *slot/port* 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).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

port-security	Enables or disables Learned Port Security (LPS) on the switch port(s).
port-security mac	Configures a single authorized source MAC address for a port that belongs to a specified VLAN.
port-security mac-range	Configures a list of authorized MAC addresses by defining a range of addresses allowed on the port.
port-security shutdown	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.
port-security maximum	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** *number*

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>number</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, 6855, 9000, 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/port*[-*port2*] / *slot*]

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, 6855, 9000, 9000E

Usage Guidelines

- Displays ports that have an LPS configuration, even if LPS is disabled on the port.
- Use the *slot/port*[-*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
```

```
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

MAC Address          VLAN  TYPE
-----+-----+-----
00:20:95:00:fa:5c   1    STATIC
```

output definitions

Port	The module slot number and the physical port number on that module.
Operation Mode	The Learned Port Security operation status for the port (enabled or disabled). Configured through the port-security command.
Max MAC bridged	The maximum number of bridged MAC addresses that are allowed on this port. Configured through the port-security maximum command.
Trap Threshold	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 disabled is displayed in this field, the trap threshold is not in force. Configured through the port-security learn-trap-threshold command.
Max MAC filtered	The maximum number of filtered MAC addresses that the LPS port can learn. Configured through the port-security max-filtering command.
Low MAC Range	MAC address that defines the lower end of a MAC address range. Configured through the port-security mac-range command.
High MAC Range	MAC address that defines the higher end of a MAC address range. Configured through the port-security mac-range command.
Violation	The security violation mode for the port (restrict or shutdown). Configured through the port-security violation command.
MAC Address	An individual authorized MAC address. Configured through the port-security mac command.
VLAN	The VLAN to which the LPS port belongs.
TYPE	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.

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, 6855, 9000, 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 zero, 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      = 2 min
Convert-to-static        = DISABLE
Remaining Learning Window = 110 sec
```

output definitions

LPS Shutdown Config	The configured amount of time during which the LPS port can learn new MAC addresses.
Convert-to-static	Indicates whether or not dynamic MACs are converted to static MACs (enabled or disabled). Configured through the port-security shutdown command.
Remaining Learning Window	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.

Related Commands

[port-security learn-trap-threshold](#)

Displays Learned Port Security (LPS) configuration and table entries.

MIB Objects

```
learnedPortSecurityGlobalGroup  
  lpsConvertToStatic  
  lpsLearningWindowTime  
  lpsLearningWindowTimeWithStaticConversion
```

19 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
Interfaces commands	interfaces speed interfaces mode interfaces autoneg interfaces crossover interfaces pause interfaces e2e-flow-vlan interfaces duplex interfaces admin interfaces cli-prompt interfaces alias interfaces ifg interfaces no I2 statistics interfaces max frame interfaces flood multicast interfaces flood rate interfaces clear-violation-all interfaces transceiver ddm show interfaces show interfaces capability show interfaces flow control show interfaces pause show interfaces e2e-flow-vlan show interfaces accounting show interfaces counters show interfaces counters errors show interfaces collisions show interfaces status show interfaces port show interfaces ifg show interfaces flood rate show interfaces traffic show interfaces transceiver

Combo port commands

interfaces hybrid preferred-fiber
interfaces hybrid preferred-copper
interfaces hybrid forced-fiber
interfaces hybrid forced-copper
interfaces hybrid autoneg
interfaces hybrid crossover
interfaces hybrid duplex
interfaces hybrid speed
interfaces hybrid pause
show interfaces hybrid
show interfaces hybrid status
show interfaces hybrid flow control
show interfaces hybrid pause
show interfaces hybrid capability
show interfaces hybrid accounting
show interfaces hybrid counters
show interfaces hybrid counters errors
show interfaces hybrid collisions
show interfaces hybrid traffic
show interfaces hybrid port
show interfaces hybrid flood rate

Debug interfaces commands

debug interfaces set backpressure
debug interfaces backpressure

trap port link

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

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

Syntax Definitions

<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.
enable	Port link up/down traps are displayed on the NMS.
disable	Port link up/down traps are not displayed on the NMS.
on	Same as enable .
off	Same as disable .

Defaults

parameter	default
enable disable on off	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

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

Syntax Definitions

<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.
auto	The switch will automatically set the line speed to match the attached device (auto-sensing).
10	Sets the interface to 10 Mbps.
100	Sets the interface to 100 Mbps.
1000	Sets the interface to 1 Gigabit.
10000	Sets the interface to 10 Gigabit.
max 100	Sets the maximum speed to 100 megabits.
max 1000	Sets the maximum speed to 1000 megabits (1 Gigabit).

Defaults

parameter	default
auto 10 100 1000 10000 max 100 max 1000	Auto

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- The **auto** option sets the speed to auto-sensing.
- Ten Gigabit fiber ports only support 10000 Mbps.
- Configuration changes made with the **interfaces speed** command on combo ports configured as either forced fiber or preferred fiber will only be made on the SFP fiber ports and not to the copper RJ-45 10/100/1000 ports. See the [interfaces hybrid speed](#) command for more information.
- Configuration changes made with the **interfaces speed** command on combo ports configured as either forced copper or preferred copper will only be made on the copper RJ-45 10/100/1000 ports and not to the SFP fiber port. See the [interfaces hybrid speed](#) command for more information.

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

interfaces duplex	Configures duplex mode.
interfaces autoneg	Enables and disables auto negotiation.
show interfaces status	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[/port]* **mode** {**uplink** | **stacking**}

Syntax Definitions

<i>slot</i>	Slot number to be configured.
<i>port</i>	Port number to be configured.
uplink	Configures the ports as uplinks allowing the switch to act in standalone mode for network connectivity.
stacking	Configures the ports as stacking to allow the switch to be stacked in a virtual chassis.

Defaults

parameter	default
mode	uplink

Platforms Supported

OmniSwitch 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.

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

Syntax Definitions

<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.
enable	Enables auto negotiation.
disable	Disables auto negotiation.
on	Same as enable.
off	Same as disable.

Defaults

parameter	default
enable disable on off	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- If auto negotiation is disabled, auto MDIX, auto speed, and auto duplex are not accepted. See the [interfaces crossover](#) command on [page 19-12](#) for more information.
- Configuration changes made with the **interfaces autoneg** command on combo ports configured as either forced fiber or preferred fiber will only be made on the SFP fiber ports and not to the copper RJ-45 10/100/1000 ports. See the [interfaces hybrid autoneg](#) command for more information.
- Configuration changes made with the **interfaces autoneg** command on combo ports configured as either forced copper or preferred copper will only be made on the copper RJ-45 10/100/1000 ports and not to the SFP fiber port. See the [interfaces hybrid autoneg](#) command for more information.
- Copper Gigabit ports do not support disabling of auto negotiation.

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

interfaces speed	Configures interface speed.
interfaces crossover	Configures crossover port settings.
show interfaces status	Displays interface line settings.
show interfaces capability	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*[/*port*[-*port2*]] **crossover** {**auto** | **mdix** | **mdi**}

Syntax Definitions

<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.
auto	The interface will automatically detect crossover settings.
mdix	Sets the crossover configuration to Media Dependent Interface with Crossover (MDIX), which is the standard for hubs and switches.
mdi	Sets the crossover configuration to Media Dependent Interface (MDI), which is the standard for end stations.

Defaults

parameter	default
auto mdix mdi (all copper ports)	auto

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- If auto negotiation is disabled, then automatic crossover will also be disabled. See the [interfaces autoneg](#) command on [page 19-10](#) for more information.
- You cannot configure crossover settings on fiber ports. These ports use the MDI standard.
- Configuration changes made with the **interfaces crossover** command on combo ports configured as either forced copper or preferred copper will only be made on the copper RJ-45 10/100/1000 ports and not to the SFP fiber port. See the [interfaces hybrid crossover](#) command for more information.

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

interfaces speed	Configures interface speed.
interfaces autoneg	Enables and disables auto negotiation.
show interfaces status	Displays interface line settings.
show interfaces capability	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[/port[-port2]] pause {tx | rx | tx-and-rx | disable}
```

Syntax Definitions

<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.
tx	Transmits PAUSE frames to peer switches when traffic congestion occurs on the local interface. Does not honor PAUSE frames from peer switches.
rx	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.
tx-and-rx	Transmits and honors PAUSE frames when traffic congestion occurs between peer switches.
disable	Disables flow control on the interface.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

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

interfaces e2e-flow-vlan

Configures a dedicated VLAN for carrying end-to-end (E2E) flow control messages to remote systems. Creating this type of VLAN is required to enable E2E flow control on 48-port OmniSwitch 6400 and OmniSwitch 6850 units.

interfaces e2e-flow-vlan *vlan_id*

interfaces no e2e-flow-vlan

Syntax Definitions

vlan_id The VLAN ID number for the dedicated flow VLAN.

Platforms Supported

OmniSwitch 6400, 6850

Defaults

N/A

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.
- Use the **no** form of this command to remove the flow VLAN from the switch configuration.
- There is only one flow control VLAN allowed per switch.
- No other standard VLAN management commands are allowed once a VLAN is configured as a dedicated flow control VLAN.

Examples

```
-> interfaces e2e-flow-vlan 10
-> interfaces no e2e-flow-vlan
```

Release History

Release 6.3.4; command was introduced.

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

Syntax Definitions

<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.
full	Sets interface to full duplex mode.
half	Sets interface to half duplex mode.
auto	Switch will automatically set both the duplex mode settings to auto-negotiation.

Defaults

parameter	default
full half auto	full

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- 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.
- Configuration changes made with the **interfaces duplex** command on combo ports configured as either forced copper or preferred copper will only be made on the copper RJ-45 10/100/1000 ports and not to the SFP fiber port. See the [interfaces hybrid duplex](#) command for more information.
- Gigabit and 10 Gigabit fiber ports only support full duplex.

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 (e.g., speed, and mode).

MIB Objects

esmConfTable

 esmPortAutoDuplexMode

interfaces admin

Administratively enables or disables interfaces.

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

Syntax Definitions

<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.
up	Enables the interface.
down	Disables the interface.

Defaults

parameter	default
up down	up

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

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 (e.g., hardware, MAC address, input errors, and output errors).
show interfaces port	Displays port status (up or down).

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

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

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

<i>slot</i>	Slot number you want to configure.
<i>port</i>	Port number of the interface you want to configure.
<i>description</i>	A description for the port, which can be up to 40 characters long. Spaces must be contained within quotes (e.g., "IP Phone").

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one port at time. You cannot configure an alias for multiple ports.
- To remove an alias use a description consisting of two quotes without any spaces (e.g., "").
- 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 (e.g., hardware, MAC address, input errors, and output errors).
show interfaces port	Displays port status (up or down) and any aliases for a port.

MIB Objects

```
ifXTable
  ifAlias
```

interfaces ifg

Configures the inter-frame gap on Gigabit Ethernet interfaces.

interfaces slot*[/port[-port2]] ifg bytes*

Syntax Definitions

<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>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, 6855, 9000, 9000E

Usage Guidelines

You can only configure one slot at a time. Repeat the command to configure additional slots.

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*[/*port*[-*port2*]] **no l2 statistics** [**cli**]

Syntax Definitions

<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.
cli	Clears the counters from the CLI only; SNMP statistics continue to maintain cumulative totals.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- This command calls for 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.

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

show interfaces	Displays general interface information, including when statistics were last cleared.
show interfaces accounting	Displays interface accounting information (e.g., packets received/transmitted and deferred frames received).
show interfaces counters	Displays interface counters information (e.g., unicast, broadcast, and multi-cast packets received/transmitted).
show interfaces counters errors	Displays interface error frame information (e.g., CRC errors, transit errors, and receive errors).
show interfaces collisions	Displays interface collision information (e.g., 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[/port[-port2]] **max frame bytes**

Syntax Definitions

<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.
max frame	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, 6855, 9000, 9000E

Usage Guidelines

N/A

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 (e.g., 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>	Slot you want to configure (e.g., 3).
<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.
enable	Enables multicast rate limiting. <i>This parameter is optional on the OmniSwitch 6800, 6850, and 6855.</i>
disable	Disables multicast rate limiting.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can only configure one slot at a time. Repeat the command to configure additional slots.
- 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.
- The peak flood rate value is configurable through the **interfaces flood rate** command. The **interfaces flood multicast** command is *not* used to configure this value.
- 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.

Examples

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

Release History

Release 6.1; command was introduced.

Related Commands**show interfaces flood rate**

Displays interface peak flood rate settings.

interfaces flood rate

Configures the peak flood rate for an interface.

MIB Objects

esmConfTable

 esmPortFloodMcastEnable

interfaces flood rate

Configures the peak flood rate value for the specified interface.

interfaces slot[/port[-port2]] **flood rate** *Mbps*

Syntax Definitions

<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>Mbps</i>	Peak flood rate, in megabits per second (Mbps). Valid ranges: 0–10 for 10 Mbps 0–100 for 100 Mbps 0–1000 for Gigabit Ethernet 0–10000 for 10 Gigabit Ethernet

Defaults

parameter	default
<i>Mbps</i> (10 Ethernet)	4
<i>Mbps</i> (100 Fast Ethernet)	49
<i>Mbps</i> (Gigabit Ethernet)	496
<i>Mbps</i> (10 Gigabit Ethernet)	997

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Although you can configure a flood rate equal to the line speed you should not do so. Alcatel-Lucent recommends that you always configure the flood rate to be less than the line speed.
- You can only configure one slot at a time. Repeat the command to configure additional slots.
- The **interfaces flood rate** command configures a maximum *ingress* flood rate value for an interface. This peak flood rate value is applied to flooded (unknown destination address, broadcast) and multi-cast traffic combined. For example, if an interface is configured with a peak flood rate of 500 Mbps, the 500 Mbps limit is shared by all traffic types.
- To specify the type of traffic eligible for rate limiting on an interface, use the **interfaces flood rate** and **interfaces flood multicast** commands. By default, rate limiting applies only to flooded traffic.
- The flood rate can only be accurately configured for 512-byte packets. The flood rate cannot be accurately set for smaller or larger sized packets. The accuracy/resolution is limited because the switch makes an internal assumption of packet size when it converts bits/seconds to packets/seconds for the hardware.

Examples

```
-> interfaces 3/1 flood rate 400
-> interfaces 3 flood rate 400
-> interfaces 3/1-4 flood rate 400
```

Release History

Release 6.1; command was introduced.

Related Commands

[show interfaces flood rate](#)

Displays interface peak flood rate settings.

[interfaces flood multicast](#)

Enables/disables flood rate limiting for multicast traffic on an interface.

MIB Objects

esmConfTable

 esmPortMaxFloodRate

interfaces clear-violation-all

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

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

Syntax Definitions

<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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

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

Examples

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

Release History

Release 6.3.1; command was introduced.

Related Commands

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

MIB Objects

```
esmConfTable
  esmPortViolationClearAll
```

interfaces transceiver ddm

Configures the DDM administrative status or trap capability.

interfaces transceiver ddm [trap] {enable | disable}

Syntax Definitions

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

Defaults

parameter	default
ddm	disable
trap	disable
Polling period (not configurable)	OS6850/9000 - 60 Seconds OS6400/6855 - 1 second

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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[/port[-port2]] hybrid preferred-fiber

Syntax Definitions

<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.

Defaults

All combo ports are set to preferred fiber by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- Refer to the *Hardware User Guide* for combo port numbering.

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.

Related Commands

- show interfaces hybrid status** Displays interface line settings (e.g., speed, mode) for combo ports only.
- interfaces hybrid forced-fiber** Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).
- interfaces hybrid forced-copper** Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).
- interfaces hybrid preferred-copper** 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

```
esmHybridConfTable  
    esmPortCfgHybridMode  
    esmPortCfgHybridType
```

interfaces hybrid preferred-copper

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. If the copper port goes down then the switch will automatically switch to the fiber SFP port.

interfaces slot[/port[-port2]] hybrid preferred-copper

Syntax Definitions

<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.

Defaults

All hybrid ports on switches are set to preferred fiber by default. See the [interfaces hybrid preferred-fiber](#) command for more information.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.

Examples

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

Release History

Release 6.1; command was introduced.

Related Commands

- show interfaces hybrid status** Displays interface line settings (e.g., speed, mode) for combo ports only.
- interfaces hybrid forced-fiber** Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).
- interfaces hybrid forced-copper** Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).
- 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 have a valid link.

MIB Objects

```
esmHybridConfTable  
  esmPortCfgHybridMode  
  esmPortCfgHybridType
```

interfaces hybrid forced-fiber

Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).

interfaces slot[/port[-port2]] hybrid forced-fiber

Syntax Definitions

<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.

Defaults

All hybrid ports on switches are set to preferred fiber by default. See the [interfaces hybrid preferred-fiber](#) command for more information.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.

Examples

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

Release History

Release 6.1; command was introduced.

Related Commands

- show interfaces hybrid status** Displays interface line settings (e.g., speed, mode) for combo ports only.
- interfaces hybrid preferred-copper** 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.
- interfaces hybrid forced-copper** Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).
- 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 have a valid link.

MIB Objects

```
esmHybridConfTable  
    esmPortCfgHybridMode  
    esmPortCfgHybridType
```

interfaces hybrid forced-copper

Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).

interfaces slot[/port[-port2]] hybrid forced-copper

Syntax Definitions

<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.

Defaults

All hybrid ports on switches are set to preferred fiber by default. See the [interfaces hybrid preferred-fiber](#) command for more information.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- Refer to the *Hardware Users Guide* for combo port numbering.

Examples

```
-> interfaces 1/47 hybrid forced-copper
-> interfaces 1/47-48 hybrid forced-copper
-> interfaces 1 hybrid forced-copper
```

Release History

Release 6.1; command was introduced.

Related Commands

- show interfaces hybrid status** Displays interface line settings (e.g., speed, mode) for combo ports only.
- interfaces hybrid forced-fiber** Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).
- interfaces hybrid preferred-copper** 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.
- 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 have a valid link.

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

Syntax Definitions

<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.
fiber	Specifies that configuration changes will be made to the SFP port(s).
copper	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
enable	Enables auto negotiation.
disable	Disables auto negotiation.
on	Same as enable.
off	Same as disable.

Defaults

parameter	default
enable disable on off	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- Refer to the *Hardware Userss 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.

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

interfaces hybrid speed	Configures interface speed for combo ports.
interfaces hybrid crossover	Configures crossover port settings for combo ports.
interfaces hybrid speed	Enables or disables flow (pause).
show interfaces hybrid status	Displays interface line settings for combo ports.
show interfaces hybrid capability	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[/port[-port2]] hybrid copper crossover {auto | mdix | mdi}

Syntax Definitions

<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.
copper	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
auto	The interface will automatically detect crossover settings.
mdix	Sets the crossover configuration to Media Dependent Interface with Crossover (MDIX), which is the standard for hubs and switches.
mdi	Sets the crossover configuration to Media Dependent Interface (MDI), which is the standard for end stations.

Defaults

parameter	default
auto mdix mdi	auto

Platforms Supported

OmniSwitch 6400, 6850, 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.

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

interfaces hybrid speed	Configures interface speed for combo ports.
interfaces hybrid autoneg	Enables and disables auto negotiation for combo ports.
interfaces hybrid speed	Enables or disables flow (pause) for combo ports.
show interfaces hybrid status	Displays interface line settings for combo ports.
show interfaces hybrid capability	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[/port[-port2]] hybrid {fiber | copper} duplex {full | half | auto}

Syntax Definitions

<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.
fiber	Specifies that configuration changes will be made to the SFP port(s).
copper	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
full	Sets interface to full duplex mode.
half	Sets interface to half duplex mode.
auto	Switch will automatically set both the duplex mode settings to auto-negotiation.

Defaults

parameter	default
full half auto	auto

Platforms Supported

OmniSwitch 6400, 6850, 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.

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 (e.g., speed, mode) for combo ports.

MIB Objects

esmHybridConfTable
esmHybridPortCfgDuplexMode

interfaces hybrid speed

Configures interface line speed on combo ports.

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

Syntax Definitions

<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.
fiber	Specifies that configuration changes will be made to the SFP port(s).
copper	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
auto	The switch will automatically set the line speed to match the attached device (auto-sensing).
10	Sets the interface to 10 Mbps.
100	Sets the interface to 100 Mbps.
1000	Sets the interface to 1 Gigabit.
10000	Sets the interface to 10 Gigabit. This option is currently not supported.
max 100	Sets the maximum speed to 100 megabits.
max 1000	Sets the maximum speed to 1000 megabits (1 Gigabit)

Defaults

parameter	default
auto 10 100 1000 10000 max 100 max 1000	auto

Platforms Supported

OmniSwitch 6400, 6850, 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.

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

interfaces hybrid duplex	Configures duplex mode for combo ports.
interfaces hybrid autoneg	Enables and disables auto negotiation for combo ports.
show interfaces hybrid status	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[/port[-port2]] hybrid {fiber | copper} pause {tx | rx | tx-and-rx | disable}
```

Syntax Definitions

<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.
fiber	Specifies that configuration changes will be made to the SFP port(s).
copper	Specifies that changes will be made to the copper 10/100/1000 RJ-45 port(s).
tx	Transmits PAUSE frames to peer switches when traffic congestion occurs on the local interface. Does not honor PAUSE frames from peer switches.
rx	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.
tx-and-rx	Transmits and honors PAUSE frames when traffic congestion occurs between peer switches.
disable	Disables flow control on the interface.

Platforms Supported

OmniSwitch 6400, 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.

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 (e.g., hardware, MAC address, input errors, and output errors).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- On combo ports configured as either forced fiber or preferred fiber the status and configuration of the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid](#) command for more information.
- On combo ports configured as either forced copper or preferred copper the status and configuration of the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid](#) command for more information.

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

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

output definitions (continued)

Rx Undersize Frames	Number of undersized frames received.
Rx Oversize Frames	Number of oversized frames received.
Rx Lost Frames	Number of Lost Frames received.
Rx Error Frames	Number of error frames received.
Rx CRC Error Frames	Number of CRC error frames received.
Rx Alignments Err	Number of Alignments Error frames received.
Bytes Xmitted	Number of Bytes transmitted.
Tx Unicast Frames	Number of unicast frames transmitted.
Tx Broadcast Frames	Number of broadcast frames transmitted.
Tx M-cast Frames	Number of multicast frames r transmitted.
Tx Undersize Frames	Number of undersized frames transmitted.
Tx Oversize Frames	Number of oversized frames transmitted.
Tx Lost Frames	Number of Lost Frames transmitted.
Tx Collided Frames	Number of collision frames received or transmitted.
Tx Error Frames	Number of error frames transmitted.

Release History

Release 6.1; command was introduced.

Related Commands

show interfaces accounting	Displays interface accounting information (e.g., packets received/transmitted).
show interfaces counters	Displays interface counter information (e.g., unicast packets received/transmitted).
show interfaces counters errors	Displays interface error frame information (e.g., CRC errors, transit errors, and receive errors).
show interfaces collisions	Displays interface collision information (e.g., number of collisions and number of retries).
show interfaces status	Displays the interface line settings (e.g., speed and mode).
show interfaces traffic	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*[/*port*[-*port2*]]] **capability**

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- 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.
- On a combo port configured as either forced fiber or preferred fiber, the status and configuration of the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid capability](#) command for more information.
- On a combo port configured as either forced copper or preferred copper the status and configuration of the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid capability](#) command for more information.

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

Slot	The slot number.
Port	The port number

output definitions (continued)

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

Release History

Release 6.1; command was introduced.

Related Commands

interfaces autoneg	Enables and disables auto negotiation.
interfaces crossover	Configures crossover port settings.
interfaces speed	Configures interface speed.
interfaces duplex	Configures duplex settings.
show interfaces status	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*[/*port*[-*port2*]]] **flow** [**control**]

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
control	Optional command syntax. It displays the same information as show interfaces flow .

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, flow control wait time settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number, a range of ports by entering a slot and a range of ports, display all interfaces in a slot by entering the slot number, or display all interfaces as described above.
- Note that the **show interfaces flow control** command is not supported on the OmniSwitch 6855. To view this type of information for the OmniSwitch 6855, use the [show interfaces pause](#) command.

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

Slot/Port	Interface slot and port number
Active	Interface status.
Wait time	Flow control wait time, in microseconds.

output definitions (continued)

Cfg-Flow	Flow control status (Pause or Go).
Cfg-Cross	The user-configured cross-over setting (Auto , MDI , or MDIX).

Release History

Release 6.1; command was introduced.

Release 6.3.2; command deprecated on the OmniSwitch 6855.

Related Commands

[interfaces crossover](#) Configures crossover settings.

[show interfaces hybrid flow control](#) 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*[/*port*[-*port2*]]] **pause**

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

If a specific slot or slot/port number is not entered with this command, the flow control pause configuration for all switch interfaces is displayed.

Platforms Supported

OmniSwitch 6400, 6855

Usage Guidelines

- Enter a slot and port number (e.g., 3/21) or a range of port numbers (e.g., 3/21-24) to display information for a specific port or a range of ports.
- Enter a slot number (e.g., 1) to display information for all ports on a specific slot.
- Note that this command is only supported on a standalone OmniSwitch 6855. Use the [show interfaces flow control](#) command to display similar information on other platforms.

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

Slot/Port	Interface slot and port number
Active	Interface status.
Wait time	The amount of time, in microseconds, the neighbor interface will wait after receiving a PAUSE frame from the local interface.
Cfg-Pause	The flow control setting (Tx = transmit, Rx = receive, Tx-N-Rx = transmit and receive). Configured through the interfaces pause command.
Cfg-Cross	The user-configured cross-over setting (Auto , MDI , or MDIX). Configured through the interfaces crossover command.
Hybrid Type	The configured active media type for a hybrid port (F = fiber, C = copper, NA = 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

Usage Guidelines

- This command is available only on standalone 48-port OmniSwitch 6400 and 6850 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 (e.g., packets received/transmitted and deferred frames received).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, accounting information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- On a combo port configured as either forced fiber or preferred fiber the accounting information for the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid accounting](#) command for more information.
- On a combo port configured as either forced copper or preferred copper the accounting information for the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid accounting](#) command for more information.

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

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

Release History

Release 6.1; command was introduced.

Related Commands

show interfaces	Displays general interface information (e.g., hardware, MAC address, and input/output errors).
show interfaces counters	Displays interface counter information (e.g., 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 (e.g., unicast, broadcast, and multi-cast packets received/transmitted).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- If no slot/port numbers are entered, counter information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- These counters do not apply to Gigabit Ethernet traffic.
- On a combo port configured as either forced fiber or preferred fiber statistics for the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid counters](#) command for more information.
- On a combo port configured as either forced copper or preferred copper statistics for the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid counters](#) command for more information.
- 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

InOctets	Number of octets received.
OutOctets	Number of octets transmitted.
InUcastPkts	Number of unicast packets received.
OutUcastPkts	Number of unicast packets transmitted.
InMcastPkts	Number of multicast packets received.
OutMcastPkts	Number of unicast packets transmitted.
InBcastPkts	Number of broadcast packets received.
OutBcastPkts	Number of unicast packets transmitted.
InPauseFrames	Number of MAC control frames received.
OutPauseFrames	Number of MAC control frames transmitted.
Sampling Interval	The sampling interval used to determine the average rate per second.
InPkts / s	The average number of packets received per second.
OutPkts / s	The average number of packets transmitted per second.
Inbits / s	The average number of bits received per second.
Outbits / s	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 (e.g., 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 (e.g., CRC errors, transit errors, and receive errors).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, counter error information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- These counters do not apply to Gigabit Ethernet traffic.
- On a combo port configured as either forced fiber or preferred fiber, statistics for the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid counters errors](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, statistics for the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid counters errors](#) command for more information.

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

Slot/Port	Interface slot and port number.
Alignments Errors	Number of Alignments errors.
FCS Errors	Number of Frame Check Sequence errors.
IfInErrors	Number of received error frames.
IfOutErrors	Number of transmitted error frames.
Undersize pkts	Number of undersized packets.
Oversize pkts	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 (e.g., 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 (e.g., number of collisions and number of retries).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, collision information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- These counters do not apply to Gigabit Ethernet traffic.
- On a combo port configured as either forced fiber or preferred fiber, statistics for the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid collisions](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, statistics for the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid collisions](#) command for more information.

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

Slot/Port	Interface slot and port number.
Tx Collisions	Number of transmit collisions.

output definitions (continued)

Tx Single Collision	Number of successfully transmitted frames for which transmission was inhibited by one collision.
Tx Multiple Collisions	Number of successfully transmitted frames for which transmission was inhibited by multiple collisions.
Tx Excessive Retries	Number of frames for which transmission fails due to excessive collisions.
Rx Collisions	Number of receive collisions.
Rx Single Collision	Number of successfully received frames for which reception was inhibited by one collision.
Rx Multiple Collisions	Number of successfully received frames for which reception was inhibited by multiple collisions.
Rx Excessive Retries	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 (e.g., 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 (e.g., speed and mode).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, line settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

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

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

Release History

Release 6.1; command was introduced.

Related Commands

trap port link	Enables/disables Trap LinkUpDown.
interfaces speed	Configures interface line speed, sets speed, and duplex mode to auto-sensing.
interfaces duplex	Configures interface duplex mode.
interfaces clear-violation-all	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.
interfaces hybrid preferred-copper	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.
interfaces hybrid forced-fiber	Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).
interfaces hybrid forced-copper	Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).

MIB Objects

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

show interfaces port

Displays interface port status (up or down).

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

The status for all ports is displayed if a specific slot/port value is not specified with this command.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- You can display a specific interface by entering the slot and port number.
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- On a combo port configured as either forced fiber or preferred fiber, the status of the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid port](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, the status of the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid port](#) command for more information.

Examples

```
-> show interfaces ethernet port
Slot/   Admin   Link   Violations   Alias
Port    Status  Status
-----+-----+-----+-----+-----
1/1     enable  down   none         " "
1/2     enable  down   none         " "
1/3     enable  down   none         " "
1/4     enable  down   none         " "
```

```
-> show interfaces 1/24 port
```

```
Slot/Port  Admin Status  Link Status  Violations  Alias
-----+-----+-----+-----+-----
  1/24      enable        down        NETSEC      " "
```

output definitions

Slot/Port	Interface slot and port number.
Admin Status	Port status (enable/disable).
Link Status	Operational status (enable/disable).
Violations	Applications that have blocked the port due to a specific violation.
Alias	Interface alias.

Release History

Release 6.1; command was introduced.

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

Related Commands

interfaces admin	Enables/disables an interface.
interfaces clear-violation-all	Clears all port violations set by various applications on the switch.
interfaces alias	Configures an alias for a port.

MIB Objects

```
esmConfTable
  esmPortSlot
  esmPortIF
ifXTable
  ifAlias
ifTable
  ifAdminStatus
  ifOperStatus
```


show interfaces ifg

Displays interface inter-frame gap values.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, IFG values for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- On a combo port configured as either forced fiber or preferred fiber, the configuration of the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid ifg](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, the configuration of the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid ifg](#) command for more information.

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

Slot/Port	Interface slot and port numbers.
ifg	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*[/*port*[-*port2*]]] **flood rate**

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, peak rate settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number.
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number only.
- On a combo port configured as either forced fiber or preferred fiber, the status and configuration of the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid flood rate](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, the status and configuration of the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid flood rate](#) command for more information.

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

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

Release History

Release 6.1; command was introduced.

Related Commands

interfaces flood rate	Configures the peak flood rate for an interface.
interfaces flood multicast	Enables/disables flood rate limiting for multicast traffic on an interface.

MIB Objects

```
esmConfTable
  esmPortSlot
  esmPortIF
  esmPortMaxFloodRate
  esmPortFloodMcastEnable
```

show interfaces traffic

Displays interface traffic statistics.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If no slot/port numbers are entered, traffic settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- On a combo port configured as either forced fiber or preferred fiber, statistics for the SFP fiber ports and not the copper RJ-45 10/100/1000 ports will be displayed. See the [show interfaces hybrid traffic](#) command for more information.
- On a combo port configured as either forced copper or preferred copper, statistics for the copper RJ-45 10/100/1000 ports and not the SFP fiber port will be displayed. See the [show interfaces hybrid traffic](#) command for more information.

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

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

Release History

Release 6.1; command was introduced.

Related Commands

[show interfaces](#)

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

[show interfaces counters](#)

Displays interface counter information (e.g., unicast packets received/transmitted).

MIB Objects

```
esmConfTable
```

```
  esmPortSlot
  esmPortIF
```

```
ifXTable
```

```
  ifHCInOctets
  ifHCInUcastPkts
  ifHCInMulticastPkts
  ifHCInBroadcastPkts
  ifHCOctets
  ifHCOOutUcastPkts
  ifHCOOutMulticastPkts
  ifHCOOutBroadcastPkts
```

show interfaces transceiver

Displays the DDM information for the specified transceivers.

show interfaces transceiver [*slot*[/*port*[-*port2*]]] **transceiver** [**ddm** | **W-Low** | **W-High** | **A-Low** | **A-High** | **actual**]

Syntax Definitions

<i>slot</i>	Slot number to display.
<i>port</i>	Port number of the interface to display.
<i>port2</i>	Last port number in a range of ports to display.
ddm	Displays the administrative and trap status of the DDM feature.
W-Low	Displays the Warning Low threshold for temperature, voltage, current, RX power and TX power.
W-High	Displays the Warning High threshold for temperature, voltage, current RX power and TX power.
A-Low	Displays the Alarm Low threshold for temperature, voltage, current RX power and TX power.
A-High	Displays the Alarm High threshold for temperature, voltage, current RX power and TX power.
actual	Displays the Actual values for temperature, voltage, current RX power and TX power.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Transceiver DDM capability will vary based on the transceiver manufacturer.

Examples

```
-> show interfaces transceiver W-Low
```

```
Slot/Port Temp C Voltage(V) Current(mA) Output(mW) Input(mW)
-----+-----+-----+-----+-----+
1/1         48      5.15      50      1.78      1.78
1/2         47      5.35      49      1.75      1.75
1/3         NA       NA       NA       NA       NA
```

```
-> show interfaces transceiver A-High
```

```
Slot/Port Temp C Voltage(V) Current(mA) Output(mW) Input(mW)
-----+-----+-----+-----+-----+
1/1          50      5.75        75         2.10      2.10
1/2          50      5.95        65         2.10      2.10
1/3          NA       NA          NA          NA         NA
```

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

```
Threshold      Temp C Voltage(V) Current(mA) Output(mW) Input(mW)
-----+-----+-----+-----+-----+
Actual          50    1.95(WL)    75         3.11(AH)  2.10
Alarm High     120    5.75       100        3.10      3.10
Warning High   90     3.00       90         3.00      3.00
Warning Low    10     2.00       60         1.00      0.00
Alarm Low      -5     1.75       20         0.50      0.10
```

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

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

output definitions

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

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the status of the SFP port(s) will be displayed.
copper	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

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

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

output definitions (continued)

Rx Lost Frames	Number of Lost Frames received.
Rx Error Frames	Number of error frames received.
Rx CRC Error Frames	Number of CRC error frames received.
Rx Alignments Err	Number of Alignments Error frames received.
Bytes Xmitted	Number of Bytes transmitted.
Tx Unicast Frames	Number of unicast frames transmitted.
Tx Broadcast Frames	Number of broadcast frames transmitted.
Tx M-cast Frames	Number of multicast frames r transmitted.
Tx Undersize Frames	Number of undersized frames transmitted.
Tx Oversize Frames	Number of oversized frames transmitted.
Tx Lost Frames	Number of Lost Frames transmitted.
Tx Collided Frames	Number of collision frames received or transmitted.
Tx Error Frames	Number of error frames transmitted.

Release History

Release 6.1; command was introduced.

Related Commands

show interfaces hybrid accounting	Displays interface accounting information (e.g., packets received/transmitted) for combo ports.
show interfaces hybrid counters	Displays interface counter information (e.g., unicast packets received/transmitted) for combo ports.
show interfaces hybrid counters errors	Displays interface error frame information (e.g., CRC errors, transit errors, receive errors) for combo ports.
show interfaces hybrid collisions	Displays interface collision information (e.g., number of collisions, number of retries) for combo ports.
show interfaces hybrid status	Displays the interface line settings (e.g., speed, mode) for combo ports.
show interfaces hybrid traffic	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 (e.g., speed, mode) for combo ports only.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the status of the SFP port(s) will be displayed.
copper	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

The **show interfaces hybrid status** command displays the status and configuration of the active port in the first row and the status and configuration of the other port in the following row.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

N/A

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

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

Release History

Release 6.1; command was introduced.

Related Commands

trap port link	Enables/disables Trap LinkUpDown.
interfaces hybrid speed	Configures interface line speed on combo ports.
interfaces hybrid duplex	Configures duplex mode on combo ports.
interfaces clear-violation-all	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.
interfaces hybrid preferred-copper	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.
interfaces hybrid forced-fiber	Configures one or more combo ports to always use the fiber SFP port(s) instead of the equivalent copper 10/100/1000 RJ-45 port(s).
interfaces hybrid forced-copper	Configures one or more combo ports to always use the copper 10/100/1000 RJ-45 port(s) instead of the equivalent fiber SFP port(s).

MIB Objects

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

show interfaces hybrid flow control

Displays interface flow control wait time settings for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the configuration of the SFP port(s) will be displayed.
copper	Specifies that the configuration of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850

Usage Guidelines

- If no slot/port numbers are entered, flow control wait time settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number, a range of ports by entering a slot and a range of ports, display all interfaces in a slot by entering the slot number, or display all interfaces as described above.
- Note that the **show interfaces hybrid flow control** command is not supported on the OmniSwitch 6855. To view this type of information for the OmniSwitch 6855, use the [show interfaces hybrid pause](#) command.

Examples

```
-> show interfaces hybrid fiber flow control
Slot/Port  Active  Wait time(usec)  Cfg-Flow  Cfg-Cross
-----+-----+-----+-----+-----
1/45      -           0      Pause      MDI
1/46      -           0      Pause      MDI
1/47      -           0      Pause      MDI
1/48      -           0      Pause      MDI
2/45      -           0      Pause      MDI
2/46      -           0      Pause      MDI
2/47      -           0      Pause      MDI
2/48      -           0      Pause      MDI
```


output definitions

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

Release History

Release 6.1; command was introduced.

Release 6.3.2; command deprecated on the OmniSwitch 6855.

Related Commands

interfaces hybrid crossover	Configures crossover settings for combo ports.
show interfaces flow control	Displays interface flow control wait time settings.

MIB Objects

esmConfTable

 esmPortCfgSlot

 esmPortCfgIfIndex

esmHybridConfTable

 esmHybridPortCfgFlow

 esmHybridPortPauseSlotTime

 esmHybridPortCfgCrossover

show interfaces hybrid pause

Displays the flow control pause configuration for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the configuration of the SFP port(s) will be displayed.
copper	Specifies that the configuration of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

If a specific slot or slot/port number is not entered with this command, the flow control pause configuration for all switch combo ports is displayed.

Platforms Supported

OmniSwitch 6400, 6855

Usage Guidelines

- Enter a slot and port number (e.g., 3/21) or a range of port numbers (e.g., 3/21-24) to display information for a specific combo port or a range of combo ports.
- Enter a slot number (e.g., 1) to display information for all combo ports on a specific slot.
- Refer to the *Hardware Users Guide* for combo port numbering.
- This command is only supported on a standalone OmniSwitch 6855. Use the [show interfaces hybrid flow control](#) command to display similar information on other platforms.

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

Slot/Port	Interface slot and port number
Active	Interface status.
Wait time	The amount of time, in microseconds, the neighbor interface will wait after receiving a PAUSE frame from the local interface.
Cfg-Pause	The flow control setting (Tx = transmit, Rx = receive, Tx-N-Rx = transmit and receive). Configured through the interfaces hybrid pause command.
Cfg-Cross	The user-configured cross-over setting (Auto , MDI , or MDIX). Configured through the interfaces hybrid crossover command.
Hybrid Type	The configured active media type for the hybrid port (F = fiber, C = copper, NA = 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*[/*port*[-*port2*]]] **hybrid** {**fiber** |**copper**} **capability**

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the configuration of the SFP port(s) will be displayed.
copper	Specifies that the configuration of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

The **show interfaces hybrid capability** 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.

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

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

output definitions (continued)

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

Release History

Release 6.1; command was introduced.

Related Commands

interfaces hybrid autoneg	Enables and disables auto negotiation for combo ports.
interfaces hybrid crossover	Configures crossover port settings for combo ports.
interfaces hybrid speed	Configures interface speed for combo ports.
interfaces hybrid duplex	Configures duplex settings for combo ports.
show interfaces hybrid status	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 (e.g., packets received/transmitted, deferred frames received) for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, accounting information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

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

Rx undersize packets	Number of undersized packets received.
Tx undersize packets	Number of undersized packets transmitted.
Rx oversize packets	Number of oversized packets received.
Tx oversize packets	Number of oversized packets transmitted.
Rx packets Octets	Number of packets received in each listed octet range.
Rx Jabber frames	Number of jabber packets received (longer than 1518 octets).
Tx deferred frames	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 (e.g., hardware, MAC address, input/output errors) for combo ports.

[show interfaces hybrid counters](#) Displays interface counter information (e.g., 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 (e.g., unicast, broadcast, multi-cast packets received/transmitted) for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, counter information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- 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

InOctets	Number of octets received.
OutOctets	Number of octets transmitted.
InUcastPkts	Number of unicast packets received.

output definitions (continued)

OutUcastPkts	Number of unicast packets transmitted.
InMcastPkts	Number of multicast packets received.
OutMcastPkts	Number of multicast packets transmitted.
InBcastPkts	Number of broadcast packets received.
OutBcastPkts	Number of broadcast packets transmitted.
InPauseFrames	Number of MAC control frames received.
OutPauseFrames	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 (e.g., CRC errors, transit errors, receive errors).

MIB Objects

```
esmConfTable
  esmPortCfgSlot
  esmPortCfgIfIndex
ifXTable
  IfHCInOctets
  IfHCOutOctets
  IfHCInUcastPkts
  IfHCOutUcastPkts
  IfHCInMulticastPkts
  IfHCOutMulticastPkts
  IfHCInBroadcastPkts
  IfHCOutBroadcastPkts
dot3PauseTable
  dot3InPauseFrame
  dot3OutPauseFrame
```

show interfaces hybrid counters errors

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

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, counter error information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- 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

Slot/Port	Interface slot and port number.
Alignments Errors	Number of Alignments errors.

output definitions (continued)

FCS Errors	Number of Frame Check Sequence errors.
IfInErrors	Number of received error frames.
IfOutErrors	Number of transmitted error frames.
Undersize pkts	Number of undersized packets.
Oversize pkts	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 (e.g., 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 (e.g., number of collisions, number of retries) for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, collision information for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).
- 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

Slot/Port	Interface slot and port number.
Tx Collisions	Number of transmit collisions.
Tx Single Collision	Number of successfully transmitted frames for which transmission was inhibited by one collision.
Tx Multiple Collisions	Number of successfully transmitted frames for which transmission was inhibited by multiple collisions.
Tx Excessive Retries	Number of frames for which transmission fails due to excessive collisions.
Rx Collisions	Number of receive collisions.
Rx Single Collision	Number of successfully received frames for which reception was inhibited by one collision.
Rx Multiple Collisions	Number of successfully received frames for which reception was inhibited by multiple collisions.
Rx Excessive Retries	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 (e.g., 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*[/*port*[-*port2*]]] **hybrid** {**fiber** |**copper**} **traffic**

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, traffic settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

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

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

Release History

Release 6.1; command was introduced.

Related Commands

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

MIB Objects

esmConfTable

 esmPortCfgSlot
 esmPortCfgIfIndex

ifXTable

 ifHCInOctets
 ifHCInUcastPkts
 ifHCInMulticastPkts
 ifHCInBroadcastPkts
 ifHCOctets
 ifHCOOutUcastPkts
 ifHCOOutMulticastPkts
 ifHCOOutBroadcastPkts

show interfaces hybrid port

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

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the status of the SFP port(s) will be displayed.
copper	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, the status for all slots/ports on the switch is displayed.
- You can display a specific interface by entering the slot and port number.
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

Examples

```
-> show interfaces 1/47 hybrid fiber port
Slot/Port  Admin Status  Link Status  Alias
-----+-----+-----+-----
  1/47          enable        down         " "
```

output definitions

Slot/Port	Interface slot and port number.
Admin Status	Port status (enable/disable).
Link Status	Operational status (enable/disable).
Alias	Interface alias.

Release History

Release 6.1; command was introduced.

Related Commands

[interfaces admin](#)

Enables/disables an interface.

[interfaces alias](#)

Configures an alias for a port.

MIB Objects

esmConfTable

 esmPortCfgSlot

 esmPortCfgIfIndex

ifXTable

 ifAlias

ifTable

 ifAdminStatus

 ifOperStatus

show interfaces hybrid flood rate

Displays interface peak flood rate settings for combo ports.

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that the status of the SFP port(s) will be displayed.
copper	Specifies that the status of the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, peak rate settings for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number.
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number only.

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

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

Release History

Release 6.1; command was introduced.

Related Commands

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

Syntax Definitions

<i>slot</i>	Slot number you want to display.
<i>port</i>	Port number of the interface you want to display.
<i>port2</i>	Last port number in a range of ports you want to display.
fiber	Specifies that statistics for the SFP port(s) will be displayed.
copper	Specifies that statistics for the copper 10/100/1000 RJ-45 port(s) will be displayed.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- If no slot/port numbers are entered, IFG values for all slots/ports on the switch are displayed.
- You can display a specific interface by entering the slot and port number (e.g., 3/1).
- You can display a range of port numbers (e.g., 3/1-4).
- You can display all interfaces in a slot by entering the slot number (e.g., 3).

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

Slot/Port	Interface slot and port numbers.
ifg	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
```

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. The valid range is 1–8 on an OmniSwitch 9700.
enable	Enables fabric backpressure.
disable	Disables fabric backpressure.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 9000

Usage Guidelines

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

debug interfaces backpressure

Displays whether fabric back pressure is enabled or disabled on a Network Interface (NI) or an entire chassis.

debug interfaces [*slot*] **backpressure**

Syntax Definitions

slot The slot number to display the fabric back pressure state. The valid range is 1–8 on an OmniSwitch 9700.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 9000

Usage Guidelines

If the slot number is not specified, then the switch back pressure state will be displayed for an entire chassis.

Examples

```
-> debug interfaces backpressure
Slot   Backpressure
-----+-----
 1     disable
 2     disable
 3     enable
 4     enable
 5     disable
 6     disable
 7     disable
 8     enable

-> debug interfaces 3 backpressure
Slot   Backpressure
-----+-----
 3     enable
```

output definitions

Slot	The slot number of the NI.
Backpressure	Displays if the switch fabric back pressure feature is enabled or disabled on this NI. (The default is disabled.)

Release History

Release 6.1; command was introduced.

Related Commands

[debug interfaces set
backpressure](#)

Enables and disables fabric back pressure on an NI or an entire chassis.

MIB Objects

N/A

20 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, 6855, 9000, 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

vlan dhcp mac range	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.
vlan dhcp port	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.
vlan dhcp generic	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.
show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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

vlan dhcp mac	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.
vlan dhcp port	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.
vlan dhcp generic	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.
show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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

vlan dhcp mac	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.
vlan dhcp mac range	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.
vlan dhcp generic	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.
show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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

vlan dhcp port	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.
vlan dhcp mac	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.
vlan dhcp mac range	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.
show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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

show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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).
ip-e2	IP Ethernet-II protocol. Also captures Address Resolution Protocol (ARP).
ip-snap	IP SNAP protocol.
ipv6	IPv6 protocol.
ipx-e2	IPX Ethernet-II protocol.
ipx-novell	IPX Novell (802.3) protocol.
ipx-llc	IPX LLC (802.2) protocol.
ipx-snap	IPX SNAP protocol.
decnet	DECNET Phase IV (6003) protocol.
appletalk	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, 6855, 9000, 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

show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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 20-18](#)).
- 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, 6855, 9000, 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.

Note. On an OmniSwitch 6800, IP network address rules are applied to traffic received on both mobile *and* fixed (non-mobile) ports. As a result, fixed port traffic that contains an IP address that is included in the IP subnet specified by the rule is dropped. However, if the IP network address rule VLAN is also the default VLAN for the fixed port, then the fixed port traffic is forwarded and not dropped.

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, 6855, 9000, 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.
- Note that on an OmniSwitch 6800 when the contents of a mobile port frame matches the values specified in both an IP network address rule and a port-protocol binding rule, the IP network address rule takes precedence. However, if the contents of such frame violates the port-protocol binding rule, the frame is dropped.
- 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

vlan dhcp mac	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.
vlan dhcp mac range	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.
vlan dhcp port	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.
vlan dhcp generic	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.
show vlan	Displays existing VLANs.
show vlan rules	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.
e2	Enter e2 to specify Ethernet-II encapsulation.
llc	LLC (802.2) encapsulation.
snap	SNAP encapsulation.
novell	Novell Raw (802.3) encapsulation.

Defaults

parameter	default
e2 llc snap raw	e2

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

show vlan	Displays existing VLANs.
show vlan rules	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).
ip-e2	IP Ethernet-II protocol. Also captures Address Resolution Protocol (ARP).
ip-snap	IP Sub-network Access Protocol (SNAP) protocol.
ipx-e2	IPX Ethernet-II protocol.
ipx-novell	IPX Novell (802.3) protocol.
ipx-llc	IPX LLC (802.2) protocol.
ipx-snap	IPX SNAP protocol.
decnet	DECNET Phase IV (6003) protocol.
appletalk	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, 6855, 9000, 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

show vlan	Displays existing VLANs.
show vlan rules	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, 6855, 9000, 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

show vlan	Displays existing VLANs.
show vlan rules	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
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

vlan port default vlan restore	Enables default VLAN restore on a mobile port.
vlan port default vlan	Enables default VLAN membership for mobile port traffic that does not match any VLAN rules.
vlan port authenticate	Enables or disables authentication on a mobile port.
show vlan port mobile	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).
enable	Enable default VLAN restore for the specified mobile port. VLAN assignments are dropped when port traffic ages out.
disable	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, 6855, 9000, 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

vlan port mobile	Configures Ethernet ports as mobile ports.
vlan port default vlan	Enables default VLAN membership for mobile port traffic that does not match any VLAN rules.
vlan port authenticate	Enables or disables authentication on a mobile port.
show vlan port mobile	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).
enable	Enable the configured default VLAN for the specified mobile port.
disable	Disable the configured default VLAN for the specified mobile port.

Defaults

Default VLAN is enabled on mobile ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

vlan port mobile	Configures Ethernet ports as mobile ports.
vlan port default vlan restore	Enables default VLAN restore on a mobile port.
vlan port authenticate	Enables or disables authentication on a mobile port.
show vlan port mobile	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).
enable	Enable authentication on the specified mobile port.
disable	Disable authentication on the specified mobile port.

Defaults

By default, authentication is disabled on mobile ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

vlan port mobile	Configures Ethernet ports as mobile ports.
vlan port 802.1x	Enables or disables 802.1X port-based access control on a mobile port.
show vlan port mobile	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).
enable	Enable 802.1x on the specified mobile port.
disable	Disable 802.1x on the specified mobile port.

Defaults

By default, 802.1x is disabled on mobile ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

vlan port mobile	Configures Ethernet ports as mobile ports.
vlan port authenticate	Enables or disables authentication on a mobile port.
show vlan port mobile	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, 6855, 9000, 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, 11c
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, 11c
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

Type	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)

VLAN	The VLAN ID number for the rule's VLAN.
Rule	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

show vlan	Displays a list of existing VLANs.
show vlan port	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, 6855, 9000, 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

port	The slot number for the module and the physical mobile port number on that module.
mobile	The mobile status for the port (on or off). If set to on , the port is mobile and eligible for dynamic VLAN assignment. If set to off , the port is non-mobile and remains only a member of its configured default VLAN. Use the vlan port mobile to enable or disable mobility on a port.
cfg def	The configured default VLAN for the port, which is assigned using the vlan port default command.

output definitions (continued)

authent	The authentication status for the port (on-avlan , on-8021x , or off). Use the vlan port authenticate and vlan port 802.1x commands to change this status.
enabled	The default VLAN status for the port: on enables the forwarding of traffic that doesn't match any rules on the port's configured default VLAN; off disables the forwarding of such traffic and packets are discarded. Use the vlan port default vlan to change this status.
restore	The default VLAN restore status for the port: on indicates that the mobile port will not retain its VLAN assignments when qualifying traffic ages out on that port; off indicates that the mobile port will retain its dynamic VLAN assignments after qualifying traffic has aged out. Use the vlan port default vlan restore command to change this status.
ignore BPDU	The ignore BPDU status for the port: on indicates that if the mobile port receives BPDUs, they're ignored and the port remains eligible for dynamic VLAN assignment; off 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 vlan port mobile 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.

21 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 router ipx
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”).
enable	Enable VLAN administrative status.
disable	Disable VLAN administrative status.

Defaults

parameter	default
enable disable	enable
<i>description</i>	VLAN ID

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
```

The following **vlan** command examples apply only to the OmniSwitch 6800 and OmniSwitch 6850:

```
-> 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

vlan port default	Statically assigns ports to a VLAN.
show vlan	Displays a list of existing VLANs.
show vlan port	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).
1x1	Specifies that the Spanning Tree status for the VLAN applies when the switch is running in the 1x1 Spanning Tree mode.
flat	Specifies that the Spanning Tree status for the VLAN applies when the switch is running in the flat Spanning Tree mode.
enable	Enables Spanning Tree for the specified VLAN.
disable	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, 9000, 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

vlan	Creates a VLAN.
bridge mode	Selects a flat Spanning Tree or 1x1 Spanning Tree operating mode for a switch.
show vlan	Displays a list of existing VLANs.
show vlan port	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).
enable	Enables dynamic assignment of tagged mobile port packets to the specified VLAN.
disable	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, 9000, 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

vlan	Creates a VLAN.
show vlan	Displays a list of existing VLANs.
show vlan port	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).
enable	Enables authentication for the specified VLAN.
disable	Disables authentication for the specified VLAN.

Defaults

By default, authentication is disabled when a VLAN is created.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 58, “AAA Commands,”](#) for more information about configuring Layer 2 Authentication.

Examples

```
-> vlan 850 authentication enable
-> vlan 720 authentication enable
-> vlan 1020 authentication disable
```

The following **vlan authentication** command examples apply to the OmniSwitch 6800 and OmniSwitch 6850:

```
-> 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 router ipx

Defines an IPX router interface to enable IPX routing on a VLAN. Defining an IPX router interface allows VLAN traffic to communicate with traffic from other IPX router VLANs. Without a router interface, traffic is bridged within the VLAN or across connections to the same VLAN on other switches.

vlan vid router ipx ipx_net [rip | active | inactive | triggered] [e2 | llc | snap | novell] [timeticks ticks]

vlan vid no router ipx

Syntax Definitions

<i>vid</i>	An existing VLAN ID number (1–4094).
<i>ipx_net</i>	IPX network address consisting of eight hex characters (e.g. 0000590c, 0000210a). If less than eight hex digits are entered, the entry is prefixed with zeros to equal eight digits.
rip	RIP updates are processed.
active	RIP and SAP updates are processed.
inactive	RIP and SAP updates are not processed, but router interface remains active.
triggered	RIP and SAP information is broadcast only when there are updates.
e2	Enter e2 or ethernet2 to specify Ethernet-II encapsulation.
novell	Novell Raw (802.3) encapsulation.
llc	LLC (802.2) encapsulation.
snap	SNAP encapsulation.
<i>ticks</i>	A 16-bit value (0–65535) that specifies the number of ticks for IPX delay time. A tick is approximately 1/18th of a second.

Defaults

parameter	default
rip active inactive triggered	active
e2 llc snap raw	e2
<i>ticks</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove an IPX virtual router interface from the VLAN.
- Configuring both an IP and IPX virtual router interface on the same VLAN is allowed. VLAN router interfaces, however, are not active until at least one active switch port is assigned to the VLAN.
- In single MAC router mode, a maximum of 4094 VLANs can have IP interfaces and 256 VLANs can have IPX router interfaces defined. Note that these limits are subject to the availability of switch resources.

Examples

```
-> vlan 10 router ipx 1000590c
-> vlan 200 router ipx 250a active raw timeticks 10
-> vlan 420 router ipx 350a triggered snap timeticks 5
-> vlan 1020 router ipx 2110650d inactive
-> vlan 1020 no router ipx
```

Release History

Release 6.1; command was introduced.

Related Commands

vlan	Creates a VLAN.
show vlan	Displays list of existing VLANs.
show vlan port	Displays VLAN port assignments.
show vlan router mac status	Displays router MAC operating mode and VLAN router interface statistics.

MIB Objects

```
vlanTable
  vlanNumber
  vlanIpxNet
  vlanIpxEncap
  vlanIpxRipSapMode
  vlanIpxDelayTicks
  vlanIpxStatus
```

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 Chapter 12, “Link Aggregation Commands.”

Defaults

VLAN 1 is the default VLAN for all ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

vlan	Creates a VLAN.
show vlan	Displays list of existing VLANs.
show vlan port	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.
enable	Enables source MAC address learning.
disable	Disables source MAC address learning.

Defaults

parameter	default
enable disable	enable

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, 9000, 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	lxl	stree	flat	auth	ip	ipx	mble	src	name
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	std	on	on	on	on	on	off	off	NA	off	on	VLAN 1
100	vstk	on	off	off	on	on	off	off	NA	off	off	VLAN 100

```
-> show vlan 1
```

```
Name           : VLAN 1,
Administrative State: enabled,
Operational State  : enabled,
lxl 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

vlan	The numerical VLAN ID. Use the vlan command to create or remove VLANs.
type	The type of VLAN (std , vstk , gvrp , or ipmv).
admin	VLAN administrative status: on enables VLAN functions to operate; off disables VLAN functions without deleting the VLAN. Use the vlan command to change the VLAN administrative status.
oper	VLAN operational status: on (enabled) or off (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.
stree 1x1	VLAN Spanning Tree status for the VLAN in the 1x1 mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp command.
stree flat	VLAN Spanning Tree status for the VLAN in the flat mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp command.
auth	VLAN Authentication status: on (enabled) or off (disabled). Use the vlan authentication command to change the VLAN Authentication status.
ip	IP router interface status: on (IP interface exists for the VLAN) or off (no IP router interface exists for the VLAN). Use the ip interface command to define an IP router interface for a VLAN.
ipx	IPX router interface. Shows the IPX address, RIP mode, and encapsulation for the VLAN's IPX router interface, if one is defined. Use the vlan router ipx command to configure IPX router interfaces.
mble tag	Mobile tagging status: on (enabled); off (disabled). Configured through the vlan mobile-tag command.

output definitions (continued)

src lrn	Source learning status: on (enabled) ; off (disabled). Configured through the vlan source-learning command. Note that disabling source learning is not supported on the OmniSwitch 6850 and 9000.
name	The user-defined text description for the VLAN. By default, the VLAN ID is specified for the VLAN description.
Traffic-Type	Type of traffic passing through the VLAN port.
Priority-Map	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

show vlan port	Displays VLAN port assignments.
show vlan router mac status	Displays the current MAC router operating mode (single or multiple) and VLAN router interface statistics.
show vlan gvrp	Displays a list of VLANs learned through GVRP and their details.
show vlan ipmvlan	Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANS, or all the IPMVLANS.
show ip interface	Displays IP router information.

MIB Objects

```
vlanMgrVlan
vlanTable
  vlanNumber
  vlanDescription
  vlanAdmStatus
  vlanOperStatus
  vlanStatus
  vlanStpStatus
  vlanAuthentStatus
  vlanIpAddress
  vlanIpMask
  vlanIpEnacp
  vlanIpForward
  vlanIpStatus
  vlanIpxNet
  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, 9000, 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

vlan	Numerical VLAN ID. Identifies the port's VLAN assignment.
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).
type	The type of VPA: default (configured default VLAN assignment for the port), qtagged (802.1Q tagged secondary VLAN assignment for the port), mobile (dynamic secondary VLAN assignment for the port), mirror (port is mirroring the VLAN assignment of another port), or dynamic (VPAs that are learnt through GVRP).
status	The VPA status: inactive (port is not active), forwarding (traffic is forwarding on this VPA), blocking (traffic is not forwarding on this VPA), or filtering (a mobile port's VLAN is administratively off or the port's default VLAN status is disabled; does not apply to fixed ports).
vlan admin	VLAN administrative status: on enables VLAN functions to operate; off disables VLAN functions without deleting the VLAN. Use the vlan command to change the VLAN administrative status.
vlan oper	VLAN operational status: on (enabled) or off (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

port admin	Port administrative status: on (enabled) allows the port to send and receive data when it is active; off (disabled) prevents the port from sending and receiving traffic even if it has an active connection.
port oper	Port operational status: on (enabled) or off (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

show vlan	Displays list of VLANs configured on the switch.
show vlan router mac status	Displays the current MAC router operating mode (single or multiple) and VLAN router interface statistics.
show vlan gvrp	Displays a list of VLANs learned through GVRP and their details.
show vlan ipmvlan	Displays IPMVLAN information for a specific IPMVLAN, a range of IPMVLANs, or all the IPMVLANs.
show ip interface	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 and IPX router interfaces configured.

show vlan router mac status

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 and 256 VLANs can have IPX 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              2
```

output definitions

router-mac-multiple	Multiple MAC router mode status: enabled or disabled . If this mode is disabled, the switch is running in single MAC router mode.
total vlans	The total number of VLANs configured on the switch. Use the vlan command to create or remove VLANs.
router vlans	The total number of VLANs configured on the switch that have at least one router interface defined (either IP or IPX). Use the ip interface command to define an IP router interface for a VLAN. Use the vlan router ipx commands to define an IPX router interface for a VLAN.
ip vlans	The total number of VLANs configured on the switch that have an IP router interface defined. Use the ip interface command to define an IP router for a VLAN.
ipx vlans	The total number of VLANs configured on the switch that have an IPX router interface defined. Use the vlan router ipx command to define an IPX router interface for a VLAN.

Release History

Release 6.1; command was introduced.

Related Commands

show vlan	Displays list of VLANs configured on the switch.
show vlan port	Displays VLAN port assignments.
show ip interface	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, 9000, 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

```

          stree
vlan  type  admin oper  lxl   flat   auth  ip   ipx   mble  tag   name
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
  5   gvrp   on    on   on    on    off  NA   off  off  off  GVRP1
  6   gvrp   on    on   off   off   off  NA   off  off  off  GVRP12

```

output definitions

vlan	The VLAN ID. Use the vlan command to create or remove VLANs.
type	The type of VLAN (std , vstk , gvrp , or ipmv)
admin	VLAN administrative status: on enables VLAN functions to operate; off disables VLAN functions without deleting the VLAN. Use the vlan command to change the VLAN administrative status.
oper	VLAN operational status: on (enabled) or off (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)

stree 1x1	VLAN Spanning Tree status for the VLAN in the 1x1 mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp command.
stree flat	VLAN Spanning Tree status for the VLAN in the flat mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp command.
auth	VLAN Authentication status: on (enabled) or off (disabled). Use the vlan authentication command to change the VLAN Authentication status.
ip	IP router interface status: on (IP interface exists for the VLAN) or off (no IP router interface exists for the VLAN). Use the ip interface command to define an IP router interface for a VLAN.
ipx	IPX router interface. Shows the IPX address, RIP mode, and encapsulation for the VLAN's IPX router interface, if one is defined. Use the vlan router ipx command to configure IPX router interfaces.
mble tag	Mobile tagging status: on (enabled); off (disabled). Configured through the vlan mobile-tag command.
name	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

show vlan	Displays a list of VLANs configured on the switch.
show vlan port	Displays VLAN port assignments.

MIB Objects

vlanMgrVlan

vlanTable

 vlanNumber

 vlanDescription

 vlanAdmStatus

 vlanOperStatus

 vlanStatus

 vlanStpStatus

 vlanAuthentStatus

 vlanIpAddress

 vlanIpMask

 vlanIpEnacp

 vlanIpForward

 vlanIpStatus

 vlanIpxNet

 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, 9000, 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

vlan	The IPMVLAN ID.
type	Indicates if the IPMVLAN is in Enterprise mode (Entp ipmtv) or VLAN Stacking mode (Vstk ipmtv).
admin	Indicates IPMVLAN administrative status: on (enables IPMVLAN functions to operate) or off (disables IPMVLAN functions without deleting the IPMVLAN).
oper	IPMVLAN operational status: on (enabled) or off (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.
Name	The user-defined text description for the IPMVLAN. By default, the IPMVLAN ID is specified for the IPMVLAN description.
IPMV mode	Indicates the mode (Enterprise IPMVLAN or Vlan Stacking IPMVLAN) of the IPMVLAN.
Administrative State	Indicates the administrative status of the IPMVLAN, which can be enabled or disabled .
Operational State	Indicates the operational status of the IPMVLAN, which can be enabled or disabled .
stree 1x1	VLAN Spanning Tree status for the VLAN in the 1x1 mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp command.
stree flat	VLAN Spanning Tree status for the VLAN in the flat mode: on (enabled) allows the Spanning Tree algorithm to determine the state of VLAN ports (forwarding or blocking); off (disabled) prevents Spanning Tree algorithm from controlling VLAN ports, leaving active ports in a forwarding state. Configured through the vlan stp 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
```

22 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.

Note. GVRP is not supported on the OmniSwitch 6800 Series.

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show gvrp configuration](#) Displays the global configuration for GVRP.

MIB Objects

dot1qGvrpStatus

gvrp port

Enables GVRP on a specific port or an aggregate of ports on the switch.

gvrp {linkagg *agg_num* | port *slot/port*}

no gvrp {linkagg *agg_num* | 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).

agg_num The number corresponding to the aggregate group.

Defaults

By default, GVRP is disabled on the ports.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to disable GVRP on the specified ports.
- GVRP can be enabled on ports regardless of whether it is globally enabled or not. However, for the port to become an active participant, you should enable GVRP globally on the switch.
- When GVRP is globally enabled on the switch and is not enabled on the port, that port is excluded from the GVRP process.
- GVRP can be enabled only on fixed ports, 802.1 Q ports, and aggregate ports. Other ports (mirror ports, aggregable ports, mobile ports, and MSTI Trunking ports) do not support GVRP.
- To use the *agg_num* parameter, the link aggregate group should be created and enabled.

Examples

```
-> gvrp port 3/2
-> no gvrp port 3/2
-> gvrp linkagg 2
```

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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 9000 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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

normal	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.
fixed	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.
forbidden	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
normal fixed forbidden	normal

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

Release 6.3.1; support for OmniSwitch chassis-based switches added.

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

participant	Specifies that GVRP PDU exchanges are only allowed when the port is in the STP forwarding state.
non-participant	Specifies that no GVRP PDU exchanges are allowed on the port, regardless of the STP status of the port.
active	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
participant non-participant active	participant

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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

join	Specifies the value of the Join timer in milliseconds.
leave	Specifies the value of the Leave timer in milliseconds.
leaveall	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> (join)	600 ms
<i>timer-value</i> (leave)	1800 ms
<i>timer-value</i> (leaveall)	30000 ms

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show gvrp timer](#)

Displays the timer values configured for all the ports or a specific port.

[show gvrp configuration linkagg/port](#)

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 was added.

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 was added.

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

Join Empty Received	The number of Join Empty messages received.
Join In Received	The number of Join In messages received.
Empty Received	The number of Empty messages received.
Leave Empty Received	The number of Leave Empty messages received.
Leave In Received	The number of Leave In messages received.
Leave All Received	The number of Leave All messages received.
Join Empty Transmitted	The number of Join Empty messages transmitted.
Join In Transmitted	The number of Join In messages transmitted.
Empty Transmitted	The number of Empty messages transmitted.
Leave Empty Transmitted	The number of Leave Empty messages transmitted.

output definitions

Join Empty Received	The number of Join Empty messages received.
Leave In Transmitted	The number of Leave In messages transmitted.
Leave All Transmitted	The number of Leave All messages transmitted.
Failed Registrations	The number of failed registrations.
Total PDU Received	The number of total PDUs received.
Total PDU Transmitted	The number of total PDUs transmitted.
Invalid Msgs Received	The number of invalid messages received.
Total Msgs Received	The number of total messages received.
Total Msgs Transmitted	The number of total messages transmitted.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added; **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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show gvrp configuration
GVRP Enabled           : yes,
Transparent Switching Enabled : no,
Maximum VLAN Limit    : 256
```

output definitions

GVRP Enabled	Indicates whether or not GVRP is globally enabled.
Transparent Switching Enabled	Indicates whether transparent switching is enabled (Yes) or disabled (No). When enabled, GVRP messages are flooded even if GVRP is disabled for the switch.
Maximum VLAN Limit	The maximum number of VLANs that can be learned by GVRP in the system.

Release History

Release 6.2.1; command was introduced.
 Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

gvrp	Enables GVRP on the device globally.
gvrp transparent switching	Enables transparent switching on the device.
gvrp maximum vlan	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, 9000

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

Port	Displays the slot/port number.
GVRP Status	Indicates if GVRP is Enabled or Disabled on the port.

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

gvrp port	Enables GVRP on a specific port or an aggregate of ports on the switch.
show gvrp configuration linkagg/port	Displays the GVRP configuration for a specific port or an aggregate of ports.

MIB Objects

Dot1qportvltantable
dot1qPortGvrpStatus

show gvrp configuration linkagg/port

Displays the GVRP configuration for a specific port or an aggregate of ports.

show gvrp configuration {**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, 9000

Usage Guidelines

N/A

Examples

```
-> show gvrp configuration port 1/21
```

```
Port 1/21:
```

```
GVRP Enabled       : yes,
Registrar Mode     : normal,
Applicant Mode     : participant,
Join Timer (msec)  : 600,
Leave Timer (msec)  : 1800,
LeaveAll Timer (msec) : 30000,
Legacy Bpdu       : disabled
```

```
VLAN Memberships:
```

VLAN Id	Static Registration	Restricted Registration	Restricted Applicant
1	LEARN	FALSE	FALSE
2	LEARN	FALSE	FALSE
11	LEARN	FALSE	FALSE
12	LEARN	FALSE	FALSE
13	LEARN	FALSE	FALSE
14	LEARN	FALSE	FALSE
15	LEARN	FALSE	FALSE
16	LEARN	FALSE	FALSE
17	LEARN	FALSE	FALSE
18	LEARN	FALSE	FALSE
19	LEARN	FALSE	FALSE
20	LEARN	FALSE	FALSE
51	RESTRICT	FALSE	FALSE
52	RESTRICT	FALSE	FALSE

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

GVRP Enabled	Indicates whether or not GVRP is globally enabled (Yes or No).
Registrar Mode	Indicates the registrar mode (NORMAL , FIXED , or FORBIDDEN) of the port.
Applicant Mode	Indicates the applicant mode (PARTICIPANT , NON-PARTICIPANT , or ACTIVE) of the port.
Join Timer	Displays the Join timer value.
Leave Timer	Displays the Leave timer value.
LeaveAll Timer	Displays the LeaveAll timer value.
Legacy Bpdu	Indicates the status of conventional/customer BPDU processing on network ports (ENABLED or DISABLED).
VLAN Id	The numerical VLAN ID.
Static Registration	Indicates if the port is restricted (RESTRICT) or not restricted (LEARN) from becoming a member of the static VLAN.
Restricted Registration	Indicates if the VLAN is restricted (TRUE) or not restricted (FALSE) from dynamic registration on the port.
Restricted Applicant	Indicates if the restricted applicant mode is enabled (TRUE) or not (FALSE).

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

gvrp port	Enables GVRP on a specific port or an aggregate of ports on the switch.
gvrp registration	Configures the GVRP registration mode for a specific port or an aggregate of ports.
gvrp applicant	Configures the applicant mode of a specific port or an aggregate of ports on the switch.
gvrp timer	Configures the Join, Leave, or LeaveAll timer values for the switch ports.
gvrp restrict-vlan-registration	Restricts GVRP processing from dynamically registering the specified VLAN(s) on the switch.
gvrp restrict-vlan-advertisement	Restricts the advertisement of VLANs on a specific port or an aggregate of ports.
gvrp static-vlan restrict	Restricts a port from becoming a member of a statically created VLAN or a range of VLANs.
show gvrp configuration port	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

join	Displays the Join timer value.
leave	Displays the Leave timer value.
leaveall	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, 9000

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

Port	Displays the slot/port number.
Join Timer	Displays the Join timer value in milliseconds.
Leave Timer	Displays the Leave timer value in milliseconds.
LeaveAll Timer	Displays the LeaveAll timer value in milliseconds.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

gvrp timer

Configures the Join, Leave, or LeaveAll timer values for the switch ports.

MIB Objects

alaGvrpPortConfigTable

 alaGvrpPortConfigJoinTimer

 alaGvrpPortConfigLeaveTimer

 alaGvrpPortConfigLeaveAllTimer

23 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:

VLAN Stacking Service Mode	
	ethernet-service
	ethernet-service service-name
	ethernet-service svlan nni
	ethernet-service nni
	ethernet-service sap
	ethernet-service sap uni
	ethernet-service sap cvlan
	ethernet-service sap-profile
	ethernet-service sap sap-profile
	ethernet-service source-learning
	ethernet-service uni-profile
	ethernet-service uni uni-profile
	show ethernet-service mode
	show ethernet-service vlan
	show ethernet-service
	show ethernet-service sap
	show ethernet-service port
	show ethernet-service nni
	show ethernet-service uni
	show ethernet-service uni-profile
	show ethernet-service sap-profile

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

svlan	Creates an SVLAN for tunneling customer traffic.
ipmvlan	Creates an SVLAN used by IPMV to distribute multicast traffic.
management-vlan	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).
enable	Enables the SVLAN administrative status.
disable	Disables the SVLAN administrative status, which blocks all ports bound to that SVLAN.
1x1	Specifies that the Spanning Tree status for the SVLAN applies when the switch is running in the 1x1 Spanning Tree mode.
flat	Specifies that the Spanning Tree status for the SVLAN applies when the switch is running in the flat Spanning Tree mode.
stp enable	Enables the SVLAN Spanning Tree status for the service provider network topology.
stp disable	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
enable disable	enable
stp enable disable	enable
<i>description</i>	VLAN ID number

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

- | | |
|--|--|
| show ethernet-service vlan | Displays a list of SVLANs configured from the switch |
| ethernet-service source-learning | Configures the source learning status for an SVLAN. |

MIB Objects

```
vlanTable  
  vlanNumber  
  vlanDescription  
  vlanSvlanTrafficType  
  vlanAdmStatus  
  vlan1x1StpStatus  
  vlanFlatStpStatus  
  vlanStpStatus  
  vlanStatus
```

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, 6855, 9000, 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, 6855, 9000, 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**} **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.
stp	Specifies Spanning Tree legacy BPDU support.
gvrp	Specifies GVRP legacy BPDU support.
legacy-bpdu enable	Enables the specified legacy BPDU support.
legacy-bpdu disable	Disables the specified legacy BPDU support.
transparent-bridging enable	Enables transparent bridging.
transparent-bridging disable	Disables transparent bridging.

Defaults

parameter	default
<i>value</i>	0x8100
stp legacy-bpdu enable disable	disable
gvrp legacy-bpdu enable disable	disable
transparent-bridging enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 or GVRP MAC used:

STP	
Customer MAC	{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}

- 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 1/10 transparent bridging enable
```

Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **transparent-bridging** parameter added.

Related Commands

ethernet-service vlan 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 VLAN Stacking Network Network Interface (NNI) ports.

MIB Objects

```
alaEServicePortTable
  alaEServicePortID
  alaEServicePortType
  alaEServicePortVendorTpid
  alaEServicePortLegacyStpBpdu
  alaEServicePortLegacyGvrpBpdu
  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, 6855, 9000, 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, 6855, 9000, 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).
all	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).
untagged	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, 6855, 9000, 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").
bandwidth not-assigned	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).
egress-bandwidth <i>mbps</i>	The maximum amount of egress-bandwidth, in megabits per second, to be allowed for SAP ports (0-9999). <i>Supported on 6400, 6855-U24X and 9000E only.</i>
shared	Shares the ingress bandwidth limit across all SAP ports and CVLANs.
not shared	Applies the ingress bandwidth limit to individual SAP ports and CVLANs; bandwidth is not shared.
ingress-bandwidth <i>mbps</i>	The maximum amount of ingress-bandwidth, in megabits per second, to be allowed for SAP ports.
cvlan preserve	Retains the customer VLAN ID (inner tag) and double tags the frame with the SVLAN ID (outer tag).
cvlan translate	Replaces the customer VLAN ID with the SVLAN ID.
priority map-inner-to-outer-p	Maps the customer VLAN (inner tag) priority bit value to the SVLAN (outer tag) priority bit value.
priority map-dscp-to-outer-p	Maps the customer VLAN (inner tag) DSCP value to the SVLAN (outer tag) priority bit value.
priority fixed <i>value</i>	Sets the SVLAN (outer tag) priority bit to the specified value. Values range from 0 (lowest priority) to 7 (highest priority).
priority not-assigned	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).

Defaults

parameter	default
shared not shared	shared
<i>mbps</i>	0
preserve translate	preserve
not-assigned map-inner-to-outer-p map-dscp-to-outer-p fixed <i>value</i>	fixed 0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

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 profile settings), QoS still allocates switch resources to enforce bandwidth and priority settings for the profile.
- Use the **bandwidth not-assigned** and **priority not-assigned** parameters to prevent the profile from triggering QoS allocation of switch resources to enforce the default bandwidth and priority values. When this type of profile is created, QoS policy rules/ACLs are then available to define more custom settings for profile traffic if necessary.
- 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** and **priority not-assigned** parameters added.

Release 6.4.2; **egress-bandwidth** 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
  alaQoSAppliedConditionInnerDestinationVlanStatus
```

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, 6855, 9000, 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 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

svlan	Specifies an SVLAN for tunneling customer traffic.
ipmvlan	Specifies an SVLAN used by IP Multicast VLAN to distribute multicast 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).
enable	Enables source MAC address learning.
disable	Disables source MAC address learning.

Defaults

parameter	default
enable disable	enable

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 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* [**l2-protocol** {**stp** | **802.1x** | **802.1ab** | **802.3ad** | **gvrp** | **amap**} {**peer** | **discard** | **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").
stp	Spanning Tree BPDU.
802.1x	Specifies how 802.1x control frames will be processed on the UNI port.
802.1ab	Specifies how 802.1ab control frames will be processed on the UNI port.
802.3ad	Specifies how 802.3ad and 802.3ah control frames will be processed on the UNI port.
gvrp	Specifies how GARP VLAN Registration Protocol packets will be processed on the UNI port.
amap	Specifies how Alcatel Management Adjacency Protocol packets will be processed on the UNI port.
peer	Allows the UNI port to participate in the specified protocol.
discard	Discards the specified PDU.
tunnel	Tunnels the specified PDU across the provider network.

Defaults

parameter	default
stp	tunnel
802.1x	discard
802.1ab	discard
802.3ad	peer
gvrp	tunnel
amap	discard

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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:

	peer	discard	tunnel
stp	no	yes	yes
802.1x	no	yes	yes
802.1ab	yes	yes	yes
802.3ad	yes	yes	yes
gvrp	no	yes	yes
amap	no	yes	no

- 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
-> no ethernet-service uni-profile uni_1
```

Release History

Release 6.3.1; command was introduced.

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  
  alaEServiceUNIProfileRowStatus  
  alaEServiceUNIProfilePortRowStatus
```

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, 6855, 9000, 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, 6855, 9000, 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

Vlan Stacking Mode	Displays the current VLAN Stacking mode (Legacy Mode or EServices Mode).
---------------------------	--

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, 6855, 9000, 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

vlan	The SVLAN ID number identifying the instance.
Traffic Type	The type of SVLAN (svlan = customer traffic, mgmt = management traffic, or ipmvlan = IP Multicast VLAN traffic).
name	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, 6855, 9000, 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

Service Name	The name of the VLAN Stacking service.
SVLAN or IPMVLAN	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.
NNI(s)	VLAN Stacking Network Network Interface ports associated with the service to tunnel SVLAN customer traffic.
SAP Id	The ID number for the VLAN Stacking Service Access Point that is applied to the service (1-1024).
UNIs	VLAN Stacking User Network Interface ports that receive customer traffic.
CVLAN(s)	Customer VLAN IDs ingressing on UNI ports.
sap-profile	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
```

show ethernet-service sap

Displays configuration information for VLAN Stacking Service Access Points (SAP).

```
show ethernet-services sap [sapid]
```

Syntax Definitions

sapid The SAP ID number identifying the service instance (1-1024).

Defaults

By default, all SAPs are displayed if a SAP ID is not specified with this command.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Specify a single SAP ID (1-1024) to display configuration information for a specific SAP.

Examples

```
-> show ethernet-services sap

  SAP Id   : 10
    UNIs    : 2/10, 2/11
    CVLAN(s) : 500, 600
    sap-profile : default-sap-profile

  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

-> show ethernet-service sap 10

  SAP Id   : 10
    UNIs    : 2/10, 2/11
    CVLAN(s) : 500, 600
    sap-profile : default-sap-profile
```

output definitions

SAP Id	The ID number for the VLAN Stacking Service Access Point that is applied to the service.
UNIs	VLAN Stacking User Network Interface ports that receive customer traffic.
CVLAN(s)	Customer VLAN IDs ingressing on UNI ports.
sap-profile	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, 6855, 9000, 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

Interface	The slot and port number or link aggregate ID for the specified interface.
Port Type	The type of VLAN Stacking port (UNI or NNI).
Service Name	The name of the VLAN Stacking service.
SVLAN or IPMVLAN	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.
NNI(s)	VLAN Stacking Network Network Interface ports associated with the service to tunnel SVLAN customer traffic.
SAP Id	The ID number for the VLAN Stacking Service Access Point that is applied to the service (1-1024).
UNIs	VLAN Stacking User Network Interface ports that receive customer traffic.
CVLAN(s)	Customer VLAN IDs ingressing on UNI ports.
sap-profile	The name of the SAP profile associated with the SAP.

Release History

Release 6.3.1; command was introduced.

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).
ethernet-service sap uni	Configures the switch port as a VLAN Stacking UNI and associates the port with a VLAN Stacking SAP.
show ethernet-service	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, 6855, 9000, 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 nni
```

Port	TPID	Legacy BPDU		Transparent Bridging
		stp	gvrp	
1/22	0x8100	Disable	Disable	Disable
1/23	0x8100	Disable	Disable	Disable

```
- show ethernet-service nni 1/23
```

Port	TPID	Legacy BPDU		Transparent Bridging
		stp	gvrp	
1/23	0x8100	Disable	Disable	Disable

output definitions

Port	The slot/port number or link aggregate ID for the NNI port.
TPID	The vendor TPID value configured for the NNI port.
stp	Whether or not Spanning Tree legacy BPDU processing is enabled for the NNI port.
gvrp	Whether or not GVRP legacy BPDU processing is enabled for the NNI port.
Transparent Bridging	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.

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).
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).
show ethernet-service	Displays configuration information for VLAN Stacking Ethernet services.

MIB Objects

```
alaEServicePortTable
  alaEServicePortID
  alaEServicePortVendorTpid
  alaEServicePortLegacyStpBpdu
  alaEServicePortLegacyGvrpBpdu
```

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, 6855, 9000, 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

Port	The slot/port number or link aggregate ID for the UNI port.
UNI Profile	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, 6855, 9000, 9000E

Usage Guidelines

Specify a UNI profile name to display attributes for a single UNI profile.

Examples

```
-> show ethernet-service uni-profile
```

```

  Profile Name      Stp      802.1x      802.3ad      802.1AB      GVRP      AMAP
+-----+-----+-----+-----+-----+-----+-----+
uprofile-videol  tunnel  drop       peer        drop        tunnel    drop

```

output definitions

Profile Name	The name of the UNI profile.
Stp	Indicates how Spanning Tree traffic control packets are processed.
802.1x	Indicates how IEEE 802.1x control packets are processed.
802.3ad	Indicates how IEEE 802.3ad control packets are processed.
802.1AB	Indicates how IEEE 802.1AB control packets are processed.
GVRP	Indicates how GARP VLAN Registration Protocol packets are processed.
AMAP	Indicates how Alcatel-Lucent Mapping adjacency Protocol packets are processed.

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 Displays the profile associations for VLAN Stacking User Network Interface (UNI) ports.

MIB Objects

```
alaEServiceUNIProfileTable  
  alaEServiceUNIProfileID  
  alaEServiceUNIProfileStpBpduTreatment  
  alaEServiceUNIProfile8021xTreatment  
  alaEServiceUNIProfile8021ABTreatment  
  alaEServiceUNIProfile8023adTreatment  
  alaEServiceUNIProfileGvrpTreatment  
  alaEServiceUNIProfileAmapTreatment
```

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, 6855, 9000, 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
```

Legend: Ingr: Ingress

Egr : Egress

Bw : Bandwidth

Profile Name	Ingr/Egr Bw	Ingr Bw Sharing	Inner Tag Option	Priority Mapping	Priority Value
audiosap	0/10	Enable	Preserve	fixed	0
default-sap-profile	0/0	Enable	Preserve	fixed	0
sap-video1	10/20	Disable	Preserve	in-out	P

```
-> show ethernet-service sap-profile sap-videol
```

```
Legend: Ingr: Ingress
Egr : Egress
Bw : Bandwidth
```

Profile Name	Ingr/Egr Bw	Ingr Bw Sharing	Inner Tag Option	Priority Mapping	Priority Value
sap-videol	10/20	Disable	Preserve	in-out	P

output definitions

Profile Name	The name of the SAP profile.
Ingr/Egr Bw	The maximum amount of ingress-bandwidth (1=1,000,000 mbps) and egress-bandwidth (0-9999) allowed for SAP ports.
Bandwidth Sharing	The status of bandwidth sharing (enable or disable). 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.
Inner Tag Option	Indicates how the CVLAN tag is processed (translate or preserve). If set to preserve , the CVLAN tag is retained and the SVLAN is added to the frame. If set to translate , the CVLAN tag is changed to the SVLAN tag.
Priority Mapping	Indicates how the priority value is configured for the SVLAN (in-out or fixed). If set to in-out , the CVLAN priority value is mapped to the SVLAN. If set to fixed, a user-specified priority value is used for the SVLAN priority.
Priority Value	Indicates the priority value mapped to the SVLAN (a number, P , or DSCP). A number indicates a fixed, user-specified value is used; P indicates the CVLAN 802.1p bit value is used; DSCP indicates the CVLAN DSCP value is used.

Release History

Release 6.3.1; command was introduced.

Release 6.4.2; **Egr** (egress bandwidth) parameter added along with ingress bandwidth parameter.

Related Commands

ethernet-service sap-profile	Creates a profile for a VLAN Stacking Service Access Point (SAP).
ethernet-service sap	Creates a VLAN Stacking SAP and associates the SAP with a service and SAP profile.
ethernet-service sap sap-profile	Specifies a different SAP profile for the SAP.
show ethernet-service sap	Displays configuration information for VLAN Stacking SAPs.

MIB Objects

```
alaEServiceSapProfileTable  
  alaEServiceSapProfileID  
  alaEServiceSapProfileCVLANTreatment  
  alaEServiceSapProfilePriorityMapMode  
  alaEServiceSapProfileFixedPriority  
  alaEServiceSapProfileIngressBW  
  alaEServiceSapProfileEgressBW  
  alaEServiceSapProfileBandwidthShare
```

24 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:

Global Commands	<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>
Interface Commands	<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>
Targeted Session Commands	<code>configure router ldp targeted-session hello</code> <code>configure router ldp targeted-session keepalive</code>
Graceful Restart Commands	<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>
LSP Ping and Traceroute Commands	<code>oam lsp-ping</code> <code>oam lsp-trace</code>

Show LDP Bindings Commands	show router ldp bindings show router ldp bindings fec-type show router ldp bindings ingress-label show router ldp bindings egress-label show router ldp bindings prefix show router ldp bindings active show router ldp bindings vc-type show router ldp bindings service-id
---------------------------------------	---

Show LDP Discovery Commands	show router ldp discovery show router ldp discovery peer show router ldp discovery interface
--	---

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

no shutdown	Enables the LDP administrative status on the router.
shutdown	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.
no shutdown	Enables the LDP administrative status for the interface.
shutdown	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.
system	Sets the transport address to the system IP address, which is the Loopback0 IP address configured for the OmniSwitch.
interface	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

configure router ldp reconnect-time

Configures the Reconnect Timeout value in the fault tolerant (FT) Session TLV that is advertised in LDP messages. This timeout value specifies 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 to the neighbor.

configure router ldp reconnect-time *seconds*

configure router ldp no reconnect-time

Syntax Definitions

seconds The Reconnect Timeout, in seconds. The valid range is from 0–300.

Defaults

By default, the Reconnect Timeout is set to 120 seconds.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

- Use the **no** form of this command to set the Reconnect Timeout to the default value.
- An LDP router starts the reconnect timer when it first detects a loss of LDP communications with a peer router. The timer value is that advertised by the peer router in the FT session TLV of LDP messages sent by the peer.
- Setting the Reconnect Timeout value to zero indicates to peer routers that the local LDP router will not retain its forwarding state across a graceful restart.

Examples

```
-> configure router ldp reconnect-time 300  
-> configure router ldp no reconnect-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 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

configure router ldp maximum-recovery-time

Configures the Maximum Recovery Time value for the local LDP router. This time value specifies the amount of time 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.

configure router ldp maximum-recovery-time *seconds*

configure router ldp no maximum-recovery-time

Syntax Definitions

seconds

The Maximum Recovery Time value, in seconds. The valid range is from 15–1800.

Defaults

By default, the Maximum Recovery Time is set to 120 seconds.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

- Use the **no** form of this command to set the Maximum Recovery Time to the default value.
- If the neighboring router advertises a Recovery Time that is less than the local Maximum Recovery Time value, then the local router applies the Recovery Time to the stale label-FEC bindings it receives from that same router instead of the Maximum Recovery time value.

Examples

```
-> configure router ldp maximum-recovery-time 300  
-> configure router ldp no maximum-recovery-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 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

configure router ldp neighbor-liveness-time

Configures the Neighbor Liveness Time value for the local LDP router. This timer value specifies the amount of time the router will wait for a neighboring router to re-establish an LDP session. If the neighboring router fails to establish a session within this amount of time, the local router will delete the stale label-forwarding equivalence class (FEC) bindings received from the neighboring router.

configure router ldp neighbor-liveness-time *seconds*

configure router ldp no neighbor-liveness-time

Syntax Definitions

seconds

The Maximum Recovery Time value, in seconds. The valid range is from 5–300.

Defaults

By default, the Neighbor Liveness Time is set to 120 seconds.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

- Use the **no** form of this command to set the Neighbor Liveness Time to the default value.
- If the neighboring router advertises a Reconnect Time that is less than the local Neighbor Liveness Time value, then the local router uses the Recovery Time to determine how long to wait for the neighbor to re-establish the LDP session.

Examples

```
-> configure router ldp neighbor-liveness-time 300
-> configure router ldp no neighbor-liveness-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 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

LSP-PING prefix or name	IP Prefix of the destination node for the LDP-signaled LSP.
MPLS payload	Size of the ping message in octets.
Seq	Sequence number of response.
Send from intf	Name of the interface on which the probe was sent.
reply from	The IPv4 address of the node that generated this reply.
udp-data-len	UDP data length of the echo reply.
ttl	TTL specified in ping.
rtt	Number of milliseconds from when a probe was sent to when its response was received.
rc	Number and type of return code in response.
packets sent	Number of probes sent for this entry.
packets received	Number of probes received for this entry.

packet loss	Percentage of probes sent that were not returned.
round-trip min	The minimum round-trip time received.
avg	The average round-trip time received.
max	The maximum round-trip time received.
stddev	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

lsp-trace to	IP Prefix of the destination node for the LDP-signaled LSP.
hops min	The initial TTL.
hops max	The max TTL.
byte packets	Size, in octets, of the probe request packet.
rtt	The round trip time, in milliseconds, of the trace request and response.
rc=# (EgressRtr)	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

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
SvcId	The unique service identification number used to identify the service.
SDPIId	The SDP ID number associated with the service.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	The next hop IP address for the egress label.
LMTU	The local MTU number.
RMTU	The remote MTU number.

Release History

Release 6.4.2; command was introduced.

Related Commands

show router ldp bindings fec-type	Displays the LDP bindings for a specific type of FEC or for a specific service FEC number.
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 egress-label	Displays egress LDP bindings for a specific label number or for a range of label numbers.
show router ldp bindings prefix	Displays the LDP bindings for a specific IP prefix.
show router ldp bindings active	Displays the LDP bindings for active IP prefixes.
show router ldp bindings vc-type	Displays the LDP bindings for the specified virtual circuit (VC) type.
show router ldp bindings service-id	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

services	Displays bindings for service FECs.
prefixes	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

->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	SAII	Peer	IngLbl	EgrLbl	LMTU	RMTU	TAII
No Matching Entries Found										

->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

->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

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
SvcId	The unique service identification number used to identify the service.
SDPIId	The SDP ID number associated with the service.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	The next hop IP address for the egress label.
LMTU	The local MTU number.
RMTU	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  RTMU
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
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  SAIId  Peer          IngLbl  EgrLbl  LMTU  RTMU
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----
No Matching Entries Found
```

output definitions

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
SvcId	The unique service identification number used to identify the service.
SDPIId	The SDP ID number associated with the service.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	The next hop IP address for the egress label.
LMTU	The local MTU number.
RMTU	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
```

```
LDP Service FEC 129 Bindings
```

AGI	SAII	TAII
-----	------	------

```

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

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
SvcId	The unique service identification number used to identify the service.
SDPIId	The SDP ID number associated with the service.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	The next hop IP address for the egress label.
LMTU	The local MTU number.
RMTU	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

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	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

Prefix	The IP network address and mask used to identify the prefix binding.
Peer	The IP address of the LDP peer.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
EgrIntf/LspId	The Label Switch Path (LSP) tunnel ID number (not the LSP path ID number).
EgrNextHop	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 ethernet , vlan , and mirror .
<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      SDPId  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      SDPId  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

Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.
SvcId	The unique service identification number used to identify the service.
SDPId	The SDP ID number associated with the service.
Peer	The IP address of the LDP peer.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
LMTU	The local MTU number.
RMTU	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 service-id

Displays the LDP bindings for the specified service.

show router ldp bindings service-id *service-id*

Syntax Definitions

service-id The service ID number. The valid range is 1–2147483647.

Defaults

N/A.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

The service ID is a unique number that identifies a specific service. All LDP bindings associated with the service ID are displayed.

Examples

```
# show router ldp bindings service-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

LDP Service FEC 129 Bindings

AGI	Type	SvcId	SDPId	SAII	Peer	IngLbl	TAII	EgrLbl	LMTU	RMTU
-----	------	-------	-------	------	------	--------	------	--------	------	------

No. of FEC 129s: 1

output definitions

Type	The type of service (V-Eth) exchanging labels through the Service Distribution Point (SDP).
VCId	The virtual connection (VC) ID number used by each end of the SDP tunnel to identify the VC.

output definitions

SvcId	The unique service identification number used to identify the service.
SDPIId	The SDP ID number associated with the service.
Peer	The IP address of the LDP peer.
IngLbl	The ingress LDP label.
EgrLbl	The egress LDP label.
LMTU	The local MTU number.
RMTU	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

trying	Displays LDP interfaces that are trying to establish an adjacency with peers.
established	Displays LDP interfaces that have established adjacencies with peers.
down	Displays LDP interfaces with adjacencies that are down.
detail	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

Interface Name	The name of the local LDP IP interface.
Local Addr	The IP address of the local router.
Peer Addr	The IP address of the LDP peer.
AdjType	The type of adjacency between the local LDP interface and the LDP peer (Link —peers directly connected establish linked sessions or Targ —peers not directly connected establish targeted sessions).
State	The status of the LDP hello adjacency (Estab , Trying , or Down).
No. of Hello Adjacencies	The number of LDP hello adjacencies discovered.
Up Time	The amount of time the adjacency has been established.
Hold Time Remaining	The amount of time left before the peer for this adjacency is declared down.
Hello Mesg Recv	The number of Hello messages received from this adjacency.
Hello Mesg Sent	The number of Hello messages sent for this adjacency.
Local IP Address	The IP address of the local IP interface for this adjacency.

output definitions

Remote IP Address	The IP address of the peer IP interface for this adjacency.
Local Hello Timeout	The Hello Timeout value configured for the local router.
Remote Hello Timeout	The Hello Timeout value configured for the peer.
Local Cfg Seq No	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.
Remote Cfg Seq No	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 peer** Displays the discovery status for adjacencies that are associated with a specific LDP peer.
- show router ldp discovery interface** 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.
trying	Displays LDP interfaces that are trying to establish an adjacency with peers.
established	Displays LDP interfaces that have established adjacencies with peers.
down	Displays LDP interfaces with adjacencies that are down.
detail	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

Interface Name	The name of the local LDP IP interface.
Local Addr	The IP address of the local router.
Peer Addr	The IP address of the LDP peer.
AdjType	The type of adjacency between the local LDP interface and the LDP peer (Link —peers directly connected establish linked sessions or Targeted —peers not directly connected establish targeted sessions).
State	The status of the LDP hello adjacency (Estab , Trying , or Down).
No. of Hello Adjacencies	The number of LDP hello adjacencies discovered.
Up Time	The amount of time the adjacency has been established.
Hold Time Remaining	The amount of time left before the peer for this adjacency is declared down.
Hello Mesg Recv	The number of Hello messages received from this adjacency.
Hello Mesg Sent	The number of Hello messages sent for this adjacency.
Local IP Address	The IP address of the local IP interface for this adjacency.
Remote IP Address	The IP address of the peer IP interface for this adjacency.
Local Hello Timeout	The Hello Timeout value configured for the local router.
Remote Hello Timeout	The Hello Timeout value configured for the peer.
Local Cfg Seq No	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.
Remote Cfg Seq No	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 interface | 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.
trying	Displays adjacencies that the specified interface is trying to establish.
established	Displays established adjacencies for the specified interface.
down	Displays adjacencies for the specified interface that are down.
detail	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

Interface Name	The name of the local LDP IP interface.
Local Addr	The IP address of the local router.
Peer Addr	The IP address of the LDP peer.
AdjType	The type of adjacency between the local LDP interface and the LDP peer (Link —peers directly connected establish linked sessions or Targeted —peers not directly connected establish targeted sessions).
State	The status of the LDP hello adjacency (Estab , Trying , or Down).
No. of Hello Adjacencies	The number of LDP hello adjacencies discovered.
Up Time	The amount of time the adjacency has been established.
Hold Time Remaining	The amount of time left before the peer for this adjacency is declared down.
Hello Mesg Recv	The number of Hello messages received from this adjacency.
Hello Mesg Sent	The number of Hello messages sent for this adjacency.
Local IP Address	The IP address of the local IP interface for this adjacency.
Remote IP Address	The IP address of the peer IP interface for this adjacency.
Local Hello Timeout	The Hello Timeout value configured for the local router.
Remote Hello Timeout	The Hello Timeout value configured for the peer.

output definitions

Local Cfg Seq No	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.
Remote Cfg Seq No	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.
detail	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

Interface	The name of the local LDP IP interface. Configured through the configure router ldp interface-parameters interface command.
Adm	The administrative state of the LDP interface (Up or Down). Configured through the configure router ldp interface-parameters interface shutdown command.
Opr	The operational state of the LDP interface (Up or Down).
Hello Factor	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 configure router ldp interface-parameters hello command.
Hold Time	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.
KA Factor	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 configure router ldp interface-parameters keepalive command.

output definitions

KA Timeout	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.
Transport Address	The IP address used to set up an LDP session (System or Interface). The System value indicates that the Loopback0 address for the switch is used. The Interface value indicates that the IP address for the interface is used.
Last Modified	The date and time the interface configuration was last modified.
Active Adjacencies	The number of active adjacencies between this interface and LDP peers.
Tunneling	The tunneling status for the interface (Enabled or Disabled).
Lsp Name	The name of the Label Switch Path associated with this interface.

Release History

Release 6.4.2; command was introduced.

Related Commands

show router ldp parameters	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
show router ldp discovery interface	Displays the discovery status of the LDP Hello adjacencies associated with the specified LDP interface.
show router ldp peer	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

Reconnect Time (sec)	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 configure router ldp reconnect-time command.
Nbor Liveness Time (sec)	The amount of time, in seconds, the router will wait for a neighboring router to re-establish an LDP session. Configured through the configure router ldp neighbor-liveness-time command.
Max Recovery Time (sec)	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 configure router ldp maximum-recovery-time command.
Interface 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.
Hello Factor	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 configure router ldp interface-parameters hello command.
Propagate Policy	Indicates whether or not the Label Switch Router (LSR) should generate FECs and which FECs to generate (system , interface , all , or none). (<i>Note to reviewer: Is this supported on AOS switch?</i>)
Transport Address	The IP address used to set up an LDP session (System or Interface). The System value indicates that the Loopback0 address for the switch is used. The Interface value indicates that the IP address for the interface is used.
Deaggregate FECs	Indicates whether or not LDP aggregates multiple prefixes into a single (FEC) and advertises a single label for the FEC (True or False). This value only applies to LDP interfaces but is not used for targeted sessions.
Route Preference	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.
Label Distribution	The label distribution method.

output definitions

Label Retention	<p>The type of advertised label mappings that the router will retain (liberal or conservative).</p> <p>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.</p> <p>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.</p>
Control Mode	<p>The response to label request (ordered or independent).</p> <p>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.</p> <p>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.</p>
Loop Detection	<p>The status of loop detection for this router. This field displays one of the following values:</p> <ul style="list-style-type: none"> • 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)	<p>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.</p>
Keepalive Factor	<p>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.</p>
Hold Time (sec)	<p>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.</p>

output definitions

Hello Factor	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 configure router ldp interface-parameters hello command.
Passive Mode	Whether or not passive mode is active (True or False). 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.
Targeted Sessions	The status of targeted sessions (Enabled or Disabled).

Release History

Release 6.4.2; command was introduced.

Related Commands

show router ldp interface	Displays the LDP interface configuration for the local router.
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 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

Peer	The IP address of the LDP peer.
Adm	The administrative state of the LDP peer (Up or Down).
Opr	The operational state of the LDP peer (Up or Down).
Hello Factor	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.
Hold Time	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.
KA Factor	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.
KA Timeout	The amount of time, in seconds, LDP waits to receive keepalive messages from an LDP peer before tearing down the session with that peer.
Passive Mode	Whether or not passive mode is active (True or False). 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.
Auto Created	Indicates if a targeted peer was automatically created through service manager (Yes or No). This value is always No for an LDP interface.
Last Modified	The date and time the interface configuration was last modified.
Active Adjacencies	The number of active adjacencies between this interface and LDP peers.

output definitions

Tunneling	The tunneling status for the peer (Enabled or Disabled).
Lsp Name	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.
detail	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 hello , keepalive , init , label , notification , and address .

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

Peer LDP Id	The IP address of the LDP peer.
Adj Type	The type of adjacency (Link —adjacency is the result of a Link Hello; Targeted —the adjacency is the result of a Targeted Hello).
State	The state of the adjacency (Established or Trying).
Msg Sent	The number of messages sent for this adjacency.
Msg Rcvd	The number of messages received for this adjacency.
Up Time	The amount of time the adjacency has been enabled.

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.
show router ldp parameters	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
show router ldp interface	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

Adm	The administrative state of the LDP instance (Up or Down).
Opr	The operational state of the LDP instance (Up or Down).
Created at	The date and time the LDP instance was created.
Up Time	The length of time, in hundredths of seconds, that the LDP instance has been operationally up.

output definitions

Last Change	The date and time the LDP instance was last modified.
Tunn Down Damp Time (sec)	The amount of time, in seconds, the tunnel has been down.
Import Policies	None (not supported).
Export Policies	None (not supported).
Active Adjacencies	The number of active adjacencies (established sessions) associated with this LDP instance.
Active Sessions	The number of sessions in the process of actively attempting to establish a session.
Active Interfaces	The number of active (operationally up) interfaces associated with this LDP instance.
Inactive Interfaces	The number of inactive (operationally down) interfaces associated with this LDP instance.
Active Peers	The number of active LDP peers.
Inactive Peers	The number of inactive LDP peers.
Addr FECs Sent	The number of address (prefix) FEC labels sent to the peer associated with the FEC.
Addr FECs Recv	The number of address (prefix) FEC labels received from the peer associated with the FEC.
Serv FECs Sent	The number of service FEC labels sent to the peer associated with the FEC.
Serv FECs Recv	The number of service FEC labels received from the peer associated with the FEC.
Attempted Sessions	The number of attempted sessions for this LDP instance.
No Hello Err	The number of “Session Rejected” or “No Hello Error” notification messages sent or received by this LDP instance.
Param Adv Err	The number of “Session Rejected” or “Parameters Advertisement Mode Error” notification messages sent or received by this LDP instance.
Max PDU Err	The number of “Session Rejected” or “Parameters Max PDU Length Error” notification messages sent or received by this LDP instance.
Label Range Err	The total number of “Session Rejected” or “Parameters Label Range Error” notification messages sent or received by this LDP instance.
Bad LDP Id Err	The number of bad LDP identifier fatal errors detected for sessions associated with this LDP instance.
Bad PDU Len Err	The number of bad PDU length fatal errors detected for sessions associated with this LDP instance.
Bad Mesg Len Err	The number of bad message length fatal errors detected for sessions associated with this LDP instance.
Bad TLV Len Err	The number of bad TLV length fatal errors detected for sessions associated with this LDP instance.
Malformed TLV Err	The number of malformed TLV value fatal errors detected for sessions associated with this LDP instance.

output definitions

Keepalive Expired Err	The number of session Keepalive timer expired errors detected for sessions associated with this LDP instance.
Shutdown Notif Sent	The number of shutdown notifications sent related to sessions associated with this LDP instance.
Shutdown Notif Recv	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

show router ldp session	Displays configuration information and statistics for LDP sessions.
show router ldp parameters	Displays the LDP graceful restart, interface, and targeted session parameter values for the local router.
show router ldp interface	Displays the LDP interface configuration for the local router.

MIB Objects

25 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 24, “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:

Static LSP Commands for All Routers	configure router mpls shutdown configure router mpls interface configure router mpls interface shutdown
Static LSP Commands for Transit Router Configuration	configure router mpls interface label-map configure router mpls interface label-map swap next-hop configure router mpls interface label-map shutdown
Static LSP Commands for Egress Router Configuration	configure router mpls interface label-map pop configure router mpls interface label-map shutdown
Static LSP Commands for Ingress Router Configuration	configure router mpls static-lsp configure router mpls static-lsp to configure router mpls static-lsp push next-hop configure router mpls static-lsp shutdown
Static FRR Command	configure router mpls interface label-map protect-swap next-hop
Show Commands	show router mpls interface show router mpls label show router mpls label-range show router mpls static-lsp show router mpls status

configure router mpls shutdown

Configures the administrative status of the MPLS protocol instance.

configure router mpls {no shutdown | shutdown}

Syntax Definitions

no shutdown	Enables the MPLS protocol instance.
shutdown	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

Configures MPLS support on an IP interface.

configure router mpls interface *ip-intf-name*

configure router mpls no interface *ip-intf-name*

Syntax Definitions

ip-intf-name The name of an existing IP interface.

Defaults

By default, the MPLS 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 MPLS interface. Disable the administrative status of the interface before attempting to remove it.
- When the MPLS interface configuration is removed, any label maps or protect-swap label maps associated with the interface are also removed. However, static LSPs associated with the interface are not removed; the static LSP configuration on the router remains in tact.
- The IP interface name specified with this command must already exist in the router configuration.
- Until MPLS support is configured on an IP interface, no other MPLS configuration tasks are allowed on that interface.

Examples

```
-> configure router mpls interface vlan-20
-> configure router mpls no interface vlan-20
```

Release History

Release 6.4.2; command was introduced.

Related Commands

[configure router mpls interface shutdown](#) Configures the administrative status for the specified MPLS interface.

[show router mpls interface](#) Displays the MPLS interface configuration.

MIB Objects

vRtrIfTable
vRtrIfMplsStatus

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.
no shutdown	Enables the MPLS administrative status for the interface.
shutdown	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.
no shutdown	Enables the administrative status of the specified label-map.
shutdown	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.
no shutdown	Enables the administrative status of the specified static LSP.
shutdown	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  
  vRtrStaticFrrMplsOutSegmentNextHopIpAddressType  
  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

Interface	The name of an existing MPLS IP interface.
Port-id	The existing port-id.
Adm	The administrative state of the LSP peer (Up or Down).

Opr	The operational state of the LSP peer (Up or Down).
In Label	An incoming label number.
Protected Out Label	An outgoing label number.
Protected Next Hop	Ip address of the next hop.
Type	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 in-use , bgp , ildp , mirror , rsvp , static , svcmgr , tldp , or vprn . 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

Label	Label value assigned to the router.
Label Type	Type of Label to display.
Label Owner	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

Label Type	Type of Label to display.
Start Label	The label value assigned to the ingress router.
End Label	The label value assigned to the egress router.
Aging	Label aging to be displayed.
Total Available	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.
transit	Displays transit information for static LSPs.
terminate	Displays endpoint information for static LSPs.
count	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

LSP Name ID	The name of an existing LSP.
To	Ip address of the destination.
Out Label Out Port	Outgoing label number.
Up/Down Time	Time for Up or Down state.
Opr	The operational state of the LSP peer (Up or Down).

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

Admin Status	The administrative state of the LSP peer (Up or Down).
Oper Status	The operational state of the LSP peer (Up or Down).
Oper Down Reason	Reason for operational state - Down.
LSP Counts	Displays the total number of static LSPs.
Originate	Displays originate information for static LSPs.
Transit	Displays transit information for static LSPs.
Terminate	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

26 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:

Customer Account Commands	<pre>configure service customer create configure service customer contact configure service customer phone configure service customer description</pre>
Service Distribution Point (SDP) Commands	<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>
VPLS Commands	<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>
Service Access Point (SAP) Commands	<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>
Clear Commands	<pre>clear service id fdb clear service id mesh-sdp ingress-vc-label</pre>
Show Commands	<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

configure service customer contact	Configures contact information for a customer account.
configure service customer description	Configures a description for a customer account.
configure service customer phone	Configures phone number information for a customer account.
show service customer	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

<code>configure service customer create</code>	Creates a customer account and associates that account with a customer ID.
<code>configure service customer description</code>	Configures a description for a customer account.
<code>configure service customer phone</code>	Configures phone number information for a customer account.
<code>show service customer</code>	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

configure service customer create	Creates a customer account and associates that account with a customer ID.
configure service customer contact	Configures contact information for a customer account.
configure service customer description	Configures a description for a customer account.
show service customer	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

configure service customer create	Creates a customer account and associates that account with a customer ID.
configure service customer contact	Configures contact information for a customer account.
configure service customer phone	Configures phone number information for a customer account.
show service customer	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.
mpls	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

configure service sdp description	Configures a description for the specified SDP.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling for the specified 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
 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

configure service sdp create	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling for the specified 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  
  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

configure service sdp create	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
configure service sdp description	Configures a description for the specified SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling for the specified 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
  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.
no shutdown	Administratively enables the SDP.
shutdown	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

configure service sdp create	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
configure service sdp description	Configures a description for the specified SDP.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling for the specified 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  
    sdpAdminStatus
```

configure service sdp ldp

Specifies LDP-signaled Label Switched Paths (LSPs) as the transport mechanism for the specified SDP tunnel.

configure service sdp *sdp-ip* ldp

configure service sdp *sdp-ip* no ldp

Syntax Definitions

sdp-id An existing SDP ID number.

Defaults

By default, LDP-signaled LSPs are enabled for the SDP.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

- There are two types of LSPs: LDP and static. Assigning static LSPs or enabling LDP is required when configuring a SDP. However, only one type of LSP per SDP is allowed.
- Changing the LSP type is only allowed when the SDP is administratively disabled.
- Use the **no** form of this command to specify the use of MPLS static LSPs instead of LDP-signaled LSPs. This will turn off LDP signaling for the SDP so that using static LSPs is allowed.
- Static LSPs are user-defined LSPs that require the manual configuration of MPLS label mappings and actions on each participating router within the static path. A static LSP is associated with a SDP using the **configure service sdp lsp** command.

Examples

```
-> configure service sdp 10 ldp
-> configure service sdp 10 no ldp
```

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.
- 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.
off	Disables auto-label signaling for the specified SDP.
tldp	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

configure service sdp create	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
configure service sdp description	Configures a description for the specified SDP.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified 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
  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 25, “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
```

configure service sdp adv-mtu-override

Enables or disables VC-type MTU override for the specified SDP. Use this command to override the advertised VC MTU with the service MTU.

configure service sdp *sdp-ip* adv-mtu-override

configure service sdp *sdp-ip* no adv-mtu-override

Syntax Definitions

sdp-id An existing SDP ID number.

Defaults

By default, VC-type MTU override is disabled. The service MTU does not override the advertised VC MTU.

Platforms Supported

OmniSwitch 9000E

Usage Guidelines

- Use the **no** form of this command to disable VC-type MTU override for the specified SDP.
- When VC-type MTU override is enabled, the router signals a VC MTU equal to the service MTU (includes the Layer 2 header). When disabled, the service MTU minus the Layer 2 header is advertised. In the receive direction, either VC-type MTU is accepted.

Examples

```
-> configure service sdp 10 adv-mtu-override  
-> configure service sdp 10 no adv-mtu-override
```

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.
configure service sdp description	Configures a description for the specified SDP.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling 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  
  sdpAdvertisedVllMtuOverride
```

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

configure service sdp create	Configures an SDP, which is used to direct traffic to another router through MPLS-based service tunnels.
configure service sdp description	Configures a description for the specified SDP.
configure service sdp far-end	Configures the system IP address of the far-end destination router for the SDP.
configure service sdp shutdown	Configures the administrative status of the specified SDP.
configure service sdp ldp	Enables or disables an LDP-signaled Label Switch Path (LSP) for the specified SDP.
configure service sdp signaling	Enables or disables auto-label signaling for the specified SDP;
configure service sdp adv-mtu-override	Enables or disables VC-type MTU override for the specified 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  
  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

configure service vpls description	Configures a description for the specified VPLS.
configure service vpls shutdown	Configures the administrative status of the specified VPLS.
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.
configure service vpls send-flush-on-failure	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
configure service vpls service-mtu	Configures the administrative MTU value for the specified VPLS
show service id all	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

<code>configure service vpls create</code>	Configures a VPLS and associates the service with a customer account.
<code>configure service vpls shutdown</code>	Configures the administrative status of the specified VPLS.
<code>configure service vpls def-mesh-vc-id</code>	Configures a virtual circuit (VC) ID number used by each end of an MPLS tunnel to identify the VC.
<code>configure service vpls send-flush-on-failure</code>	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
<code>configure service vpls service-mtu</code>	Configures the administrative MTU value for the specified VPLS
<code>show service id all</code>	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.
no shutdown	Administratively enables the service.
shutdown	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

configure service vpls create	Configures a VPLS and associates the service with a customer account.
configure service vpls description	Configures a description for the specified VPLS.
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.
configure service vpls send-flush-on-failure	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
configure service vpls service-mtu	Configures the administrative MTU value for the specified VPLS
show service id all	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

configure service vpls create	Configures a VPLS and associates the service with a customer account.
configure service vpls description	Configures a description for the specified VPLS.
configure service vpls shutdown	Configures the administrative status of the specified VPLS.
configure service vpls send-flush-on-failure	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
configure service vpls service-mtu	Configures the administrative MTU value for the specified VPLS
show service id all	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

configure service vpls create	Configures a VPLS and associates the service with a customer account.
configure service vpls description	Configures a description for the specified VPLS.
configure service vpls shutdown	Configures the administrative status of the specified VPLS.
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.
configure service vpls service-mtu	Configures the administrative MTU value for the specified VPLS
show service id all	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

configure service vpls create	Configures a VPLS and associates the service with a customer account.
configure service vpls description	Configures a description for the specified VPLS.
configure service vpls shutdown	Configures the administrative status of the specified VPLS.
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.
configure service vpls send-flush-on-failure	Enables or disables the sending of a MAC flush message when a port or Service Access Point associated with the VPLS goes down
show service id all	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.
ether	Specifies Ethernet as the VC type for the mesh-SDP binding.
vlan	Specifies Ethernet VLAN as the VC type for the mesh-SDP binding.

Defaults

parameter	default
<i>vc-id</i>	<i>service-id</i> number
ether / vlan	ether

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.
no shutdown	Enables the VPLS–SDP binding.
shutdown	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

configure service vpls mesh-sdp	Configures a binding between a VPLS and a SDP.
configure service vpls mesh-sdp shutdown	Enables or disables the administrative status of 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
  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

configure service vpls mesh-sdp	Configures a binding between a VPLS and a SDP.
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 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
  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

configure service vpls mesh-sdp	Configures a binding between a VPLS and a SDP.
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.
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

```
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** | **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").
create	Creates the Layer 2 profile if the <i>profile-name</i> specified does not exist in the switch configuration.
stp	Specifies how to process Spanning Tree BPDU.
802.1x	Specifies how to process 802.1x control frames.
802.1ab	Specifies how to process 802.1ab control frames.
802.3ad	Specifies how to process 802.3ad control frames.
gvrp	Specifies how to process GARP VLAN Registration Protocol packets.
amap	Specifies how to process Alcatel-Lucent Management Adjacency Protocol packets.
peer	Allows the UNI port to participate in the specified protocol.
discard	Discards the specified PDU.
tunnel	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
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:

	peer	discard	tunnel
stp	no	yes	yes
802.1x	no	yes	yes
802.1ab	no	yes	yes
802.3ad	yes	no	no
gvrp	no	yes	yes
amap	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 tunnel
-> configure service no l2profile "sap_1_profile"
```

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 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

```
alaServiceMgrPortProfileTable
  alaServiceMgrPortProfileID
  alaServiceMgrPortProfileStpBpduTreatment
  alaServiceMgrPortProfileGvrpTreatment
  alaServiceMgrPortProfile8021xTreatment
  alaServiceMgrPortProfile8021ABTreatment
  alaEServiceUNIPProfileGvrpTreatment
```

```
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

- configure service port encaps-type** Configures an encapsulation type for the specified service access port. The encapsulation type determines if an access port will support one or more services.
- 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
```

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.
default	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

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 encaps-type	Configures an encapsulation type for the specified service access port. The encapsulation type determines if an access port will support one or more services.
show service port	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.
null	Allows only one SAP (one customer service) on the port. All customer traffic (tagged and untagged) is allowed.
dot1q	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.
:0	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.
:all	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>: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 null encapsulation access ports.

Defaults

parameter	default
:0 :all <i>:qtagl</i>	:0 (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 encap-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

configure service vpls sap description	Configures a description for the specified SAP ID.
configure service vpls sap trusted	Configures the trust mode for the specified SAP ID.
configure service vpls sap shutdown	Configures the administrative status for the specified SAP ID.
configure service vpls sap static-mac	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
show service id sap	Displays configuration information about the SAPs associated with the specified service.
show service sap-using	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.
:0	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.
:all	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
:0 :all <i>:qtag1</i>	:0 (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

configure service vpls sap create	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
configure service vpls sap trusted	Configures the trust mode for the specified SAP ID.
configure service vpls sap shutdown	Configures the administrative status for the specified SAP ID.
configure service vpls sap static-mac	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
show service id sap	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
show service sap-using	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.
:0	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.
:all	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.
trusted	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
:0 :all :qtag1	:0 (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 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

configure service vpls sap create	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
configure service vpls sap description	Configures a description for the specified SAP ID.
configure service vpls sap shutdown	Configures the administrative status for the specified SAP ID.
configure service vpls sap static-mac	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
show service id sap	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
show service sap-using	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.
:0	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.
:all	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.
no shutdown	Enables the administrative status of the SAP.
shutdown	Disables the administrative status of the SAP.

Defaults

By default, the administrative status of the SAP is disabled.

parameter	default
:0 :all <i>:qtag1</i>	:0 (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

configure service vpls sap create	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
configure service vpls sap description	Configures a description for the specified SAP ID.
configure service vpls sap trusted	Configures the trust mode for the specified SAP ID.
configure service vpls sap static-mac	Configures a static MAC address entry in the forwarding database for the service that is associated with the specified SAP ID.
show service id sap	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
show service sap-using	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.
:0	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.
:all	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
:0 :all <i>:qtag1</i>	:0 (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

configure service vpls sap create	Configures a SAP by associating a SAP ID with a Virtual Private LAN Service (VPLS).
configure service vpls sap description	Configures a description for the specified SAP ID.
configure service vpls sap trusted	Configures the trust mode for the specified SAP ID.
configure service vpls sap shutdown	Configures the administrative status for the specified SAP ID.
show service id sap	Displays configuration information about the Service Access Points (SAPs) associated with the specified service.
show service sap-using	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.
all	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.
:0	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.
:all	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 linkagg 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 linkagg 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
:0 :all :qtag	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

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 service and SDP binding.
show service ingress-label	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
DropBPDU	drop	drop	peer	drop	tunnel	drop
Tunnel-Amap	tunnel	drop	peer	drop	tunnel	tunnel
def-access-profile	tunnel	drop	peer	drop	tunnel	drop

```
Number of Port Profiles: 3
```

```
->show service l2profile Tunnel-Amap
```

```
Port Profile Table
```

Profile Name	Stp	802.1x	802.3ad	802.1ab	GVRP	AMAP
Tunnel-Amap	tunnel	drop	peer	drop	tunnel	tunnel

```
Number of Port Profiles: 1
```

output definitions

Profile Name	The name of the Layer 2 profile.
Stp	Indicates how Spanning Tree traffic control packets are processed.
802.1x	Indicates how IEEE 802.1x control packets are processed.
802.3ad	Indicates how IEEE 802.3ad control packets are processed.
802.1AB	Indicates how IEEE 802.1AB control packets are processed.
GVRP	Indicates how GARP VLAN Registration Protocol packets are processed.
AMAP	Indicates how Alcatel-Lucent Mapping Adjacency Protocol packets are processed.

Release History

Release 6.4.2; command was introduced.

Related Commands

configure service l2profile	Configures a Layer 2 profile that is applied to a service access port.
configure service port l2profile	Assigns an existing Layer 2 profile to the specified service access port
show service port	Displays the access (customer-facing) port configuration for the router.

MIB Objects

```
alaServiceMgrPortProfileTable  
  alaServiceMgrPortProfileID  
  alaServiceMgrPortProfileStpBpduTreatment  
  alaServiceMgrPortProfileGvrpTreatment  
  alaServiceMgrPortProfile8021xTreatment  
  alaServiceMgrPortProfile8021ABTreatment  
  alaEServiceUNIPprofileGvrpTreatment  
  alaServiceMgrPortProfileAmapTreatment  
  alaServiceMgrPortProfile8023ADTreatment
```

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

Port Id	The access port number or link aggregate ID number.
Admin Status	The administrative status (Up or Down) of the access port.
Link Status	The status of the link connection to the access port (Up or Down).
Cfg MTU	The configured MTU value for the access port.
Oper MTU	The operational MTU value for the access port.
Port Mode	The port mode (accs) indicates that the port is a service access port. Configured through the configure service port mode access command.
Port Encp	The encapsulation type associated with the access port. Configured through the configure service port encap-type command.
L2Profile	The name of the Layer 2 profile associated with the access port. Configured through the configure service port l2profile command.

Release History

Release 6.4.2; command was introduced.

Related Commands

show service l2profile	Displays the Layer 2 profile configuration for the router.
show service sap-using	Displays the Service Access Point (SAP) configuration for the local router.
show service id sap	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

Customer-Id	The customer account ID number. Configured through the configure service customer create command.
Contact	Contact information for the customer account. Configured through the configure service customer contact command. This field does not display if a contact was not configured for this customer.
Description	Additional descriptive information for the customer account. Configured through the configure service customer description command. This field does not display if a description was not configured for this customer.
Phone	The contact phone number for the customer account. Configured through the configure service customer phone 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

SDP Id	The SDP identifier comprised of the SDP ID number and the IP address of the far-end router for this SDP tunnel. For example, 10: - (1.1.1.2) identifies SDP 10 with the tunnel endpoint at router 1.1.1.2.
Admin Path MTU	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the configure service sdp path-mtu command.
Oper Path MTU	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
Far End	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the configure service sdp far-end command.
Delivery	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
Admin State	The administrative state of this SDP (Up or Down). Configured through the configure service sdp shutdown command.
Oper State	The operational state of this SDP (Up or Down).
Signaling	Indicates whether or not Targeted LDP signaling is enabled (none or TLDP). Note that if TLDP is not enabled, only static LSPs are configurable for this SDP.
Collect Stats	Specifies whether or not LDP statistics are collected for this SDP.
Last Status Change	The date and time of the last operational status change to this SDP.
Last Mgmt Change	The date and time of the last management-initiated change to this SDP.
Flags	The conditions that affect the operational status of this SDP.
Associated LSP List	Displays static LSP information.
Programmed LSP List	Displays LDP-signaled LSP information.

Release History

Release 6.4.2; command was introduced.

Related Commands

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 id sdp	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

SvcId	The unique service identification number used to identify the service. Configured through the configure service vpls create command.
Service Type	The type of service (only VPLS is supported).
Customer Id	The customer account ID number. Configured through the configure service customer create command.
Last Status Change	The date and time of the last operational status change to this service.
Last Mgmt Change	The date and time of the last management-initiated change to this service.
Admin State	The administrative state of the service (Up or Down). Configured through the configure service vpls shutdown command.
Oper State	The operational state of the service (Up or Down).

output definitions

MTU	The largest frame size that can pass through this service without requiring fragmentation. Configured through the configure service vpls service-mtu command.
Def. Mesh VC Id	The default VC ID for the mesh SDP binding for this service. Configured through the configure service vpls def-mesh-vc-id command.
SAP Count	The number of SAPs associated with this service.
SDP Bind Count	The number of SDPs bound to this service.
Send Flush on Fail	Whether or not (Enabled or Disabled) a MAC flush message is sent when an access port or SAP failure occurs. Configured through the configure service vpls send-flush-on-failure command.
Service Destination Points (SDPs)	The following fields display configuration information for each SDP associated with this service.
SDP Id	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, 10:100 -(10.11.0.6) identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
Type	The SDP binding type (mesh or spoke) for this service. The spoke binding type is not supported. Configured through the configure service vpls mesh-sdp command.
VC Type	The type of VC (Ether , Vlan , or Vpls). Configured through the configure service vpls mesh-sdp command.
Admin Path MTU	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the configure service sdp path-mtu command.
Oper Path MTU	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
Far End	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the configure service sdp far-end command.
Delivery	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
Admin State	The administrative state of this SDP (Up or Down). Configured through the configure service sdp shutdown command.
Oper State	The operational state of this SDP (Up or Down).
Collect Stats	Specifies whether or not LDP statistics are collected for this SDP.
Ingress Label	The VC label used by the far-end device to send packets to the local device for this SDP binding.
Egress Label	The VC label used by the local device to send packets to the far-end device for SDP binding.
Last Status Change	The date and time of the last operational status change to this SDP.
Signaling	The signaling protocol used to obtain the ingress and egress labels from frames transmitted and received on this SDP.
Last Mgmt Change	The date and time of the last management-initiated change to this SDP.
Flags	The conditions that affect the operational status of this SDP.

output definitions

Service Access Points (SAPs)	The following fields display configuration information for each SDP associated with this service.
Service Id	The service ID associated with the SAP. Configured through the configure service vpls create command and bound to the SAP using the configure service vpls sap create command.
SAP	The access port number for the SAP. Configured through the configure service port mode access command and bound to the SAP using the configure service vpls sap create command.
Encap	The encapsulation type (null or dot1q) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the configure service port encap-type command.
Admin State	The administrative state of this SAP (Up or Down). Configured through the configure service vpls sap shutdown command.
Oper State	The operational state of this SAP (Up or Down).
Flags	The conditions that affect the operational status of this SAP.
Multi Svc Site	The multi-service site of which the SAP is a member.
Last Status Change	The date and time of the last operational status change to this SAP.
Last Mgmt Change	The date and time of the last management-initiated change to this SAP.

Release History

Release 6.4.2; command was introduced.

Related Commands

show service id base	Displays the basic configuration for the specified service ID and a list of service distribution and access points associated with the service.
show service id labels	Displays a list of all labels that the specified service is using.

MIB Objects

show service id base

Displays basic information about the specified service, including a list of SDPs and SAPs associated with the service.

show service id *service-id* **base**

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 9999 base
```

Service Basic 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 Access & Destination Points

Identifier	Type	AdmMTU	OprMTU	Adm	Opr
sap:1/2:100	q-tag	1518	1518	Up	Down
sap:1/2:110	q-tag	1518	1518	Up	Down
sap:1/2:all	q-tag	1518	1518	Up	Down
sap:1/11:200	q-tag	1518	1518	Up	Up
sap:8/8:300	q-tag	1518	1518	Up	Up
sdp:10:100 M(10.11.0.6)	n/a	1514	1514	Up	Up

output definitions

SvcId	The unique service identification number used to identify the service. Configured through the configure service vpls create command.
Service Type	The type of service (only VPLS is supported).
Customer Id	The customer account ID number. Configured through the configure service customer create command.
Last Status Change	The date and time of the last operational status change to this service.
Last Mgmt Change	The date and time of the last management-initiated change to this service.
Admin State	The administrative state of the service (Up or Down). Configured through the configure service vpls shutdown command.
Oper State	The operational state of the service (Up or Down).
MTU	The largest frame size that can pass through this service without requiring fragmentation. Configured through the configure service vpls service-mtu command.
Def. Mesh VC Id	The default VC ID for the mesh SDP binding for this service. Configured through the configure service vpls def-mesh-vc-id command.
SAP Count	The number of SAPs associated with this service.
SDP Bind Count	The number of SDPs bound to this service.
Send Flush on Fail	Whether or not (Enabled or Disabled) a MAC flush message is sent when an access port or SAP failure occurs. Configured through the configure service vpls send-flush-on-failure command.
Service Access and Destination Points	The following fields display basic information for each SAP and SDP associated with this service.
Identifier	The SAP or SDP identifier: <ul style="list-style-type: none"> • The SAP ID is comprised of the access port number and encapsulation value (0, VLAN ID, or all). For example, sap:1/2:100 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. • 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, 10:100 -M(10.11.0.6) identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
Type	The encapsulation type (null or dot1q) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the configure service port encaps-type command. Note that the encapsulation type does not apply to SDPs;
AdmMTU	The desired largest frame size that can pass through the service or SDP to the far-end router without requiring fragmentation. Configured through the configure service vpls service-mtu or configure service sdp path-mtu commands.
OprMTU	The actual largest frame size that can pass through the service or SDP to the far-end router without requiring fragmentation.

output definitions

Adm	The administrative state of the SAP or SDP (Up or Down). Configured through the configure service vpls sap shutdown or configure service sdp shutdown commands.
Opr	The operational state of the SAP or SDP (Up or Down).

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.
show service id labels	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

Svc Id	The unique service identification number used to identify the service.
SDP Binding	The SDP ID number associated with the service.
Type	The SDP binding type (mesh or spoke) for the service. The spoke SDP binding type is not supported.
I.Lbl	The VC label used by the far-end device to send packets to the local device for the SDP binding.
E.Lbl	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

show service id all	Displays the detailed configuration for the specified service ID and associated service distribution and access points.
show service egress-label	Displays a list of services that are using the specified egress labels.
show service ingress-label	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.
:0	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.
:all	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

PortId	The access port number and encapsulation type for the SAP. Configured through the configure service port mode access command.
Service Id	The service ID associated with the SAP. Configured through the configure service vpls create command and bound to the SAP using the configure service vpls sap create command.
Adm	The administrative state of this SAP (Up or Down). Configured through the configure service vpls sap shutdown command.
Oper	The operational state of this SAP (Up or Down).
Trusted	The trusted status (Yes or No) for traffic mapped to this SAP. If Yes is displayed, the internal priority value for ingress traffic is used. If No is displayed, the value displayed in the Pri field is used.
Pri	The priority value assigned to the traffic mapped to this SAP. This value is only applied if the Trusted status for the SAP is set to Yes .

```
-> 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

Service Id	The service ID associated with the SAP. Configured through the configure service vpls create command and bound to the SAP using the configure service vpls sap create command.
SAP	The access port number for the SAP. Configured through the configure service port mode access command and bound to the SAP using the configure service vpls sap create command.
Encap	The encapsulation type (null or dot1q) configured for the access port. This indicates the value of the label used to identify the SAP on the access port. Configured through the configure service port encaps-type command.
Admin State	The administrative state of this SAP (Up or Down). Configured through the configure service vpls sap shutdown command.
Oper State	The operational state of this SAP (Up or Down).
Flags	The conditions that affect the operational status of this SAP.
Multi Svc Site	The multi-service site of which the SAP is a member.
Last Status Change	The date and time of the last operational status change to this SAP.
Last Mgmt Change	The date and time of the last management-initiated change to this SAP.

Release History

Release 6.4.2; command was introduced.

Related Commands

- | | |
|--|--|
| show service id all | Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service. |
| show service sap-using | Displays the Service Access Point (SAP) configuration for the local router. |
| show service port | 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.
detail	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

SDP Id	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, 10:100 -(10.11.0.6) identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
Type	The SDP binding type (mesh or spoke) for this service. The spoke binding type is not supported. Configured through the configure service vpls mesh-sdp command.
VC Type	The type of VC (Ether , Vlan , or Vpls). Configured through the configure service vpls mesh-sdp command.
Admin Path MTU	The desired largest frame size that can pass through this SDP to the far-end router without requiring fragmentation. Configured through the configure service sdp path-mtu command.
Oper Path MTU	The actual largest frame size that can pass through this SDP to the far-end router without requiring fragmentation.
Far End	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the configure service sdp far-end command.
Delivery	Specifies the type of delivery used by this SDP. In this case, LDP-based MPLS is the supported delivery method; GRE is not supported.
Admin State	The administrative state of this SDP (Up or Down). Configured through the configure service sdp shutdown command.
Oper State	The operational state of this SDP (Up or Down).
Collect Stats	Specifies whether or not LDP statistics are collected for this SDP.
Ingress Label	The VC label used by the far-end device to send packets to the local device for this SDP binding.
Egress Label	The VC label used by the local device to send packets to the far-end device for SDP binding.
Last Status Change	The date and time of the last operational status change to this SDP.
Signaling	The signaling protocol used to obtain the ingress and egress labels from frames transmitted and received on this SDP.
Last Mgmt Change	The date and time of the last management-initiated change to this SDP.
Flags	The conditions that affect the operational status of this SDP.

Release History

Release 6.4.2; command was introduced.

Related Commands

show service id all	Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.
show service id labels	Displays a list of all labels that the specified service is using.
show service sdp-using	Displays the SDP usage for the local router or for a far-end router IP address.
show service sdp	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.
:0	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.
:all	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

PortId	The access port number and encapsulation type for the SAP. Configured through the configure service port mode access command.
Service Id	The service ID associated with the SAP. Configured through the configure service vpls create command and bound to the SAP using the configure service vpls sap create command.
Adm	The administrative state of this SAP (Up or Down). Configured through the configure service vpls sap shutdown command.
Oper	The operational state of this SAP (Up or Down).
Trusted	The trusted status (Yes or No) for traffic mapped to this SAP. If Yes is displayed, the internal priority value for ingress traffic is used. If No is displayed, the value displayed in the Pri field is used.
Pri	The priority value assigned to the traffic mapped to this SAP. This value is only applied if the Trusted status for the SAP is set to Yes .

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

SvcId	The service ID associated with the SDP. Configured through the configure service vpls create command and bound to the SAP using the configure service vpls mesh-sdp command.
SDP Id	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, 10:100 identifies SDP 10 bound to VPLS 100 with the tunnel endpoint at router 10.11.0.6.
Type	The SDP binding type (mesh or spoke) for this service. The spoke binding type is not supported. Configured through the configure service vpls mesh-sdp command.
Far End	The IP address of the remote end of the MPLS tunnel defined by this SDP. Configured through the configure service sdp far-end command.
Oper S	The operational state of this SDP (Up or Down).
I. Label	The VC label used by the far-end device to send packets to the local device for this SDP binding.
E. Label	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

show service id all	Displays the detailed configuration for the specified service ID, including all SDPs and SAPs associated with the service.
show service id labels	Displays a list of all labels that the specified service is using.
show service id sdp	Displays configuration information for the Service Distribution Points (SDPs) associated with the specified service.
show service sdp	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

Svc Id	The unique service identification number used to identify the service.
SDP Binding	The SDP ID number associated with the service.
Type	The SDP binding type (mesh or spoke) for the service. The spoke SDP binding type is not supported.
I.Lbl	The VC label used by the far-end device to send packets to the local device for this SDP binding.
E.Lbl	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 ingress-label | Displays the services that are using a specific ingress label or a range of ingress labels. |
| show service id labels | 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

Svc Id	The unique service identification number used to identify the service.
SDP Binding	The SDP ID number associated with the service.
Type	Indicates the SDP binding type (mesh or spoke) for the service. The spoke SDP binding type is not supported.
I.Lbl	The VC label used by the far-end device to send packets to the local device for this SDP binding.
E.Lbl	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

Service Id	The unique service identification number used to identify the service.
Total Count	The number of MAC address entries (both learned and static) in the FDB for this service.
Learned Count	The number of dynamically learned MAC address entries in the FDB for this service.
Static Count	The number of static MAC address entries in the FDB for this service.
Total Service FDBs	The total number of service FDBs.
Total FDB Entries In Use	The total number of entries (both learned and static) in use.

Release History

Release 6.4.2; command was introduced.

Related Commands

show service fdb-mac	Displays the MAC address entry information found in the forwarding database (FDB).
clear service id fdb	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

Service Id	The unique service identification number used to identify the service.
MAC Address	The MAC address entry associated with this service.
Source-Identifier	The Service Access Point (SAP) on which the address was learned or configured.
Type	The type of MAC address (Learned =dynamically learned address or Static =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

27 802.1AB 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

A summary of available commands is listed here:

lldp transmit interval
lldp transmit hold-multiplier
lldp transmit delay
lldp reinit delay
lldp notification interval
lldp lldpdu
lldp notification
lldp tlv management
lldp tlv dot1
lldp tlv dot3
lldp tlv med
show lldp system-statistics
show lldp statistics
show lldp local -system
show lldp local -port
show lldp local-management-address
show lldp remote-system
show lldp remote-system med

Configuration procedures for 802.1AB are explained in the “Configuring 802.1AB” chapter of the *OmniSwitch AOS Release 6 Network Configuration Guide*.

lldp transmit interval

Sets the transmit time interval for LLDPDUs.

lldp transmit interval *seconds*

Syntax Definitions

seconds The transmit interval between LLDPDUs, in seconds. The valid range is 5 - 32768.

Defaults

parameter	default
<i>seconds</i>	30

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The LLDP protocol must be enabled before using this command.

Examples

```
-> lldp transmit interval 40
```

Release History

Release 6.3.1; command was introduced.

Related Commands

- [lldp transmit hold-multiplier](#) Sets the transmit hold multiplier value, which is used to calculate the Time To Live TLV.
- [show lldp local -system](#) Displays local system information.

MIB Objects

```
lldpConfiguration
  lldpMessageTxInterval
```

lldp transmit hold-multiplier

Sets the transmit hold multiplier value, which is used to calculate the Time To Live TLV.

lldp transmit hold-multiplier *num*

Syntax Definitions

num The transmit hold multiplier value. The valid range is 2-10.

Defaults

parameter	default
<i>num</i>	4

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDP protocol must be enabled before using this command.
- The Time To Live is a multiple of transmit interval and transmit hold multiplier.

Examples

```
-> lldp transmit hold-multiplier 6
```

Release History

Release 6.3.1; command was introduced.

Related Commands

[lldp transmit interval](#) Sets the transmit time interval for LLDPDUs.
[show lldp local -system](#) Displays local system information.

MIB Objects

```
lldpConfiguration  
  lldpMessageTxHoldMultiplier
```

lldp transmit delay

Sets the minimum time interval between successive LLDPDUs transmitted.

lldp transmit delay *seconds*

Syntax Definitions

seconds The time interval between successive LLDPDUs transmitted, in seconds. The valid range is 1-8192.

Defaults

parameter	default
<i>seconds</i>	2

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDP protocol must be enabled before using this command.
- The transmit delay is less than or equal to the multiplication of transmit interval and 0.25 (transmit interval * 0.25).

Examples

```
-> lldp transmit delay 20
```

Release History

Release 6.3.1; command was introduced.

Related Commands

[lldp transmit interval](#) Sets the transmit time interval for LLDPDUs.
[show lldp local -system](#) Displays local system information.

MIB Objects

lldpConfiguration
 lldpTxDelay

lldp reinit delay

Sets the time interval that must elapse before the current status of a port is reinitialized after a status change.

lldp reinit delay *seconds*

Syntax Definitions

seconds The number of seconds to reinitialize the ports status after a status change. The valid range is 1-10.

Defaults

parameter	default
<i>seconds</i>	2

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The LLDP protocol must be enabled before using this command.

Examples

```
-> lldp reinit delay 4
```

Release History

Release 6.3.1; command was introduced.

Related Commands

[lldp transmit delay](#) Sets the minimum time interval between successive LLDPDUs transmitted.

[show lldp local -system](#) Displays local system information.

MIB Objects

```
lldpConfiguration  
  lldpReinitDelay
```

lldp notification interval

Sets the time interval that must elapse before a notification about the local system MIB change is generated.

lldp notification interval *seconds*

Syntax Definitions

seconds The minimum number of seconds for generating a notification-event.
The valid range is 5-3600.

Defaults

parameter	default
<i>seconds</i>	5

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDP protocol and notification must be enabled before using this command.
- In a specified interval, generating more than one notification-event is not possible.

Examples

```
-> lldp notification interval 25
```

Release History

Release 6.3.1; command was introduced.

Related Commands

- [lldp notification](#) Specifies the switch to control per port notification status about the remote device change.
- [show lldp local -system](#) Displays local system information.

MIB Objects

```
lldpConfiguration  
  lldpNotificationInterval
```

lldp lldpdu

Specifies the switch to control the transmission and the reception of LLDPDUs for a particular chassis, a slot, or a port.

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 (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
tx	Transmits LLDPDUs.
rx	Receives LLDPDUs.
tx-and-rx	Transmits and receives LLDPDUs.
disable	Disables LLDPDUs transmission and reception.

Defaults

parameter	default
tx rx tx-and-rx disable	tx-and-rx

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The port can be set to receive, transmit, or transmit and receive LLDPDUs using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.

Examples

```
-> lldp 1/2 lldpdu tx-and-rx
-> lldp chassis lldpdu disable
```

Release History

Release 6.3.1; command was introduced.

Related Commands

lldp notification

Specifies the switch to control per port notification status about the remote device change.

MIB Objects

```
lldpPortConfigTable  
  lldpPortConfigPortNum  
  lldpPortConfigAdminStatus
```

lldp notification

Specifies the switch to control per port notification status about the remote device change.

lldp {*slot/port* | *slot* / **chassis**} **notification** {**enable** | **disable**}

Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
enable	Enables the notification of local system MIB changes.
disable	Disables the notification.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDPDU administrative status must be in the receive state before using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.

Examples

```
-> lldp 1/2 notification enable  
-> lldp 1 notification disable
```

Release History

Release 6.3.1; command was 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

Specifies the switch to control the transmission and the reception of LLDPDUs for a particular chassis, a slot, or a port.

MIB Objects

lldpPortConfigTable

 lldpPortConfigPortNum

 lldpPortConfigNotificationEnable

lldp tlv management

Specifies the switch to control per port management TLVs to be incorporated in the LLDPDU.

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 (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
port-description	Enables or disables the transmission of port description TLV in LLDPDU.
system-name	Enables or disables the transmission of system name TLV in LLDPDU.
system-description	Enables or disables transmission of system description TLV in LLDPDU.
system-capabilities	Enables or disables transmission of system capabilities TLV in LLDPDU.
management-address	Enables or disables transmission of management address on per port.
enable	Enables management TLV LLDPDU transmission.
disable	Disables management TLV LLDPDU transmission.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.

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 was introduced.

Related Commands

lldp lldpdu	Specifies the switch to control the transmission and the reception of LLDPDUs for a particular chassis, a slot, or a port.
show lldp local -system	Displays local system information.
show lldp local -port	Displays local port information.
show lldp remote-system	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 (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
port-vlan	Enables or disables transmission of port VLAN TLV in LLDPDU.
vlan-name	Enables or disables transmission of VLAN name TLV in LLDPDU.
enable	Enables 802.1 TLV LLDPDU transmission.
disable	Disables 802.1 TLV LLDPDU transmission.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.
- 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 was introduced.

Related Commands

lldp tlv management	Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.
show lldp statistics	Displays per port statistics.
show lldp local -port	Displays per port information.

MIB Objects

```
lldpPortConfigTable
  lldpPortConfigPortNum
lldpXdot1ConfigPortVlanTable
  lldpXdot1ConfigPortVlanTxEnable
lldpXdot1ConfigVlanNameTable
  lldpXdot1ConfigVlanNameTxEnable
```

lldp tlv dot3

Specifies the switch to control per port 802.3 TLVs to be incorporated in the 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 (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
enable	Enables 802.3 TLV LLDPDU transmission.
disable	Disables 802.3 TLV LLDPDU transmission.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.

Examples

```
-> lldp 2/4 tlv dot3 mac-phy enable
-> lldp 2 tlv dot3 mac-phy disable
```

Release History

Release 6.3.1; command was 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.
show lldp statistics	Displays per port statistics.

MIB Objects

```
lldpPortConfigTable
  lldpPortConfigPortNum
lldpXdot3PortConfigTable
  lldpXdot3PortConfigTLVsTxEnable
```

lldp tlv med

Specifies the switch to control per port LLDP-MED (Media Endpoint Device) TLVs to be incorporated in the LLDPDU.

lldp {*slot/port* | *slot* / **chassis**} **tlv med** {**power** | **capability**} {**enable** | **disable**}

Syntax Definitions

<i>slot/port</i>	Slot number for the module and physical port number on that module (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
power	Enables or disables transmission of LLDP-MED extended POE TLV in LLDPDU.
capability	Enables or disables transmission of LLDP-MED capabilities TLV in LLDPDU.
enable	Enables LLDP-MED TLV LLDPDU transmission.
disable	Disables LLDP-MED TLV LLDPDU transmission.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The LLDPDU must be enabled and set to transmit before using this command.
- If this command is applied to a slot or chassis, then the existing configuration related to this command will be lost.
- 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
```

Release History

Release 6.3.1; command was 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.
lldp tlv dot3	Specifies the switch to control per port 802.3 TLVs to be incorporated in the LLDPDUs.

MIB Objects

```
lldpPortConfigTable
  lldpPortConfigPortNum
lldpXMedPortConfigTable
  lldpXMedPortConfigTLVsTxEnable
```

show lldp system-statistics

Displays system-wide statistics.

show lldp system-statistics

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Remote Systems Last Change	The last change recorded in the tables associated with the remote system.
Remote Systems MIB Inserts	The total number of complete inserts in the tables associated with the remote system.
Remote Systems MIB Deletes	The total number of complete deletes in tables associated with the remote system.
Remote Systems MIB Drops	The total number of LLDPDUs dropped because of insufficient resources.
Remote Systems MIB Age Outs	The total number of complete age-outs in the tables associated with the remote system.

Release History

Release 6.3.1; command was introduced.

Related Commands

lldp notification

Specifies the switch to control per port notification status about the remote device change.

lldp notification interval

Sets the time interval that must elapse before a notification about the local system MIB change is generated.

MIB Objects

lldpStatistics

lldpStatsRemTablesLastChangeTime

lldpStatsRemTablesInserts

lldpStatsRemTablesDeletes

lldpStatsRemTablesDrops

lldpStatsRemTablesAgeouts

show lldp statistics

Displays per port statistics.

show lldp [*slot/port*] **statistics**

Syntax Definitions

slot/port Slot number for the module and physical port number on that module (e.g., 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, 9000, 9000E

Usage Guidelines

- If the slot/port option is not specified, statistics for the chassis is displayed.
- 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

Slot/Port	Slot number for the module and physical port number on that module.
LLDPDU Tx	The total number of LLDPDUs transmitted on the port.
LLDPDU Rx	The total number of valid LLDPDUs received on the port.
LLDPDU Errors	The total number of invalid LLDPDUs discarded on the port.
LLDPDU Discards	The total number of LLDPDUs discarded on the port.
TLV Unknown	The total number of unrecognized LLDP TLVs on the port.
TLV Discards	The total number of LLDP TLVs discarded on the port.
Device Ageouts	The total number of complete age-outs on the port.

Release History

Release 6.3.1; command was introduced.

Related Commands

lldp lldpdu

Specifies the switch to control the transmission and the reception of LLDPDUs for a particular chassis, a slot, or a port.

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, 6855, 9000, 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.,
  Capabilites Supported  = Bridge, Router,
  Capabilites Enabled    = Bridge, Router,
  LLDPDU Transmit Interval = 30 seconds,
  TTL Hold Multiplier    = 4,
  LLDPDU Transmit Delay  = 2 seconds,
  Reintialization Delay  = 2 seconds,
  MIB Notification Interval = 5 seconds
  Management Address Type = 1 (IPv4),
  Management IP Address  = 10.255.11.100,
```

output definitions

Chassis ID Subtype	The subtype that describe chassis ID.
Chassis ID	The chassis ID (MAC address).
System Name	The name of the system.
System Description	The description of the system.
Capabilites Supported	The capabilities of the system.
Capabilites Enabled	The enabled capabilities of the system.
LLDPDU Transmit Interval	The LLDPDU transmit interval.
TTL Hold Multiplier	The hold multiplier used to calculate TTL.

output definitions (continued)

LLDPDU Transmit Delay	The minimum transmit time between successive LLDPDUs.
Reinitialization Delay	The minimum time interval before the reinitialization of local port objects between port status changes.
MIB Notification Interval	The minimum time interval between consecutive notifications of local system MIB change.
Management Address Type	The type of management address used in LLDPDU.
Management IP Address	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 was introduced.

Related Commands

lldp reinit delay	Sets the time interval that must elapse before the current status of a port is reinitialized after a status change.
lldp transmit hold-multiplier	Sets the transmit hold multiplier value, which is used to calculate the Time To Live TLV.
lldp transmit delay	Sets the minimum time interval between successive LLDPDUs transmitted.

MIB Objects

```
lldpLocalSystemData
  lldpLocChassisIdSubtype
  lldpLocChassisId
  lldpLocSysName
  lldpLocSysDesc
  lldpLocSysCapSupported
  lldpLocSysEnabled
lldpPortConfigTable
  lldpMessageTxInterval
  lldpMessageTXHoldMultiplier
  lldpTxDelay
  lldpReinitDelay
  lldpNotificationInterval
lldpLocManAddrTable
  lldpLocManAddrSubtype
  lldpLocManAddr
```

show lldp local-port

Displays per 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 (e.g., 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, 9000, 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

Port ID	The port ID (Port MAC).
Port Description	The description of the port (which includes the port number and the AOS version).

Release History

Release 6.3.1; command was 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, 6855, 9000, 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

Management Address Type	The address type used to define the interface number (IPv4 or IPv6).
Management IP Address	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 was introduced.

Related Commands

lldp tlv management	Specifies the switch to control per port management TLVs to be incorporated in the LLDPDUs.
show lldp local -system	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 (e.g., 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, 9000, 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

Remote LLDP Agents on Local Slot/Port	The Slot number to which the remote system entry is associated and the physical port number on that module.
Chassis ID Subtype	The sub type that describes chassis ID.
Chassis ID	The chassis ID (MAC address).

output definitions (continued)

Port ID Subtype	The sub type that describes port ID
Port ID	The port ID (Port MAC).
Port Description	The description of the port (which includes the port number and the AOS version).
System Name	The name of the system.
System Description	The description of the system.
Capabilites Supported	The capabilities of the system such as bridge or router.
Capabilites Enabled	The enabled capabilities of the system.
MED Device Type	The type of device such as Network Connectivity or Endpoint Device.
MED Capabilities	MED capabilities supported.
MED Extension TLVs Present	MED Extension TLVs present.
Rempte port MAC/PHY AutoNeg	The MAC/PHY settings of the remote port such as speed, duplex, and auto-negotiation.

Release History

Release 6.3.1; command was introduced.

Release 6.3.4; **remote-system** parameter was introduced.

Related Commands

show lldp local -port	Displays per port information.
show lldp local -system	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 (e.g., 3/1 specifies port 1 on slot 3).
<i>slot</i>	The slot number for a specific module.
network-policy	Display network-policy TLVs from remote Endpoint Devices
inventory	Display inventory management TLVs from remote Endpoint Devices

Defaults

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

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 2/47 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

Slot/Port	The Slot number to which the remote system entry is associated and the physical port number on that module.
Remote ID	The Index of the Remote Device.
Application Type	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)

Unknown Policy Flag	Whether the network policy for the specified application type is currently defined or unknown.
Tagged Flag	Whether the specified application type is using a tagged or an untagged VLAN.
VLAN ID	The VLAN identifier (VID) for the port.
Layer 2 Priority	Layer 2 priority to be used for the specified application type.
DSCP Value	DSCP value to be used to provide Diffserv node behavior for the specified application type.

```
-> show lldp 2/47 remote-system med inventory
```

```
Remote LLDP Agents on Local Slot/Port 1/22:
```

```
Remote ID 1:
```

```
MED Hardware Revision = "1.2.12.3",
MED Firmware Revision = "6.3.4.1",
MED Software Revision = "4.2.1.11",
MED Serial Number      = "32421",
MED Manufacturer Name = "Manufacturer1",
MED Model Name        = "Alc32d21",
MED Asset ID          = "124421",
```

```
Remote ID 2:
```

```
MED Hardware Revision = "1.2.12.4",
MED Firmware Revision = "6.3.4.2",
MED Software Revision = "4.2.1.13",
MED Serial Number     = "32424",
MED Manufacturer Name = "Manufacturer2",
MED Model Name        = "Alc32d41",
MED Asset ID          = "124424",
```

output definitions

Remote ID	The Index of the Remote Device.
MED Hardware Revision	The Hardware Revision of the endpoint
MED Firmware Revision	The Firmware Revision of the endpoint.
MED Software Revision	The Software Revision of the endpoint.
MED Manufacturer Name	The Manufacturer Name of the endpoint.
MED Model Name	The Model Name of the endpoint.
MED Asset ID	The Asset ID of the endpoint.

Release History

Release 6.3.4; command was introduced.

Related Commands

show lldp local -port	Displays per port information.
show lldp local -system	Displays local system information.

MIB Objects

```
lldpXMedRemMediaPolicyTable
  lldpXMedRemMediaPolicyAppType
  lldpXMedRemMediaPolicyDscp
  lldpXMedRemMediaPolicyPriority
  lldpXMedRemMediaPolicyTagged
  lldpXMedRemMediaPolicyUnknown
  lldpXMedRemMediaPolicyVlanID
lldpXMedRemInventoryTable
  lldpXMedRemAssetID
  lldpXMedRemFirmwareRev
  lldpXMedRemHardwareRev
  lldpXMedRemMfgName
  lldpXMedRemModelName
  lldpXMedRemSerialNum
  lldpXMedRemSoftwareRev
```

28 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.MIB (Compliant to draft 7.0)
Module: IEEE8021-CFM-MIB

A summary of the available commands is listed here:

EthOAM Domain Configuration Commands	ethoam domain ethoam domain mhf ethoam default-domain
EthOAM Management Association Configuration Commands	ethoam association ethoam association mhf ethoam association ccm-interval ethoam association endpoint-list
EthOAM Management Point Configuration Commands	ethoam endpoint ethoam endpoint admin-state ethoam endpoint ccm ethoam endpoint priority ethoam endpoint lowest-priority-defect
EthOAM Loopback and Linktrace Commands	ethoam loopback ethoam linktrace

EthOAM Timer Configuration Commands	ethoam fault-alarm-time ethoam fault-reset-time
EthOAM Monitoring Commands	show ethoam show ethoam domain show ethoam domain association show ethoam domain association end-point show ethoam default-domain show ethoam remote endpoint domain show ethoam cfmstack show ethoam linktrace-reply domain show ethoam linktrace-tran-id show ethoam statistics

ethoam domain

Creates an Ethernet domain with a specific name.

```
ethoam domain {domain_name | mac_address} format {dnsname | mac-address-uint | string}  
level level_num
```

```
no ethoam domain {domain_name | mac_address}
```

Syntax Definitions

<i>domain_name</i>	Domain name of the Ethernet domain. The length of the domain name varies depending on its format.
<i>mac_address</i>	Specifies the CFM system MAC address.
dnsname	Domain name is in the Domain Name Service (DNS) format. Up to 255 characters may be used.
mac-address-uint	Domain name is in the MAC address format.
string	Specifies the domain name as a string. Up to 43 characters may be used.
<i>level_num</i>	Level of the Maintenance Domain (MD). The valid range is 0–7.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove the Ethernet domain.
- This command allows the service provider to create an Ethernet OAM domain on the bridge.
- The *domain_name* should be unique amid all those used by or available to the service provider.
- The level must be 0-2 at operator level, 3-5 at provider level and 6-7 at customer level when creating the level of domain.

Examples

```
-> ethoam domain esd.alcatel-lucent.com format dnsname level 5  
-> no ethoam domain esd.alcatel-lucent.com
```

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.

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

Dot1agCfmMd

- dot1agCfmMdIndex
- dot1agCfmMdFormat
- dot1agCfmMdName
- dot1agCfmMdLevel
- dot1agCfmMdMhfCreation
- dot1agCfmMdRowStatus

ethoam domain mhf

Modifies the Message Handling Function (MHF) value of an Ethernet domain.

ethoam domain {*domain_name* / *mac_address*} **mhf** {**none** | **explicit** | **default**}

Syntax Definitions

<i>domain_name</i>	Domain name of the Ethernet domain. The length of the domain name varies depending on its format.
<i>mac_address</i>	Specifies the CFM system MAC address.
none	Specifies that no MHFs can be created for the specified VLAN ID.
explicit	Specifies that MHFs can be created for the specified VLAN ID only on Bridge ports through which this VLAN ID can pass and only if a Maintenance End Point (MEP) is created at a lower MD level.
default	Specifies that MHFs can be created on the specified VLAN ID on any Bridge port through which this VLAN ID can pass.

Defaults

parameter	default
none explicit default	none

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The *domain_name* should be unique amid all those used by or available to the service provider.

Examples

```
-> ethoam domain esd.alcatel-lucent.com mhf explicit
```

Release History

Release 6.3.1; command was introduced.

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

DotlagCfmMaintenanceDomain

dotlagCfmMdIndex

dotlagCfmMdFormat

dotlagCfmMdName

dotlagCfmMdLevel

dotlagCfmMdMhfCreation

dotlagCfmMdRowStatus

ethoam association

Creates an Ethernet OAM Maintenance Association (MA) in the specified domain.

ethoam association *association_name* **format** {string | integer | vpnId | primaryVid}
domain {domain_name | mac_address} **vlan** *vlan_id*

no ethoam association *association_name* **domain** {domain_name | mac_address}

Syntax Definitions

<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus domain name length) characters may be used.
string	Specifies the association name as a string.
integer	Specifies the association name as a 2-octet integer.
vpnId	RFC 2685 VPN ID.
primaryVid	Specifies the primary VLAN ID.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>vlan_id</i>	VLAN ID of the service instance monitored by the Maintenance Association.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove the Ethernet OAM Maintenance Association.
- The *association_name* should be unique within a domain.

Examples

```
-> ethoam association alcatel-sales format string domain esd.alcatel-lucent.com  
vlan 10  
-> no ethoam association alcatel-sales domain esd.alcatel-lucent.com
```

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; **primaryVid** and *mac_address* parameters added; **level** parameter deleted.

Related Commands

**show ethoam domain
association**

Displays the information of a specified MA in a Management Domain configured on the bridge.

MIB Objects

DotlagCfmMa

- dotlagCfmMaIndex
- dotlagCfmMaFormat
- dotlagCfmMaName
- dotlagCfmMaVid
- dotlagCfmMaMhfCreation
- dotlagCfmMaCcmInterval
- dotlagCfmMaRowStatus

ethoam association mhf

Modifies the MIP Half Function (MHF) value of an Ethernet OAM Maintenance Association.

ethoam association *association_name* **domain** {*domain_name* | *mac_address*} **mhf** {**none** | **explicit** | **default**}

Syntax Definitions

<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
none	Specifies that no MHFs can be created for the specified VLAN ID.
explicit	Specifies that MHFs can be created for the specified VLAN ID only on Bridge ports through which this VLAN ID can pass and only if a Maintenance End Point (MEP) is created at a lower MA level.
default	Specifies that MHFs can be created on the specified VLAN ID on any Bridge port through which this VLAN ID can pass.

Defaults

parameter	default
none explicit default	none

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The *association_name* should be unique amid all those used by or available to the service provider within a domain.

Examples

```
-> ethoam association alcatel-sales domain esd.alcatel-lucent.com mhf none
```

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; *mac_address* parameter added.

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

DotlagCfmMa

dotlagCfmMaIndex
dotlagCfmMaFormat
dotlagCfmMaName
dotlagCfmMaVid
dotlagCfmMaMhfCreation
dotlagCfmMaCcmInterval
dotlagCfmMaRowStatus

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** | **interval1s** | **interval10s** | **interval1m** | **interval10m**}

Syntax Definitions

<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
interval-invalid	Specifies that no CCMs are sent by a MEP
interval1s	Specifies that CCMs are sent every 1 second.
interval10s	Specifies that CCMs are sent every 10 seconds.
interval1m	Specifies that CCMs are sent every minute.
interval10m	Specifies that CCMs are sent every 10 minutes.

Defaults

parameter	default
interval-invalid interval1s interval10s interval10s interval1m interval10m	interval10s

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The *association_name* should be unique amid all those used by or available to the service provider within a domain.

Examples

```
-> ethoam association alcatel-sales domain esd.alcatel-lucent.com 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.

Related Commands

show ethoam domain

Displays the information of a specific Management Domain configured on the bridge.

MIB Objects

DotlagCfmMa

```
dotlagCfmMaIndex  
dotlagCfmMaFormat  
dotlagCfmMaName  
dotlagCfmMaVid  
dotlagCfmMaMhfCreation  
dotlagCfmMaCcmInterval  
dotlagCfmMaRowStatus
```

ethoam association endpoint-list

Modifies the MEP list of an Ethernet OAM Maintenance Association.

ethoam association *association_name* **domain** {*domain_name* | *mac_address*}
endpoint-list *mep_id*[-*mep_id2*]

no ethoam association *association_name* **domain** {*domain_name* | *mac_address*}
endpoint-list *mep_id*[-*mep_id2*]

Syntax Definitions

<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus domain name length) characters may be used.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</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, 6855, 9000, 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 *association_name* should be unique within a domain.

Examples

```
-> ethoam association alcatel-sales domain esd.alcatel-lucent.com endpoint-list  
100-200  
-> no ethoam association alcatel-sales domain esd.alcatel-lucent.com 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

DotlagCfmMa

- dotlagCfmMaIndex
- dotlagCfmMaFormat
- dotlagCfmMaName
- dotlagCfmMaVid
- dotlagCfmMaMhfCreation
- dotlagCfmMaCcmInterval
- dotlagCfmMaRowStatus

DotlagCfmMaMepList

- dotlagCfmMaMepListIdentifier
- dotlagCfmMaMepListRowStatus

ethoam default-domain

Modifies the default Ethernet OAM Maintenance Domain (MD). This command is used to modify the level and MHF values for a VLAN that is part of the default MD.

ethoam default-domain *vlan* *vlan_id* **level** *level_num* **mhf** {**none** | **explicit** | **default**}

no ethoam default-domain

Syntax Definitions

<i>vlan_id</i>	VLAN ID of the service instance monitored by the default MD.
<i>level_num</i>	Level of the Maintenance Domain. The valid range is 0–7.
none	Specifies that no MHFs can be created for the specified VLAN ID.
explicit	Specifies that MHFs can be created for the specified VLAN ID only on Bridge ports through which this VLAN ID can pass and only if a MEP is created at a lower MA level.
default	Specifies that MHFs can be created on the specified VLAN ID on any Bridge port through which this VLAN ID can pass.

Defaults

parameter	default
none explicit default	none

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to restore the default values of all the default MD.
- Note that the default MD cannot be created or deleted; it can only be modified.
- The level of the MD is -1 (**no-level**) when the MHF value is **none**.
- You cannot add or remove a VLAN from the default MD.

Examples

```
-> ethoam default-domain vlan 100 level 4 mhf default
-> ethoam default-domain vlan 200 level no-level mhf none
-> no ethoam default-domain
```

Release History

Release 6.3.1; command was introduced.

Related Commands

show ethoam default-domain Displays the information of all the default MD.

MIB Objects

```
DotlagCfmDefaultMdLevel  
  dotlagCfmDefaultMdLevelIndex  
  dotlagCfmDefaultMdLevelVid  
  dotlagCfmDefaultMdLevelMhfCreation  
  dotlagCfmDefaultMdLevelLevel
```

ethoam endpoint

Creates an Ethernet OAM Maintenance End Point (MEP) in the specified MA.

ethoam endpoint *mep_id* **domain** {*domain_name* | *mac_address*} **association** *association_name* **direction** {**up** | **down**} {**port** *slot/port* | **linkagg** *agg_num*}

no ethoam endpoint *mep_id* **domain** *domain_name* **association** *association_name*

Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End point. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
up	Sends CCMs towards the MAC Relay Entity.
down	Sends CCMs away from the MAC Relay Entity.
<i>slot/port</i>	Slot and port number to which this MEP is attached.
<i>agg_num</i>	The aggregate ID to which this MEP is attached.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove the created Ethernet OAM MEP.
- 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
direction up port 3/10
-> ethoam endpoint 100 domain esd.alcatel-lucent.com association alcatel-sales
direction down port 3/10
-> no ethoam endpoint 100 domain esd.alcatel-lucent.com association alcatel-sales
```

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; command modified; *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 admin-state

Configures the administrative state of MEP.

ethoam endpoint *mep_id* **domain** {*domain_name* | *mac_address*} **association** *association_name* **admin-state** {**enable** | **disable**}

Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<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.
enable	Administratively enables MEP.
disable	Administratively disables MEP.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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  
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 ccm

Configures the MEP to generate Continuity Check Messages (CCM).

```
ethoam endpoint mep_id domain {domain_name | mac_address} association association_name  
ccm {enable | disable}
```

Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Name of the Ethernet OAM association. Up to 48 (minus the domain name length) characters may be used.
enable	Enables MEP to generate CCMs.
disable	Disables MEP to generate CCMs.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 ccm  
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 priority

Configures the priority values for CCMs and Linktrace Messages (LTMs) transmitted by a MEP.

ethoam endpoint *mep_id* **domain** {*domain_name* | *mac_address*} **association** *association_name* **priority** *ccm_ltm_priority*

Syntax Definitions

<i>mep_id</i>	Specifies the Maintenance Association End Point. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_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 1–7.

Defaults

parameter	default
<i>ccm_ltm_priority</i>	7

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
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** {*domain_name* | *mac_address*} **association** *association_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>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_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 xcon, rem-err-xcon, no-defect, mac-rem-err-xcon, err-xcon, and all-defect.

Defaults

parameter	default
<i>lowest_priority_defect</i>	mac-rem-err-xcon

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 loopback

Enables the maintenance entity to initiate transmitting loopback messages (LBMs) and obtaining loopback replies.

ethoam loopback {**target-macaddress** *mac_address* | **target-endpoint** *tar_mep_id*} **source-endpoint** *src_mep_id* **domain** {*domain_name* | *mac_address*} **association** *association_name* [**number** *number_of_messages*] [**data** *data_size*] [**vlan-priority** *vlan_priority*] [**drop-eligible** {**true** | **false**}]

Syntax Definitions

<i>mac_address</i>	Target MAC address to be transmitted.
<i>tar_mep_id</i>	Specifies the MEP for which the Loopback message is targeted.
<i>src_mep_id</i>	Specifies the MEP that transmits the Loopback message. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
domain <i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
<i>number_of_messages</i>	Specifies the number of loopback messages to be transmitted. The range is 1–16.
<i>data_size</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>	Specifies the 3-bit value to be used in the VLAN tag, if present in the transmitted frame. The valid range is 0–7.
true	Sets the drop eligibility bit in the VLAN tag to true.
false	Sets the drop eligibility bit in the VLAN tag to false.

Defaults

parameter	default
<i>number_of_messages</i>	1
true false	true

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- This command allows an operator to generate a loopback message for the specified MEP.
- This command signals the MEP that it should transmit loopback messages and detect the presence or lack of the corresponding loopback reply(s).
- Note that a loopback message is used for fault verification.
- This command is used to validate the connectivity between Maintenance End Points (MEP) and Maintenance Intermediate Points (MIP).

Examples

```
-> ethoam loopback target-macaddress 10:aa:ac:12:12:ad source-endpoint 4 domain
esd.alcatel-lucent.com association alcatel-sales number 10 vlan-priority 4
drop-eligible true
-> ethoam loopback target-endpoint 15 source-endpoint 4 domain esd.alcatel-
lucent.com association alcatel-sales
```

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

```
DotlagCfmMepTransmitLbm
  dotlagCfmMepTransmitLbmDestMacAddress
  dotlagCfmMepTransmitLbmDestMepId
  dotlagCfmMepTransmitLbmDestIsmepId
  dotlagCfmMepTransmitLbmMessages
  dotlagCfmMepTransmitLbmDataTlv
  dotlagCfmMepTransmitLbmVlanPriority
  dotlagCfmMepTransmitLbmVlanDropEnable
  dotlagCfmMepTransmitLbmResultOK
```

ethoam linktrace

Enables the maintenance entity to initiate transmitting Link Trace Messages (LTM).

ethoam linktrace {**target-macaddress** *mac_address* | **target-endpoint** *tar_mep_id*} **source-endpoint** *src_mep_id* **domain** {*domain_name* | *mac_address*} **association** *association_name* [**flag fdbonly**] [**hop-count** *hop_count*]

Syntax Definitions

<i>mac_address</i>	Target MAC address to be transmitted.
<i>tar_mep_id</i>	Specifies the MEP for which the Loopback message is targeted.
<i>src_mep_id</i>	Specifies the MEP that transmits the Loopback message. The valid range is 1–8191.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
domain <i>mac_address</i>	Specifies the CFM system MAC address.
<i>association_name</i>	Name of the Ethernet OAM Association. Up to 48 (minus the domain name length) characters may be used.
fdbonly	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 ³² .

Defaults

parameter	default
<i>hop_count</i>	64

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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-endpoint 4 domain
esd.alcatel-lucent.com association alcatel_sales flag fdbonly hop-count 32
Transaction Id: 6943
LTM Sent: Successful

-> ethoam linktrace target-endpoint 15 source-endpoint 4 domain esd.alcatel-
lucent.com association alcatel_sales
Transaction Id: 6934
LTM Sent: Successful
```

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
dotlagCfmMepTransmitLtmTargetIsmepId
dotlagCfmMepTransmitLtmTtl
dotlagCfmMepTransmitLtmResult
dotlagCfmMepTransmitEgressIdentifier
```

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** {*domain_name* | *mac_address*} **association** *association_name*

no ethoam fault-alarm-time **endpoint** *endpoint_id* **domain** {*domain_name* | *mac_address*} **association** *association_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>mac_address</i>	Specifies the CFM system MAC address.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>association_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>	250

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to restore the Fault Notification Generation Alarm timeout value to its default value.
- The Fault Notification Generation Alarm timeout value is configurable per MEP.

Examples

```
-> ethoam fault-alarm-time 10 endpoint 100 domain esd.alcatel-lucent.com association alcatel_sales
-> no ethoam fault-alarm-time endpoint 100 domain esd.alcatel-lucent.com association alcatel_sales
```

Release History

Release 6.3.1; command was introduced.

Related Commands

show ethoam

Displays the information of all the Management Domains (MD) 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_address* | *domain_name*} **association** *association_name*

no ethoam fault-reset-time **endpoint** *endpoint_id* **domain** {*mac_address* | *domain_name*} **association** *association_name*

Syntax Definitions

<i>centiseconds</i>	The Fault Notification Generation Reset timer value, in centi seconds. The valid range is 250–1000.
<i>endpoint_id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.
<i>mac_address</i>	Specifies the CFM system MAC address.
<i>domain_name</i>	Specifies the domain name. For more information on the different formats of the domain name, refer to ethoam domain command on page 28-3 .
<i>association_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, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to restore the Fault Notification Generation Reset timeout value to its default value.
- The Fault Notification Generation Reset timer value is configurable per MEP.

Examples

```
-> ethoam fault-reset-time 10 end-point 100 domain esd.alcatel-lucent.com association
alcatel_sales
-> no ethoam fault-reset-time end-point 100 domain esd.alcatel-lucent.com association
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	Displays the information of all the Management Domains (MD) configured on the bridge.

MIB Objects

Dot1agCfmMep
dot1agCfmMepFngResetTime

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, 6855, 9000, 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

Ethernet OAM system mac address	The MAC address of the Ethernet OAM system.
Number of Maintenance Domains	The number of maintenance domains configured on the bridge.
Maintenance Domain	The name of the maintenance domain.
Maintenance Association	The name of the maintenance association.

Release History

Release 6.2.1; command was introduced.

Related Commands

[ethoam domain](#) Creates an Ethernet domain.

MIB Objects

DotlagCfmStack

dotlagCfmStackMacAddress

DotlagCfmMd

dotlagCfmMdName

DotlagCfmMa

 dotlagCfmMaName

show ethoam domain

Displays the information of a specific Management Domain configured on the bridge.

show ethoam domain {*domain_name* / *mac_address*}

Syntax Definitions

domain_name Specifies the domain name.
mac_address Specifies the CFM system MAC address.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam domain esd.alcatel-lucent.com
MD Attributes
  MD-Level : level-3,
  MD-MHFstatus : mhfNone
  Maintenance Association : alcatel-sales
  Vlan : 100,
  MA-MHFstatus : mhfNone,
  CCM-interval : interval10s,
  MEP-List(MEP-Id) : 3 4
```

Total number of MAs configured in this MD = 1

output definitions

MD-level	The level at which the MD was created.
MD-MHFstatus	Indicates whether the maintenance entity can create MHFs for this MD. Options include none , explicit , or default .
Maintenance Association	The name of the maintenance association.
Vlan	The VLAN ID monitored by this MA. If the MA is not attached to any VLAN, 0 will be displayed.
MA-MHFstatus	Indicates whether the maintenance entity can create MHFs for this MA. Options include none , explicit , or default .
CCM-interval	The interval between the CCM transmissions.
MEP-Id	Indicates the Maintenance End Point.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; *mac_address* parameter added.

Related Commands

show ethoam

Displays the information of all the Management Domains (MD) configured on the bridge.

ethoam domain

Creates an Ethernet domain.

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 {*domain_name* | *mac_address*} **association** *association_name*

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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam domain esd.alcatel-lucent.com association alcatel-sales
Vlan : 100,
MA-MHFstatus : mhfNone,
CCM-interval : interval10s,
MEP-List(MEP-Id) : 3 4,
```

Legend: MEP-Id: * = Inactive Endpoint

MEP-ID	Admin State	Direction	Mac-Address	Port
3	up	up	00:D0:95:EC:84:B0	1/2

Total number of MEPs configured in this MA = 1

output definitions

Vlan	The VLAN ID monitored by this MA. If the MA is not attached to any VLAN, 0 will be displayed.
MA-MHFstatus	Indicates whether the maintenance entity can create MHFs for this MA. Options include none , explicit , or default .
CCM-interval	The interval between the CCM transmissions.
MEP-ID	Indicates the Maintenance End Point.
Admin State	Indicates the administrative state (up or down) of the MEP.

output definitions (continued)

Direction	The direction of the MEP.
MAC Address	The MAC address of the MEP.
Port	The slot/port number of the Bridge port to which the MEP is attached.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; *mac_address* parameter added.

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 {*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>	Name of the Ethernet OAM Association.
<i>endpoint_id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam domain esd.alcatel-lucent.com association alcatel-sales endpoint 3
Admin State : up,
Direction : up,
Slot/Port: 1/2,
MacAddress: 00:D0:95:EC:84:B0,
Fault Notification : FNG_RESET,
CCM Enabled : 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 : 13357,
Fault Alarm Time : 250,
Fault Reset Time : 1000,
Lowest PrDefect Allowed : DEF_MAC_REM_ERR_XCON,
Highest PrDefect Present : DEF_NONE
```

output definitions

Admin State	Indicates the administrative state (up or down) of the MEP.
Direction	The direction of the MEP.
Slot/Port	The slot/port number of the Bridge port to which the MEP is attached.
MAC Address	The MAC address of the MEP.
Fault Notification	Indicates the current state of the MEP Fault Notification Generator State Machine, which can be FNG_RESET , FNG_DEFECT , FNG_REPORT_DEFECT , FNG_DEFECT_REPORTED , or FNG_DEFECT_CLEARING .
CCM Enabled	Indicates whether the MEP generates CCMs (enabled) or not (disabled).
CCM Linktrace Priority	Indicates the priority value for CCMs and LTMs transmitted by the MEP.
CCM Not Received	Indicates if CCMs are not being received (true) or received (false) from at least one of the configured remote MEPs.
CCM Error defect	Indicates if a stream of erroneous CCMs is being received (true) or not (false) from a MEP in this MA.
CCM Xcon defect	Indicates if a stream of CCMs is being received (true) or not (false) from a MEP that belongs to another MA.
MEP RDI Received	Indicates that any other MEP in this MA is transmitting the RDI bit. Options include true or false .
MEP Last CCM Fault	The last-received CCM that triggered a MA fault.
MEP Xcon Last CCM Fault	The last-received CCM that triggered a cross-connect fault.
MEP Error Mac Status	Indicates a port status TLV. Options include true or false .
MEP Lbm NextSeqNumber	The next Transaction Identifier or Sequence Number to be sent in an LBM.
MEP Ltm NextSeqNumber	The next Transaction Identifier or Sequence Number to be sent in an LTM.
Fault Alarm Time	The time interval during which one or more defects should be detected before the fault alarm is issued
Fault Reset Time	The time interval during which the fault alarm is re-enabled to process faults
Lowest PrDefect Allowed	The lowest priority defect that allowed to generate fault alarm.
Highest PrDefect Present	The highest priority defect since the MEPs Fault Notification Generator in reset state.

Release History

Release 6.2.1; command was introduced.
 Release 6.3.1; *mac_address* parameter 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

Displays all the default MD information for all the VLANs or a specific VLAN.

show ethoam default-domain [**vlan** *vlan_id*]

Syntax Definitions

vlan_id VLAN ID for which the default MD information is required.

Defaults

By default, the default MD information for all VLANs is displayed..

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Use the *vlan_id* parameter with this command to view information about the default MD for a specific VLAN.

Examples

```
-> show ethoam default-domain
Vlan   Mhf-creation   Level
-----+-----+-----
    1         none         none
   11         none         none
   99         none         none
  106       default         3
```

output definitions

Vlan	The VLAN ID of the default MD.
Mhf-creation	Indicates the MHF value for a VLAN that is part of the default MD Options include none , explicit , or default .
Level	The level of the maintenance domain.

Release History

Release 6.3.1; command was introduced.

Related Commands

ethoam default-domain

Modifies the default Ethernet OAM Maintenance Domain (MD).

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 {*domain_name* / *mac_address*} **association** *association_name*
end-point *endpoint_id* [**remote-mep** *remote_mepid*]

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 the Ethernet OAM Association.
<i>endpoint_id</i>	Specifies the MEP of a specific MA. The valid range is 1–8191.
<i>remote_mepid</i>	The remote MEP. The valid range is 1–8191.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam remote-endpoint domain esd.alcatel-lucent.com association alcatel-
sales endpoint 3
```

Legends: PortStatusTlv: 1 = psBlocked, 2 = psUp, 3 = psNoTlv

InterfaceStatusTlv: 1 = ifUp, 2 = ifDown, 3 = ifUnknown

MEP-ID	RMEP Status	OkFailed Time	Mac Address	Port Status Tlv	I/f Status Tlv
4	RMEP_OK	500	00:D0:95:EE:F6:56	1	2

Total number of remote MEPS = 1

output definitions

MEP-ID	Indicates the Maintenance End Point.
RMEP Status	The operational state of the remote MEP Remote State machines for this MEP, which can be RMEP_IDLE , RMEP_START , RMEP_FAILED , or RMEP_OK .

output definitions (continued)

OkFailed Time	The time (SysUpTime) when the Remote MEP state machine last entered either the RMEP_FAILED or RMEP_OK .
MacAddress	The MAC address of the remote MEP.
Port Status Tlv	The MAC status TLV last received.
If Status Tlv	The interface status TLV last received.

Release History

Release 6.2.1; 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

DotlagCfmMepDb
dotlagCfmMepDbRMepIdentifier
dotlagCfmMepDbRMepState
dotlagCfmMepDbRMepFailedOkTime
dotlagCfmMepDbMacAddress
dotlagCfmMepDbPortStatusTlv
dotlagCfmMepDbInterfaceStatusTlv

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* | 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.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
```

output definitions

Vlan-id	The VLAN ID to which the MEP is attached.
Direction	Indicates the direction (Inward or Outward) of the Maintenance Point (MP) on the Bridge port.
MAC-Address	The MEP ID configured on this port.

output definitions

Maintenance Domain	The name of the maintenance domain.
Maintenance Association	The name of the maintenance association.
MD-level	The MD level at which the MD was created.

Release History

Release 6.2.1; command was introduced.

Related Commands

[ethoam endpoint](#) 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 domain

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 {*domain_name* | *mac_address*} **association** *association_name*
endpoint *mep_id* **tran-id** *transaction_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.
<i>transaction_id</i>	Specifies the Transaction ID or sequence number returned from a previously transmitted LTM.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam linktrace-reply domain esd.alcatel-lucent.com association alcatel-
sales endpoint 3 tran-id 13358
Ttl : 63,
LTM Forwarded : no,
Terminal MEP : yes,
Last Egress Identifier : 00:00:00:D0:95:EC:84:B0,
Next Egress Identifier : 00:00:00:D0:95:EE:F6:56,
Relay Action : RLY_HIT,
Ingress Action : ING_OK,
Ingress Mac : 00:D0:95:EE:F6:6C,
Egress Action : EGR_NONE,
Egress Mac : 00:00:00:00:00:00
```

output definitions

Ttl	Time to live field for the returned LTR.
LTM Forwarded	Indicates whether the LTM was forwarded or not.
Terminal MEP	Indicates whether the MP reported in the reply Ingress/Egress TLV is a MEP.
Last Egress Identifier	Identifies the MEP linktrace initiator that originated, or the responder that forwarded, the LTM to which this LTR is the response.
Next Egress Identifier	Identifies the linktrace responder that transmitted this LTR, and can forward the LTM to the next hop.
Relay Action	Indicates how the dataframe targeted by the LTM would be passed to Egress bridge port. Options include RLY_HIT , RLY_FDB , or RLY_MPDB .
Ingress Action	Indicates how the dataframe targeted by the LTM would be received on the receiving MP. Options include ING_NONE , ING_OK , ING_DOWN , ING_BLOCKED , or ING_VID .
Ingress Mac	The MAC address returned in the ingress MAC address field.
Egress Action	Indicates how the dataframe targeted by the LTM would be passed through Egress bridge port. Options include ING_NONE , ING_OK , ING_DOWN , ING_BLOCKED , or ING_VID .
Egress Mac	The MAC address returned in the egress MAC address field.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; *mac_address* parameter added.

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, 6855, 9000, 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

S.No	Indicates the sequence number.
Transaction Id	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 statistics

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 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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ethoam statistics domain esd.alcatel-lucent.com association alcatel-sales
```

```
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

MEP-Id	The MEP ID configured in the specified MA.
CCM Out	The total number of CCMs transmitted.
CCM Seq Error	The total number of out-of-sequence CCMs received from all remote MEPs.
LBR In	The total number of valid, in-order LBRs received.
LBR Out of order	The total number of valid, out-of-order LBRs received.
LBR Out	The total number of LBRs transmitted.
LBR Bad MSDU	The total number of LBRs received whose mac_service_data_unit did not match.
Unexpected LTR In	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 loopback](#)

Enables the maintenance entity to initiate transmitting loopback messages (LBMs) and obtaining loopback replies.

MIB Objects

DotlagCfmMep

- dotlagCfmMepIdentifier
- dotlagCfmMepCcmOut
- dotlagCfmMepRCcmSequenceErrors
- dotlagCfmMepLbrIn
- dotlagCfmMepLbrInOutOfOrder
- dotlagCfmMepLbrOut
- dotlagCfmMepLbrBadMsdu
- dotlagCfmMepUnexpLtrIn

29 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:

Global Configuration Commands	efm-oam efm-oam multiple-pdu-count efm-oam errored-frame-seconds-summary efm-oam errored-frame-period efm-oam errored-frame
Port Status Commands	efm-oam port status efm-oam port mode efm-oam port propagate-events
Port Event Notification Commands	efm-oam errored-frame efm-oam errored-frame-period efm-oam errored-frame-seconds-summary
Timer Interval Commands	efm-oam port keepalive-interval efm-oam port hello-interval

Remote Loopback Commands	<code>efm-oam port remote-loopback</code> <code>efm-oam port remote-loopback start</code> <code>efm-oam port l1-ping</code>
---------------------------------	---

Show Commands	<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>
----------------------	--

Clear Commands	<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

enable	Enables the LINK OAM protocol.
disable	Disables the LINK OAM protocol.

Defaults

By default, the LINK OAM protocol is disabled for the switch.

Platforms Supported

OmniSwitch 6400, 6850, 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

efm-oam port status	Enables or disables LINK OAM protocol on the specified port or on a range of ports.
efm-oam port mode	Configures the LINK OAM mode on the port or on the range of ports to active or passive.
show efm-oam configuration	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.
enable	Enables LINK OAM protocol on the specified port.
disable	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, 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

efm-oam port mode	Configure a LINK OAM mode on the port or on the range of ports to active or passive.
show efm-oam configuration	Displays the global LINK OAM configuration.
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 detail	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.
active	Configures the LINK OAM mode to active.
passive	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, 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

- | | |
|--|---|
| efm-oam port status | Enables or disables LINK OAM protocol on the specified port or on a range of ports. |
| 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 configuration | 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, 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

efm-oam port hello-interval	Configures the time interval (in seconds) by which the information OAMPDUs are transmitted out of a LINK OAM enabled port.
show efm-oam port detail	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, 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

- efm-oam port hello-interval** Configures the time interval (in seconds) by which the information OAMPDUs are transmitted out of a LINK OAM enabled port.
- 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.
- show efm-oam port detail** 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.
process	Processes incoming loopback request from peer LINK OAM port.
ignore	Ignore (discard) incoming loopback requests.

Defaults

By default, the incoming loopback requests are ignored.

Platforms Supported

OmniSwitch 6400, 6850, 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).
start	Specifies whether to start the loopback request.
stop	Specifies whether to stop the loopback request.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 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.
critical-event	Configures the notification status for critical events.
dying-gasp	Configures the notification status for dying gasp events.
enable	Enables the notification of critical-event or dying-gasp events to the peer.
disable	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, 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.
enable	Enables notification of the Errored Frame Period event.
disable	Disables notification of the Errored Frame Period event.

Defaults

parameter	default
<i>threshold_symbols</i>	1 frame error
enable disable	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, 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.
enable	Enables notification of the Errored Frame event.
disable	Disables notification of the Errored Frame event.

Defaults

parameter	default
<i>threshold_symbols</i>	1 frame error
<i>window_seconds</i>	1 second (10 dsec)
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 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

- | | |
|---|--|
| efm-oam errored-frame-seconds-summary | Configures the threshold, window and notify-status for errored-frame-seconds-summary on a port. |
| efm-oam errored-frame-period | 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. |
| 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
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.
enable	Enables notification of the Errored Frame Seconds Summary event.
disable	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).
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 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

- | | |
|-------------------------------------|--|
| 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-period | 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. |
| 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
  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, 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.
start	Specifies to start the ping operation.

Defaults

parameter	default
<i>number</i>	5 frames
<i>milliseconds</i>	1000 milliseconds

Platforms Supported

OmniSwitch 6400, 6850, 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, 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

EFM OAM status	The current administrative status of LINK OAM on this switch (Enabled or Disabled).
Multiple PDU Count	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

[efm-oam](#)

Enables or disables the LINK OAM protocol on the switch.

[show efm-oam port detail](#)

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).
enable	Specifies whether to display the LINK OAM enabled ports.
disable	Specifies whether to display the LINK OAM disabled ports.
active	Specifies whether to display the LINK OAM active ports.
passive	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, 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

Port	Displays the slot/port number.
EFM-OAM Status	The state of the EFM-OAM. LINK OAM instance can have any of the following status. <ul style="list-style-type: none"> • Enabled : Specifies that the LINK OAM is disabled on the interface. • Disabled : Specifies that the LINK OAM is disabled on the interface.

output definitions (continued)

Operational Status	<p>The status of the port in discovering whether the peer has LINK OAM capability or not. It has the following states:</p> <ul style="list-style-type: none">• 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	<p>The state of remote loopback. It can be initiatingLoopback, terminatingLoopback, localLoopback, remoteLoopback, noLoopback, or unknown.</p>
Mode	<p>The state of LINK OAM mode, active or passive.</p>

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, 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

OAM Status	The state of LINK OAM on the port.
Operational Status	The state of the port in discovering whether the peer has LINK OAM capability or not.

output definitions (continued)

Mode	The state of LINK OAM mode on the port, active or passive .
Max OamPDU size	Displays the maximum OAMPDU that the LINK OAM port can support.
Config Revision	Displays the configuration revision of the LINK OAM port as reflected in the latest OAMPDU sent by the peer port.
Functions Supported	Displays the LINK OAM functions supported by the specified port.
Loopback Status	Displays the loopback status of the specified LINK OAM port.
Loopback Rx Status	The action that should be performed by the LINK OAM port when a loopback request is received from the peer port.
Max OamPDUs	Specifies the maximum OAMPDUs that can be exchanged between two peers.
KeepAlive Interval	Displays the timeout interval of the specified LINK OAM port for the dynamically learned peer port.
Hello Interval	Displays the time interval between two OAMPDUs in seconds.
Dying Gasp Notify Status	The state of notification for dying gasp events, enable or disable .
Critical Event Notify Status	The state of notification for critical events, enable or disable .
Link Monitoring	Displays the errors detected on the remote link.
Window	The frame error event window in the received OAMPDU.
Threshold	The number of errored frames in the period required for the event to be generated.
Notify Status	The state of notification for LINK OAM errors on the port, enable or disable .

Release History

Release 6.4.2; command was introduced.

Related Commands

show efm-oam port	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, 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

Information OAMPDU Tx	The number of OAM PDUx transmitted by the port.
Information OAMPDU Rx	The number of OAM PDUx received by the port.
Unique Event Notification OAMPDU Tx	The number of unique event notification OAM PDUs transmitted by the port.
Unique Event Notification OAMPDU Rx	The number of unique event notification OAM PDUs received by the port.
Duplicate Event Notification OAMPDU TX	The number of duplicate event notification OAM PDUs transmitted by the port.
Duplicate Event Notification OAMPDU Rx	The number of duplicate event notification OAM PDUs received by the port.
Unsupported OAMPDU Tx	The number of unsupported OAM PDUs transmitted by the port.
Unsupported OAMPDU Rx	The number of unsupported OAM PDUs received by the port.
Frames Lost due to OAM	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, 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

Remote MAC address	Displays the MAC address of the remote peer.
Remote Vendor (info)	Displays the vendor number in hexadecimal of the remote peer.
Remote Vendor (oui)	Displays the Organizationally Unique Identifier (OUI) number of the remote peer.
Mode	The state of LINK OAM mode on the remote port, active or passive .
Max OAMPDU size	Displays the maximum OAMPDU size that the remote LINK OAM port can support.
Config Revision	Displays the configuration revision of the remote LINK OAM port.
Functions Supported	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).
link-fault	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
errored-frame	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.
errored-frame-period	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.
errored-frame-seconds	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.
dying-gasp	Specifies an unrecoverable condition (e.g., a power failure).
critical	Specifies a crucial event that has occurred on the port.

Defaults

By default, all log types are displayed.

Platforms Supported

OmniSwitch 6400, 6850, 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

LogID	Specifies individual events within the event log.
Timestamp	The value of actual time at the time of the logged event.
Log Type	Specifies the type of event log.
Event Total	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, 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

frames configured	Specifies the number of frames that are sent during l1-ping.
delay configured	Specifies the delay between transmission of two consecutive frames during L1 ping.
L1 ping status	The status of the L1 ping operation. The status can be Successful , Unsuccessful or default .
frames sent	Specifies the frames sent during last L1 ping.
frames received	Specifies the frames received during last L1 ping.
average delay	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

<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.

Defaults

By default, the statistics are cleared for all the ports if no port is specified in the command.

Platforms Supported

OmniSwitch 6400, 6850, 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, 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
```

30 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

enable	Globally enables UDLD on the switch.
disable	Globally disables UDLD on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

udld port	Enables or disables UDLD status on a specific port or a range of ports.
show udld configuration	Displays the global status of UDLD configuration.
show udld configuration port	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).
enable	Enables UDLD status on a port.
disable	Disables UDLD status on a port.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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).
normal	Specifies UDLD operation in the normal mode.
aggressive	Specifies UDLD operation in the aggressive mode.

Defaults

parameter	default
normal aggressive	normal

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

parameter	default
<i>seconds</i>	15

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

udld	Globally enables or disables UDLD protocol on the switch.
show udld configuration port	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, 9000, 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

udld	Globally enables or disables UDLD protocol on the switch.
show udld configuration port	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, 9000, 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

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

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, 9000, 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, 9000, 9000E

Usage Guidelines

N/A

Examples

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

output definitions

Global UDLD Status	Indicates the UDLD status on the switch. Options include enabled or disabled .
---------------------------	--

Release History

Release 6.3.1; command was introduced.

Related Commands

udld	Globally enables or disables UDLD protocol on the switch.
show udld configuration port	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, 9000, 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

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

Release History

Release 6.3.1; command was introduced.

Related Commands

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

```
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, 9000, 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

Hello Packet Send	The number of hello messages sent by a port.
Echo Packet Send	The number of echo messages sent by a port.
Flush Packet Recvd	The number of UDLD-Flush message received by a port.
Neighbor ID	The name of the neighbor.
Hello Pkts Recv	The number of hello messages received from the neighbor.
Echo Pkts Recv	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, 9000, 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

Neighbor ID	The name of the neighbor.
Device ID	The device ID.
Port ID	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

show udld status port

Displays the UDLD status for all ports or for a specific port.

show udld status 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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show udld status port
  Slot/Port      Admin State      Operational State
-----+-----+-----
    1/1          disabled         not applicable
    1/2          disabled         not applicable
    1/3          disabled         not applicable
    1/21         disabled         not applicable
    1/40         disabled         not applicable
    1/41         disabled         not applicable
    1/42         enabled          bidirectional
    1/43         enabled          bidirectional
    1/44         enabled          bidirectional
    1/45         enabled          bidirectional
    1/46         enabled          bidirectional
    1/47         enabled          bidirectional
    1/48         enabled          bidirectional
```

```
-> show udld status port 1/44
Admin State      : enabled,
Operational State : bidirectional
```

output definitions

Slot/Port	Slot number for the module and physical port number on that module.
Admin State	Indicates whether UDLD is administratively enabled or disabled .
Operational State	Indicates the state of interface determined by UDLD operation, which can be notapplicable , shutdown , undetermined or bidirectional .

Release History

Release 6.3.1; command was introduced.

Related Commands

- | | |
|--|--|
| udld port | Enables or disables UDLD status on a specific port or a range of ports. |
| show udld configuration port | Displays the configuration information for all UDLD ports or for a particular UDLD port on the switch. |

MIB Objects

alaUdldGlobalStatus
alaUdldPortConfigTable
alaUdldPortConfigUdldOperationalStatus

31 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
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.
user-port	Specifies a user port of the mapping session.
network-port	Specifies a network port of the mapping session.
slot	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.
linkagg	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, 6855, 9000, 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

port mapping	Enables, disables, or deletes a port mapping session.
port mapping	Configures the direction of a port mapping session.
show port mapping	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
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

**port mapping user-port
network-port**

Creates a port mapping session with or without the user ports, network ports, or both.

port mapping

Configures the direction of a port mapping session.

show port mapping status

Displays the status of one or more port mapping sessions.

show port mapping

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
unidirectional bidirectional	bidirectional

Platform Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enables the flooding of unknown unicast traffic from all ports to the user ports for a particular session.
disable	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, 6855, 9000, 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

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.
show port mapping status	Displays the status of one or more port mapping sessions.

MIB Objects

portMappingSessionTable
pmapSessionUnknownUnicastFloodStatus

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, 6855, 9000, 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
1	uni	enable	flood
2	uni	enable	drop
3	bi	disable	drop
4	bi	enable	flood
7	bi	disable	flood
8	bi	disable	flood

output definitions

SessionID	Displays the port mapping session ID.
Direction	Displays the direction of a port mapping session.
Status	Displays the status of a port mapping session.
Unknown unicast	Displays the status of unknown unicast flooding

Release History

Release 6.1.2; command was introduced.

Release 6.3.4; **unknown unicast** 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

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, 6855, 9000, 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

SessionID	Displays the port mapping session ID.
USR-PORT	Displays the set of user ports of a port mapping session.
NETWORK-PORT	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

32 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.

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 37, “RIP Commands,”](#) [Chapter 41, “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:

IP

- ip interface**
- ip interface tunnel**
- ip router primary-address**
- ip router router-id**
- ip static-route**
- ip route-pref**
- ip default-ttl**
- ping**
- traceroute**
- ip directed-broadcast**
- ip service**
- show ip traffic**
- show ip interface**
- show ip route**
- show ip route-pref**
- show ip router database**
- show ip emp-route**
- show ip config**
- show ip protocols**
- show ip service**

IP Route Map Redistribution

- ip redistrib**
- ip access-list**
- ip access-list address**
- ip route-map action**
- ip route-map match ip address**
- ip route-map match ipv6 address**
- ip route-map match ip-nexthop**
- ip route-map match ipv6-nexthop**
- ip route-map match tag**
- ip route-map match ipv4-interface**
- ip route-map match ipv6-interface**
- ip route-map match metric**
- ip route-map match route-type**
- ip route-map set metric**
- ip route-map set metric-type**
- ip route-map set tag**
- ip route-map set community**
- ip route-map set local-preference**
- ip route-map set level**
- ip route-map set ip-nexthop**
- ip route-map set ipv6-nexthop**
- show ip redistrib**
- show ip access-list**
- show ip route-map**

Multiple Virtual Routing and Forwarding (VRF)	vrf show vrf
ARP	arp clear arp-cache ip dos arp-poison restricted-address arp filter clear arp filter show arp show arp summary show ip dos arp-poison
ICMP	icmp type icmp unreachable icmp echo icmp timestamp icmp addr-mask icmp messages show icmp control show icmp statistics
TCP	show tcp statistics show tcp ports
UDP	show udp statistics show udp ports
Denial of Service (DoS)	ip dos scan close-port-penalty ip dos scan tcp open-port-penalty ip dos scan udp open-port-penalty ip dos scan threshold ip dos trap ip dos scan decay show ip dos config show ip dos statistics

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**] [**e2** | **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.
enable	Enables the administrative status for the IP interface.
disable	Disables the administrative status for the IP interface.
<i>vid</i>	An existing VLAN ID number (1–4094).
forward	Enables forwarding of IP frames to other subnets.
no forward	Disables forwarding of IP frames. The router interface still receives frames from other hosts on the same subnet.
local-proxy-arp	Enables Local Proxy ARP on the specified interface.
no local-proxy-arp	Disables Local Proxy ARP on the specified interface.
e2	Enter e2 or ethernet2 to specify Ethernet-II encapsulation.
snap	SNAP encapsulation.
primary	Designates the specified IP interface as the primary interface for the VLAN.
no primary	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
enable disable	enable
<i>vid</i>	none (unbound)
forward no forward	forward
local-proxy-arp no local-proxy-arp	no local-proxy-arp
e2 snap	e2
primary no primary	First interface bound to a VLAN.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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.
source <i>ip_address</i>	Source IP address of the tunnel.
destination <i>ip_address</i>	Destination IP address of the tunnel.
ipip	Specifies the tunneling protocol as IPIP.
gre	Specifies the tunneling protocol as GRE.

Defaults

parameter	default
ipip gre	ipip

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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** parameters 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, 6855, 9000, 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, 6855, 9000, 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. 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** *gateway* [**metric** *metric*]

no ip static-route *ip_address* [**mask** *mask*] **gateway** *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.
gateway <i>ip_address</i>	IP address of the next hop used to reach the destination IP 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 1–15.

Defaults

parameter	default
<i>metric</i>	1

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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
```

Release History

Release 6.1; command was introduced.

Related Commands

- show ip route** Displays the IP Forwarding table.
- show ip router database** Displays the IP router database contents.

MIB Objects

```
alaIprmStaticRoute  
  alaIprmStaticRouteDest  
  alaIprmStaticRouteMask  
  alaIprmStaticRouteNextHop  
  alaIprmStaticRouteMetric  
  alaIprmStaticRouteStatus
```

ip route-pref

Configures the route preference of a router.

ip route-pref {static | ospf | rip | ebgp | ibgp} *value*

Syntax Definitions

static	Configures the route preference of static routes.
ospf	Configures the route preference of OSPF routes.
rip	Configures the route preference of RIP routes.
ebgp	Configures the route preference of external BGP routes.
ibgp	Configures the route preference of internal BGP routes.
<i>value</i>	Route preference value.

Defaults

parameter	default
static <i>value</i>	2
ospf <i>value</i>	110
rip <i>value</i>	120
ebgp <i>value</i>	190
ibgp <i>value</i>	200

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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's IP address or hostname. The switch will ping 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 below.

```
ping {ip_address / hostname} [count count] [size packet_size] [interval seconds] [timeout seconds]
```

Syntax Definitions

<i>ip_address</i>	IP address of the system to ping.
<i>hostname</i>	DNS name of the system to ping.
<i>count</i>	Number of frames to be transmitted.
<i>packet_size</i>	Size of the data portion of the packet sent for this ping, in bytes. Valid range is 1–60000.
interval <i>seconds</i>	Polling interval. The switch will poll the host at time intervals specified in seconds.
timeout <i>seconds</i>	Number of seconds the program will wait for a response before timing out.

Defaults

parameter	default
<i>count</i>	6
<i>packet_size</i>	64
interval <i>seconds</i>	1
timeout <i>seconds</i>	5

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

Examples

```
-> ping 10.255.11.242
```

```
PING 10.255.11.242: 56 data bytes
64 bytes from 10.255.11.242: icmp_seq=0. time=0. ms
64 bytes from 10.255.11.242: icmp_seq=1. time=0. ms
64 bytes from 10.255.11.242: icmp_seq=2. time=0. ms
64 bytes from 10.255.11.242: icmp_seq=3. time=0. ms
64 bytes from 10.255.11.242: icmp_seq=4. time=0. ms
64 bytes from 10.255.11.242: icmp_seq=5. time=0. ms
----10.255.11.242 PING Statistics----
6 packets transmitted, 6 packets received, 0% packet loss
round-trip (ms) min/avg/max = 0/0/0
```

Release History

Release 6.1; command was introduced.

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 displays the individual hops to the destination as well as some timing information.

```
traceroute {ip_address / hostname} [max-hop max_hop_count]
```

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>max_hop_value</i>	Maximum hop count for the trace.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- When using this command, you must enter the name of the destination as part of the command line (either the IP address or host name).
- 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

```
-> traceroute 128.251.17.224
```

```
traceroute to 128.251.17.224, 30 hops max, 40 byte packets
 1 10.255.11.254 0 ms 0 ms 0 ms
 2 172.23.0.251 0 ms 16.6667 ms 0 ms
 3 128.251.14.253 0 ms 0 ms 0 ms
 4 128.251.17.224 0 ms 0 ms 0 ms
```

```
-> traceroute 128.251.17.224 max-hop 3
```

```
traceroute to 128.251.17.224, 3 hops max, 40 byte packets
 1 10.255.11.254 0 ms 0 ms 0 ms
 2 172.23.0.251 16.6667 ms 0 ms 0 ms
 3 128.251.14.253 0 ms 0 ms 0 ms
```

Release History

Release 6.1; command was introduced.

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, 6855, 9000, 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

show ip interface	Displays the status and configuration of IP interfaces.
show ip route	Displays the IP Forwarding table.
show ip config	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

all	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, 6855, 9000, 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:

service name	port
ftp	21
ssh	22

service name	port
telnet	23
http	80
secure-http	443
avlan-http	260
avlan-secure-http	261
avlan-telnet	259
udp-relay	67
network-time	123
snmp	161

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

local	Redistributes local routes.
static	Redistributes static routes.
rip	Specifies RIP as the source or destination (into) protocol.
ospf	Specifies OSPF as the source or destination (into) protocol.
isis	Specifies IS-IS as the source or destination (into) protocol.
bgp	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.
enable	Enables the administrative status of the redistribution configuration.
disable	Disables the administrative status of the redistribution configuration.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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.
permit	Permits the IP address for redistribution.
deny	Denies the IP address for redistribution.
all-subnets	Redistributes or denies all the subnet routes that match the network portion of the IP address as specified by the mask length
no-subnets	Redistributes or denies only those routes that exactly match the IP address and the mask length.
aggregate	Redistributes an aggregate route if there are one or more routes that match or are subnets of this address.

Defaults

parameter	default
permit deny	permit
all-subnets no-subnets aggregate	all-subnets

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip access-list	Creates an access list for adding multiple IPv4 addresses to route maps.
show ip access-list	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.
permit	Permits route redistribution.
deny	Denies route redistribution.

Defaults

parameter	default
<i>number</i>	50
permit deny	permit

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
all-subnets	Redistributes all the subnet routes that match the network portion of the IP address as specified by the mask length.
no-subnets	Redistributes only those routes that exactly match the IP address and the mask length.
aggregate	Redistributes an aggregate route if there are one or more routes that match the IP address.
permit	Permits a route based on the IP address or prefix constrained by redist-control.
deny	Denies a route based on the IP address or prefix constrained by redist-control.

Defaults

parameter	default
<i>number</i>	50
permit deny	permit

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 routel sequence-number 10 match ip-address list1
-> no ip route-map routel sequence-number 10 match ip-address list1
```

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.
ip access-list	Creates an access list for adding multiple IPv4 addresses to route maps.
ip access-list address	Adds IPv4 addresses to the specified IPv4 access list.
show ip route-map	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/prefix-Len* [**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.
all-subnets	Redistributes all the subnet routes that match the network portion of the IP address as specified by the mask length.
no-subnets	Redistributes only those routes that exactly match the IP address and the mask length.
aggregate	Redistributes an aggregate route if there are one or more routes that match the IPv6 address.
permit	Permits a route based on the IPv6 address or prefix constrained by redist-control .
deny	Denies a route based on the IPv6 address or prefix constrained by redist-control .

Defaults

parameter	default
<i>number</i>	50
permit deny	permit

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 route1 sequence-number 10 match ipv6-address list1
-> no ip route-map route1 sequence-number 10 match ipv6-address list1
```

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.
ipv6 access-list	Creates an access list for adding multiple IPv6 addresses to route maps.
ipv6 access-list address	Adds IPv6 addresses to the specified IPv6 access list.
show ip route-map	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.
permit	Permits a route based on the IP nexthop.
deny	Denies a route based on the IP nexthop.

Defaults

parameter	default
<i>number</i>	50
permit deny	permit

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip access-list	Creates an access list for adding multiple IPv4 addresses to route maps.
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 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.
permit	Permits a route based on the IPv6 nexthop.
deny	Denies a route based on the IPv6 nexthop.

Defaults

parameter	default
<i>number</i>	50
permit deny	permit

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ipv6 access-list	Creates an access list for adding multiple IPv6 addresses to route maps.
ipv6 access-list address	Adds IPv6 addresses to the specified IPv6 access list.
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 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, 6855, 9000, 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

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 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, 6855, 9000, 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

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 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, 6855, 9000, 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

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 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

parameter	default
<i>number</i>	50

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

[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 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.
internal	Matches OSPF/BGP internal routes.
external	Matches OSPF/BGP external routes.
type1	Matches OSPF external Type-1 routes, which gives the full metric calculation for the complete path including internal as well as external cost.
type2	Matches OSPF external Type-2 routes, which gives the external redistribution metric only to the ASBR.
level1	Matches IS-IS Level-1 routes only.
level2	Matches IS-IS Level-2 routes only.

Defaults

parameter	default
<i>number</i>	50

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

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

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.
add	Adds the configured metric value to the actual metric value.
subtract	Subtracts the configured metric value from the actual metric value.
replace	Replaces the actual metric value with the configured metric value.
none	Redistributes the actual metric value. The configured metric value is ignored. Use any value except 0.

Defaults

parameter	default
<i>number</i>	50

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
internal	Sets the metric type to internal for routes redistributed into BGP.
external	Sets the metric type to external for routes redistributed into BGP.
type1	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.
type2	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, 6855, 9000, 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, 6855, 9000, 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

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 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, 6855, 9000, 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

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 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, 6855, 9000, 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.
level1	Matches IS-IS Level-1 routes only.
level2	Matches IS-IS Level-2 routes only.
level1-2	Matches IS-IS Level1-2 routes.

Defaults

parameter	default
<i>number</i>	50

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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-nexthop

Configures the IP address of the next hop in a route map.

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*

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, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to delete the **set ip-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 ip-nexthop 128.251.17.224
-> no ip route-map 222 sequence-number 50 set ip-nexthop 128.251.17.224
```

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

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, 6855, 9000, 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> / default	default VRF instance

Platforms Supported

OmniSwitch 9000E

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 vrf** 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).
alias	<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 ip interface 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, 6855, 9000, 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. (OS9000 and 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, 6855, 9000, 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 [ip service](#) command.
- Dynamic entries remain in the ARP table until they time out. The switch uses the MAC Address table timeout value as the ARP timeout value. Use the [mac-address-table aging-time](#) command to set the timeout value.

Examples

```
-> clear arp-cache
```

Release History

Release 6.1; command was introduced.

Related Commands

arp	Adds a permanent entry to the ARP table.
show arp	Displays the ARP table.

MIB Objects

alaIpClearArpCache

ip dos arp-poison restricted-address

Adds or deletes an ARP Poison restricted address.

ip dos arp-poison restricted-address *ip_address*

no ip dos arp-poison restricted-address *ip_address*

Syntax Definitions

ip_address 32-bit IP address.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Use the **no** form of the command to remove an already configured ARP Poison restricted address.

Examples

```
-> ip dos arp-poison restricted-address 192.168.1.1
-> no ip dos arp-poison restricted-address 192.168.1.1
```

Release History

Release 6.3.1; command was introduced.

Related Commands

[show ip dos arp-poison](#) Displays the number of attacks detected for configured ARP poison restricted-addresses.

MIB Objects

```
alaDoSArpPoisonTable
  alaDoSArpPoisonIpAddr
  alaDosArpPoisonRowStatus
```

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.
sender	The sender IP address in the ARP packet is used for ARP filtering.
target	The target IP address in the ARP packet is used for ARP filtering.
allow	ARP packets that meet filter criteria are processed.
block	ARP packets that meet filter criteria are discarded.

Defaults

parameter	default
<i>vid</i>	0 (no VLAN)
<i>ip_mask</i>	255.255.255.255
sender target	target
allow block	block

Platforms Supported

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

- | | |
|----------------------------------|---|
| arp filter | Configures an ARP filter to allow or block the processing of specified ARP Request packets. |
| show arp summary | 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* {{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.
enable	Enables the specified ICMP message.
disable	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

Defaults

parameter	default
enable disable	disabled
<i>gap</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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)	icmp unreachable
Host unreachable (type 3, code 1)	icmp unreachable
Protocol unreachable (type 3, code 2)	icmp unreachable
Port unreachable (type 3, code 3)	icmp unreachable
Echo reply (type 0, code 0)	icmp echo
Echo request (type 8, code 0)	icmp echo
Timestamp request (type 13, code 0)	icmp timestamp
Timestamp reply (type 14, code 0)	icmp timestamp
Address Mask request (type 17, code 0)	icmp addr-mask
Address Mask reply (type 18, code 0)	icmp addr-mask

- 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

net-unreachable	Sets the unreachable network ICMP message.
host-unreachable	Sets the unreachable host ICMP message.
protocol-unreachable	Sets the unreachable protocol ICMP message.
port-unreachable	Sets the unreachable port ICMP message.
enable	Enables the specified ICMP message.
disable	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

Defaults

parameter	default
enable disable	disabled
<i>gap</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

request	Specifies the echo request ICMP message.
reply	Specifies the echo reply ICMP message.
enable	Enables the specified ICMP message.
disable	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

Defaults

parameter	default
enable disable	enable
<i>gap</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

request	Specifies timestamp request messages.
reply	Specifies timestamp reply messages.
enable	Enables the specified ICMP message.
disable	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

Defaults

parameter	default
enable disable	enable
<i>gap</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

request	Specifies request address mask messages.
reply	Specifies reply address mask messages.
enable	Enables the specified ICMP message.
disable	Disables the specified ICMP message.
<i>gap</i>	The number of microseconds required between ICMP messages of this type.

Defaults

parameter	default
enable disable	enable
<i>gap</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

<code>enable</code>	Enables ICMP messages.
<code>disable</code>	Disables ICMP messages.

Defaults

parameter	default
<code>enable disable</code>	<code>enable</code>

Platforms Supported

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

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 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 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.
show ip dos config	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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

Total	Total number of input datagrams received including those received in error.
IP header error	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).
Destination IP error	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).
Unknown protocol	Number of locally-addressed datagrams received successfully but discarded because of an unknown or unsupported protocol.
Local discards	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.
Delivered to users	Total number of datagrams received that were successfully delivered to IP user protocols (including ICMP).
Reassemble needed	Number of IP fragments received that needed to be reassembled.
Reassembled	Number of IP datagrams received that were successfully reassembled.
Reassemble failed	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.
Fragmented	Number of successfully fragmented IP datagrams.
Fragment failed	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.
Forwarded	Number of IP datagrams forwarded by the switch.
Generated	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)

Local discards	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.
No route discards	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.
Fragments generated	The of IP datagram fragments generated as a result of fragmentation.
Routing entry discards	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).
Event	The type of event (spoof).
Source	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 policy port group command.
Total	The total number of spoofed packets received on the source port.
Last <i>xx</i> seconds	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*]

Syntax Definitions

<i>name</i>	The name associated with the IP interface.
emp	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).

Defaults

By default, all IP interfaces are displayed.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
client	60.1.1.1	255.255.255.0	DOWN	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

Name	Interface name. Generally, this is the name configured for the interface (e.g., Accounting). EMP refers to the Ethernet Management Port. Loopback refers to a loopback interface configured for testing.
IP Address	IP address of the interface. Configured through the ip interface command.
Subnet Mask	IP subnet mask for the interface IP address. Configured through the ip interface command.
Status	Interface status: <ul style="list-style-type: none"> • UP—Interface is ready to pass packets. • DOWN—Interface is down.
Forward	Indicates whether or not the interface is actively forwarding packets (YES or NO).
Device	The type of device bound to the interface: <ul style="list-style-type: none"> • unbound—No device is bound to the interface. • vlan—The VLAN ID that is bound to the interface. • EMP—The Ethernet Management Port is bound to the interface. • Loopback—A loopback interface is configured for testing. • GRE tunnel—GRE tunnel is configured for the interface. • IPIP tunnel—IPIP tunnel is configured for the interface. Configured through the ip interface command. Note that the GRE tunnel and IPIP tunnel devices are supported only on the OmniSwitch 6850, 6855, and 9000 switches.

```
-> 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,
Encapsulation             = eth2,
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,
Primary (config/actual)   = no/yes
```

output definitions

SNMP Interface Index	Interface index.
IP Address	IP address associated with the interface. Configured through the ip interface command.
Subnet Mask	IP subnet mask for the interface. Configured through the ip interface command.
Broadcast Address	Broadcast address for the interface.

output definitions (continued)

Device	<p>The type of device bound to the interface:</p> <ul style="list-style-type: none"> • unbound—No device is bound to the interface. • vlan—The VLAN ID that is bound to the interface. • EMP—The Ethernet Management Port is bound to the interface. • Loopback—A loopback interface is configured for testing. • GRE tunnel—GRE tunnel is configured for the interface. • IPIP tunnel—IPIP tunnel is configured for the interface. <p>Configured through the ip interface command.</p> <p>Note that the GRE tunnel and IPIP tunnel devices are supported only on the OmniSwitch 6850, 6855, and 9000 switches.</p>
Encapsulation	<p>Displays the IP router encapsulation (eth2 or snap) that the interface will use when routing packets. Configured through the ip interface command.</p>
Forwarding	<p>Indicates whether or not IP forwarding is active for the interface (enabled or disabled). Configured through the ip interface command.</p>
Administrative State	<p>Administrative state of the IP interface (enabled or disabled), which is independent of the state of the underlying device. Configured through the ip interface command.</p>
Operational State	<p>Indicates whether or not the interface is active (up or down).</p>
Operation State Reason	<p>Indicates why the operational state of the interface is down:</p> <ul style="list-style-type: none"> • unbound—No device is bound to the interface. • device-down—Device bound to the interface is down. • admin-down—The admin state of the interface is down. • no-such-device—Device does not exist. • no-router-mac—No MAC address available for the interface. • tunnel-src-invalid—Tunnel's source IP address is invalid. • tunnel-dst-unreachable—Tunnel's destination IP address is not reachable. <p>Note that the tunnel-src-invalid and tunnel-dst-unreachable Operational State reasons are supported only on the OmniSwitch 6850, 6855, and 9000 switches. These two reasons are only applicable for the GRE tunnel and IPIP tunnel device types.</p> <p>Note that Operational State Reason field is only included in the display output when the operational state of the interface is down.</p>
Router MAC	<p>Switch MAC address assigned to the interface. Note that each interface assigned to the same VLAN will share the same switch MAC address.</p>
Local Proxy ARP	<p>Indicates whether or not Local Proxy ARP is active for the interface (enabled or disabled). Configured through the ip interface command.</p>
Maximum Transfer Unit	<p>The Maximum Transmission Unit size set for the interface. Configured through the ip interface command.</p>
Primary (config/actual)	<p>Indicates if the interface is the configured and/or actual primary interface for the device (VLAN, EMP, Loopback). If the actual status is set to yes and the config status is set to no, the interface is the default interface for the VLAN. Configured through the ip interface command.</p>

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

SNMP Interface Index	Interface index.
IP Address	IP address associated with the interface. Configured through the ip interface command.
Subnet Mask	IP subnet mask for the interface. Configured through the ip interface command.
Device	The type of device bound to the interface: <ul style="list-style-type: none"> • unbound—No device is bound to the interface. • vlan—The VLAN ID that is bound to the interface. • EMP—The Ethernet Management Port is bound to the interface. • Loopback—A loopback interface is configured for testing. • GRE tunnel—GRE tunnel is configured for the interface. • IPIP tunnel—IPIP tunnel is configured for the interface. Configured through the ip interface command.
Tunnel Source Address	The source IP address for the tunnel.
Tunnel Destination Address	The destination IP address for the tunnel.
Forwarding	Indicates whether or not IP forwarding is active for the interface (enabled or disabled). Configured through the ip interface command.
Administrative State	Administrative state of the IP interface (enabled or disabled), which is independent of the state of the underlying device. Configured through the ip interface command.
Operational State	Indicates whether or not the interface is active (up or down).

output definitions (continued)

Operational State Reason	<p>Indicates why the operational state of the interface is down:</p> <ul style="list-style-type: none"> • interface-up—The admin state of the interface is up. • unbound—No device is bound to the interface. • device-down—Device bound to the interface is down. • admin-down—The admin state of the interface is down. • no-such-device—Device does not exist. • no-router-mac—No MAC address available for the interface. • tunnel-src-invalid—Tunnel's source IP address is invalid. • tunnel-dst-unreachable—Tunnel's destination IP address is not reachable. <p>Note that this field is only included in the display output when the operational state of the interface is down.</p>
Maximum Transfer Unit	<p>The Maximum Transmission Unit size set for the interface. Configured through the ip interface command.</p>

Release History

Release 6.1; command was introduced.

Release 6.3.1; **Tunnel Source Address** and **Tunnel Destination Address** fields added.

Related Commands**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 tunnel

Configures the end points for the GRE and IPIP tunnels.

show icmp statistics

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 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, 6855, 9000, 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

Dest Addr	Destination IP address.
Subnet Mask	Destination IP address IP subnet mask.
Gateway Addr	IP address of the gateway from which this address was learned.
Age	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).
Protocol	Protocol by which this IP address was learned (e.g., RIP). NETMGT indicates a static route. LOCAL indicates a local interface.
Route Count	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

ping	Used to test whether an IP destination can be reached from the local switch.
traceroute	Used to find the path taken by an IP packet from the local switch to a specified destination.
show ip route	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, 6855, 9000, 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

rip	Displays route map redistribution configurations that use RIP as the destination (into) protocol.
ospf	Displays route map redistribution configurations that specify OSPF as the destination (into) protocol.
bgp	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, 6855, 9000, 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

Source Protocol	The protocol from which the routes are learned.
Destination Protocol	The protocol into which the source protocol routes are redistributed.
Status	The administrative status (Enabled or Disabled) of the route map redistribution configuration.
Route Map	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, 6855, 9000, 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

Name	Name of the access list.
Address/Prefix Length	IP address that belongs to the access list.
Effect	Indicates whether the IP address is permitted or denied for redistribution.
Redistribution Control	Indicates the conditions specified for redistributing the matched routes.

Release History

Release 6.1.3; command was introduced

Related Commands

ip access-list	Creates an access list for adding multiple IPv4 addresses to route maps.
ip access-list address	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, 6855, 9000, 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

ip route-map action	Creates a route map for redistribution and sets the status of route map to permit or deny.
ip route-map match ip address	Matches the route with the specified IPv4 address or with addresses contained in an IPv4 access list specified by the access list name.
ip route-map match ipv6 address	Matches the route with the specified IPv6 address or with addresses contained in an IPv6 access list specified by the access list name.
ip route-map match ip-nexthop	Matches the routes that have a next-hop router address permitted by the specified access list.
ip route-map match ipv6-nexthop	Matches the routes that have an IPv6 next-hop router address permitted by the specified access list.
ip route-map match tag	Permits or denies a route based on the specified next-hop IP address.
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 match metric	Matches the metric value specified in the route map with the one that the routing protocol learned the route on.
ip route-map match route-type	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, 6855, 9000, 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
```

Destination	Gateway	Protocol	Metric	VLAN
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
10.212.62.0/24	10.212.60.27	OSPF	2	44
10.212.62.0/24	10.212.61.27	OSPF	2	43
10.212.63.0/24	10.212.60.27	OSPF	2	44
10.212.63.0/24	10.212.61.27	OSPF	2	43
10.212.66.0/24	10.212.66.17	LOCAL	1	46
143.209.92.0/24	172.28.6.254	STATIC	1	N/A
172.28.6.0/24	172.28.6.2	LOCAL	1	6
172.28.6.0/24	10.212.60.27	OSPF	1	44
172.28.6.0/24	10.212.61.27	OSPF	1	43
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	VLAN
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

Destination	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).
Gateway	IP address of the gateway from which this route was learned.
Protocol	Protocol by which this IP address was learned: LOCAL, STATIC, OSPF, RIP, BGP).
Metric	RIP metric or cost (hop count) for the route. Indicates a priority for the route. The lower the metric value, the higher the priority.
VLAN	The VLAN on which the route was <i>learned</i> , not forwarded. Note that N/A appears in this field for static routes as they are not learned on a VLAN.

Release History

Release 6.1; command was introduced.

Release 6.1.5; *mask* parameter deleted; *prefixLen* parameter added.

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, 6855, 9000, 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

Dest Addr	Destination IP address.
Subnet Mask	Destination IP address IP subnet mask.
Gateway Addr	IP address of the gateway from which this address was learned.
Age	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).
Protocol	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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ip config
IP directed-broadcast = OFF,
IP default TTL       = 64
```

output definitions

IP directed-broadcast	Indicates whether the IP directed-broadcast feature is on or off.
IP default TTL	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, 6855, 9000, 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

Router ID	The set routing ID. The router ID is how the router is identified in IP.
Primary addr	The primary interface address the route uses.
RIP status	Whether RIP is loaded or not.
OSPF status	Whether OSPF is loaded or not.
BGP status	Whether BGP is loaded or not.
DVMRP status	Whether DVMRP is loaded or not.
PIMSM status	Whether PIMSM is loaded or not.
Debug level	What the current router debug level is.
Debug sections	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, 6855, 9000, 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

output definitions

Name	Name of the TCP/UDP service.
Port	The TCP/UDP well-known port number associated with the service.
Status	The status of the well-known service port: enabled (port is closed) or disabled (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 vrf

Displays the Multiple VRF instance configuration for the switch.

show vrf

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 9000E

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, 6855, 9000, 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

IP Address	Device IP address.
Hardware Addr	MAC address of the device that corresponds to the IP address.
Type	Indicates whether the ARP cache entries are dynamic or static.
Flags	Indicates the type of entry: <ul style="list-style-type: none"> • P = Proxy • A = Authentication (AVLAN) • V = VRRP
Port	The port or link aggregate on the switch attached to the device identified by the IP address.

output definitions (continued)

Interface	The interface to which the entry belongs (e.g., VLAN, EMP).
Name	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, 6855, 9000, 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

Type	The type of ARP entry.
Count	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, 6855, 9000, 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

IP Addr	The ARP packet IP address to which the filter is applied.
IP Mask	The IP mask that specifies which part of the IP address to which the filter is applied.
Vlan	A VLAN ID. The filter is applied only to ARP packets received on ports associated with this VLAN.
Type	Indicates which IP address in the ARP packet (sender or target) is used to identify if a filter exists for that address.
Mode	Indicates whether or not to block or allow 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, 6855, 9000, 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
protocol 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

Name	The name of the ICMP message.
Type	The ICMP message type. This along with the ICMP code specify the kind of ICMP message.
Code	The ICMP message code. This along with the ICMP type specify the kind of ICMP message.
Status	Whether this message is Enabled or Disabled .
min-pkt-gap	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

icmp type	Enables or disables a specific type of ICMP message, and sets the minimum packet gap.
icmp unreachable	Enables or disables ICMP messages pertaining to unreachable destinations, and sets the minimum packet gap.
icmp echo	Enables or disables ICMP echo messages, and sets the minimum packet gap.
icmp timestamp	Enables or disables ICMP timestamp messages, and sets the minimum packet gap.
icmp addr-mask	Enables or disables ICMP address mask messages, and sets the minimum packet gap.
icmp messages	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, 6855, 9000, 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

Total	Total number of ICMP messages the switch received or attempted to send. This counter includes all those counted as errors.
Error	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).
Destination unreachable	Number of “destination unreachable” messages that were sent/received by the switch.

output definitions (continued)

Time exceeded	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.
Parameter problem	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.
Source quench	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.
Redirect	Number of ICMP redirect messages sent/received by the switch.
Echo request	Number of ICMP echo messages sent/received by the switch to see if a destination is active and unreachable.
Echo reply	Number of echo reply messages received by the switch.
Time stamp request	Number of time stamp request messages sent/received by the switch.
Time stamp reply	Number of time stamp reply messages sent/received by the switch.
Address mask request	Number of address mask request messages that were sent/received by the switch in an attempt to determine the subnet mask for the network.
Address mask reply	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, 6855, 9000, 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

Total segments received	Total number of segments received, including those received in error. This count includes segments received on currently established connections.
Error segments received	Total number of segments received in error (e.g., bad TCP checksums).
Total segments sent	Total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.
Segments retransmitted	Number of TCP segments transmitted containing one or more previously transmitted octets.
Reset segments sent	Number of TCP segments containing the reset flag.
Connections initiated	Number of connections attempted.
Connections accepted	Number of connections allowed.
Connections established	Number of successful connections.

output definitions (continued)

Attempt fails	Number of times attempted TCP connections have failed.
Established resets	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

show icmp statistics	Displays ICMP statistics and errors.
show tcp ports	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, 6855, 9000, 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

Local Address	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.
Local Port	Local port number for this TCP connection. The range is 0–65535.
Remote Address	Remote IP address for this TCP connection.

output definitions (continued)

Remote Port	Remote port number for this TCP connection. The range is 0–65535.
State	<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">• Listen—Waiting for a connection request from any remote TCP and port.• Syn Sent—Waiting for a matching connection request after having sent a connection request.• Syn Received—Waiting for a confirming connection request acknowledgment after having both received and sent a connection request.• Established—Open connection. Data received can be delivered to the user. This is the normal state for the data transfer phase of the connection.• Fin Wait 1—Waiting for a connection termination request from the remote TCP, or an acknowledgment of the connection termination request previously sent.• Fin Wait 2—Waiting for a connection termination request from the remote TCP.• Close Wait—Waiting for a connection termination request from the local user.• Closing—Waiting for a connection termination request acknowledgment from the remote TCP.• 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).• Time Wait—Waiting for enough time to pass to be sure the remote TCP received the acknowledgment of its connection termination request.• Closed—No connection state.

Release History

Release 6.1; command was introduced.

Related Commands

show ip interface	Displays the status and configuration of IP interfaces.
show tcp statistics	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, 6855, 9000, 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

Total datagrams received	Total number of UDP datagrams delivered to UDP applications.
Error datagrams received	Number of UDP datagrams that could not be delivered for any reason.
No port datagrams received	Number of UDP datagrams that could not be delivered for reasons other than lack of application at the destination.
Total datagrams sent	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, 6855, 9000, 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

Local Address	Local IP address for this UDP connection.
Local Port	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, 6855, 9000, 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 MMaximum Ping Rate	= 100
Dos Maximum ARP Request Rate	= 500

output definitions

DoS trap generation	Displays the status of DoS trap generation. It is either ENABLED or DISABLED . This is set using the ip dos trap command.
DoS port scan threshold	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 ip dos scan threshold command.
DoS port scan decay	The decay value for the switch. The penalty value of the switch is decreased by this number every minute. This is set using the ip dos scan decay command.
DoS port scan close port penalty	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 ip dos scan close-port-penalty command.
DoS port scan TCP open port penalty	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 ip dos scan tcp open-port-penalty command.
DoS port scan UDP open port penalty	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 ip dos scan udp open-port-penalty 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, 6855, 9000, 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

DoS type	The type of DoS attack. The most common seven are displayed.
Attacks detected	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, 6855, 9000, 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

IP Address	The configured ARP Poison restricted-addresses.
Attacks detected	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
```

33 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:

IPv6	<ul style="list-style-type: none"> ipv6 interface ipv6 address ipv6 address global-id ipv6 address local-unicast ipv6 dad-check ipv6 hop-limit ipv6 pmtu-lifetime ipv6 host ipv6 neighbor stale-lifetime ipv6 neighbor ipv6 prefix ipv6 route ipv6 static-route ipv6 route-pref ping6 traceroute6 show ipv6 hosts show ipv6 icmp statistics show ipv6 interface show ipv6 pmtu table clear ipv6 pmtu table show ipv6 neighbors clear ipv6 neighbors show ipv6 prefixes show ipv6 routes show ipv6 route-pref show ipv6 router database show ipv6 tcp ports show ipv6 traffic clear ipv6 traffic show ipv6 tunnel show ipv6 udp ports show ipv6 information
IPv6 Route Map Redistribution	<ul style="list-style-type: none"> ipv6 redistrib ipv6 access-list ipv6 access-list address show ipv6 redistrib show ipv6 access-list
IPv6 RIP	<ul style="list-style-type: none"> ipv6 load rip ipv6 rip status ipv6 rip invalid-timer ipv6 rip garbage-timer ipv6 rip holddown-timer ipv6 rip jitter ipv6 rip route-tag ipv6 rip update-interval ipv6 rip triggered-sends ipv6 rip interface ipv6 rip interface metric ipv6 rip interface rcv-status ipv6 rip interface send-status ipv6 rip interface horizon show ipv6 rip show ipv6 rip interface show ipv6 rip peer show ipv6 rip routes

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.
vlan	Creates a VLAN interface.
<i>vid</i>	VLAN ID number.
tunnel	Creates a tunnel interface.
<i>tid</i>	Tunnel ID number.
6to4	Enables 6to4 tunneling.
base-reachable-time <i>time</i>	Base value used to compute the reachable time for neighbors reached via this interface.
ra-send	Specifies whether the router advertisements are sent on this interface.
ra-max-interval <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.
ra-managed-config-flag	Value to be placed in the managed address configuration flag field in router advertisements sent on this interface.
ra-other-config-flag	Value to be placed in the other stateful configuration flag in router advertisements sent on this interface.
ra-reachable-time <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.
ra-retrans-timer <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.

ra-default-lifetime <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).
enable disable	Administratively enable or disable the interface.
ra-send-mtu	Specifies whether the MTU option is included in the router advertisements sent on the interface.

Defaults

parameter	default
ra-send	yes
ra-max-interval	600
ra-managed-config-flag	false
ra-reachable-time	0
ra-retrans-timer	0
ra-default-lifetime	no
ra-send-mtu	no

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 21, “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).
anycast	Indicates the address is an anycast address.
eui-64	Append an EUI-64 identifier to the prefix.
<i>if_name</i>	Name assigned to the interface.
loopback	Configures the loopback interface.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 21, “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

generate	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, 9000, 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

ipv6 address local-unicast	Creates a IPv6 local unicast address using the configured global ID.
ipv6 bgp unicast	Enables or disables unicast IPv6 updates for the BGP routing process.
show ip bgp	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.
eui-64	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.
loopback	The loopback for the loopback interface.

Defaults

parameter	default
<i>prefixLength</i>	64

Platforms Supported

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

ipv6 interface	Creates an IPv6 tunnel interface.
show ipv6 tunnel	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

ipv6_address IPv6 address.

if_name Name assigned to the interface.

Defaults

N/A

Platforms Supported

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

Usage Guidelines

N/A

Examples

```
-> ipv6 pmtu-lifetime 30
```

Release History

Release 6.1; command was introduced.

Related Commands

show ipv6 pmtu table	Displays the IPv6 path MTU Table.
show ipv6 information	Displays IPv6 information.
clear ipv6 pmtu table	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

name Host name associated with the IPv6 address (1 - 255 characters).

ipv6_address IPv6 address.

Defaults

N/A

Platforms Supported

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

[show ipv6 neighbors](#) Displays IPv6 Neighbor Table.

[show ipv6 information](#) 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).
valid-lifetime <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.
preferred-lifetime <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.
on-link-flag	On-link configuration flag. When “true” this prefix can be used for on-link determination.
autonomous-flag	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
valid-lifetime <i>time</i>	2,592,000
preferred-lifetime <i>time</i>	604,800
on-link-flag	true
autonomous-flag	true

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

 alaIPv6InterfacePrefix

 alaIPv6InterfacePrefixLength

 alaIPv6InterfacePrefixValidLifetime

 alaIPv6InterfacePrefixPreferredLifetime

 alaIPv6InterfacePrefixonLinkFlag

 alaIPv6InterfacePrefixAutonomousFlag

 alaIPv6InterfacePrefixRowStatus

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, 9000, 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).
gateway <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, 9000, 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

static	Configures the route preference of static routes.
ospf	Configures the route preference of OSPF3 routes.
rip	Configures the route preference of RIPng routes.
ebgp	Configures the route preference of external BGP routes.
ibgp	Configures the route preference of internal BGP routes.
<i>value</i>	Route preference value.

Defaults

parameter	default
static <i>value</i>	2
ospf <i>value</i>	110
rip <i>value</i>	120
ebgp <i>value</i>	190
ibgp <i>value</i>	200

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
interval <i>seconds</i>	1

Platforms Supported

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

Name	Name associated with the IPv6 address.
IPv6 Address	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, 9000, 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

Total	Total number of ICMPv6 messages the switch received or attempted to send.
Errors	Number of ICMPv6 messages the switch sent or received but was unable to process because of ICMPv6-specific errors (bad checksums, bad length, etc.).
Destination Unreachable	Number of Destination Unreachable messages that were sent or received by the switch.

output definitions (continued)

Administratively Prohibited	Number of Destination Unreachable/Communication Administratively Prohibited messages sent or received by the switch.
Time Exceeded	Number of Time Exceeded messages sent or received by the switch.
Parameter Problems	Number of Parameter Problem messages sent or received by the switch.
Packet Too Big	Number of Packet Too Big messages sent or received by the switch.
Echo Requests	Number of Echo Request messages sent or received by the switch.
Echo Replies	Number of Echo Reply messages sent or received by the switch.
Router Solicitations	Number of Router Solicitations sent or received by the switch.
Router Advertisements	Number of Router Advertisements sent or received by the switch.
Neighbor Solicitations	Number of Neighbor Solicitations sent or received by the switch.
Neighbor Advertisements	Number of Neighbor Advertisements sent or received by the switch.
Redirects	Number of Redirect messages sent or received by the switch.
Group Membership Queries	Number of Group Membership Queries sent or received by the switch.
Group Membership Responses	Number of Group Membership Responses sent or received by the switch.
Group Membership Reductions	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
  ipv6IfIcmpInPktTooBig
  ipv6IfIcmpInEchos
  ipv6IfIcmpInEchoReplies
  ipv6IfIcmpInRouterSolicits
  ipv6IfIcmpInRouterAdvertisements
  ipv6IfIcmpInNeighborSolicits
  ipv6IfIcmpInNeighborAdvertisements
  ipv6IfIcmpInRedirects
  ipv6IfIcmpInGroupMembQueries
  ipv6IfIcmpInGroupMembResponses
  ipv6IfIcmpInGroupMembReductions
  ipv6IfIcmpOutMsgs
  ipv6IfIcmpOutErrors
  ipv6IfIcmpOutDestUnreachs
  ipv6IfIcmpOutAdminProhibs
  ipv6IfIcmpOutTimeExcds
  ipv6IfIcmpOutParmProblems
  ipv6IfIcmpOutPktTooBig
  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, 9000, 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

Name	Interface name. This is usually the VLAN on which the interface is configured.
IPv6 Address/Prefix Length	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.
Status	Interface status (e.g., Active/Inactive).
Device	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

IPv6 interface index	IPv6IfIndex value that should be used in SNMP requests pertaining to this interface.
Administrative status	Administrative status of this interface (Enabled/Disabled).
Operational status	Indicates whether the physical interface is connected to a device (Active/Inactive).
Hardware address	Interface's MAC address.
Link-local address	Link-local address assigned to the interface.
Global unicast address(es)	Global unicast address(es) assigned to the interface.
Joined group address(es)	Addresses of the multicast groups that this interface has joined.
Maximum Transfer Unit	Interface MTU value.
Send Router Advertisements	Indicates if the router sends periodic router advertisements and responds to router solicitations on the interface.
Maximum RA interval (sec)	Maximum time between the transmission of unsolicited router advertisements over the interface.
Minimum RA interval (sec)	Minimum time between the transmission of unsolicited router advertisements over the interface (0.33 * Maximum RA Interval).

output definitions (continued)

RA managed config flag	True/False value in the managed address configuration flag field in router advertisements.
RA other config flag	The True/False value in the other stateful configuration flag field in router advertisements sent over this interface.
RA reachable time (ms)	Value placed in the reachable time field in the router advertisements sent over this interface.
RA retransmit timer (ms)	Value placed in the retransmit timer field in router advertisements sent over this interface.
RA default lifetime (ms)	The value placed in the router lifetime field in the router advertisements sent over this interface.
Packets received	Number of IPv6 packets received since the last time the counters were reset.
Packets sent	Number of IPv6 packets sent since the last time the counters were reset.
Bytes received	Number of bytes of data received since the last time the counters were reset.
Bytes sent	Number of bytes of data sent since the last time the counters were reset.
Input errors	Number of input errors received since the last time the counters were reset.
Output errors	Number of output errors received since the last time the counters were reset.
Collisions	Number of collisions since the last time the counters were reset.
Dropped	Number of packets dropped since the last time the counters were reset.

Release History

Release 6.1; command was introduced.

Related Commands

ipv6 address	Configures an IPv6 address on a VLAN, configured tunnel, or a 6to4 tunnel.
ipv6 interface	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, 9000, 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

Destination Address	IPv6 address of the path's destination.
MTU	Path's MTU.
Expires	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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> clear ipv6 pmtu table
```

Release History

Release 6.1; command was introduced.

Related Commands

- | | |
|--------------------------------------|--|
| ipv6 pmtu-lifetime | Configures the configure the minimum lifetime for entries in the path MTU Table. |
| show ipv6 pmtu table | 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.
static	Restricts display to statically configured neighbors.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

IPv6 Address	The neighbor's IPv6 address.
Hardware Address	The MAC address corresponding to the IPv6 address.
State	The neighbor's state: - Unknown - Incomplete - Reachable - Stale - Delay - Probe .
Type	Indicates whether the neighbor entry is a Static or Dynamic entry.
Port	The port used to reach the neighbor.
Interface	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, 9000, 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

ipv6 neighbor	Configures a static entry in IPv6 Neighbor Table.
show ipv6 neighbors	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, 9000, 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

Name	The interface name. This is usually the VLAN on which the interface is configured.
IPv6 Address/Prefix Length	The IPv6 prefix and prefix length for a Router Advertisement Prefix Option.
Valid Lifetime	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.
Preferred Lifetime	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.
Flags	L - Prefix can be used for onlink determination. A - Prefix can be used for autonomous address configuration (i.e., can be used to form a local interface address).
Source	config - Prefix has been configured by management. dynamic - 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, 9000, 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

Destination Prefix	IPv6 destination address and prefix.
Gateway Address	IPv6 address of the gateway used to reach the destination network.
Interface	The device the interface is using (e.g., VLAN 6to4tunnel); or loopback.
Age	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.
Protocol	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, 9000, 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).
gateway <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, 9000, 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

Destination/Prefix	IPv6 destination address and prefix.
Gateway Address	IPv6 address of the gateway used to reach the destination network.
Interface	The device the interface is using (e.g., VLAN 6to4tunnel); or loopback.
Protocol	Protocol by which this IPv6 address was learned: LOCAL, STATIC, OSPF, RIP, BGP).
Metric	RIP metric or cost (hop count) for the route. Indicates a priority for the route. The lower the metric value, the higher the priority.
VLAN	The VLAN on which the route was <i>learned</i> , not forwarded. Note that N/A 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, 9000, 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

Local Address	Local address for this TCP connection. For ports in the “Listen” state, which accepts connections on any IPv6 interface, the address is ::0.
Port	Local port number for the TCP connection.
Remote Address	Remote IPv6 address for the connection. If the connection is in the “Listen” state, the address is ::0.
Port	Remote port number for the TCP connection. If the connection is in the “Listen” state, the port number is 0.
Interface	Name of the interface (or “unknown”) over which the connection is established.
State	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, 9000, 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

Total	Total number of input packets received, including those received in error.
Header errors	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).
Too big	Number of input packets that could not be forwarded because their size exceeded the link MTU of the outgoing interface.
No route	Number of input packets discarded because no route could be found to transmit them to their destination.
Address errors	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).
Unknown protocol	Number of locally-addressed packets received successfully but discarded because of an unknown or unsupported protocol.
Truncated packets	Number of input packets discarded because the packet frame did not carry enough data.
Local discards	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.
Delivered to users	Total number of packets successfully delivered to IPv6 user protocols (including ICMP).
Reassembly needed	Number of IPv6 fragments received that needed to be reassembled.
Reassembled	Number of IPv6 packets successfully reassembled.
Reassembly failed	Number of failures detected by the IPv6 reassembly algorithm (for whatever reason: timed out, errors, etc.).
Multicast packets	Number of multicast packets received.
Forwarded	Number of output packets that this entity received and forwarded to their final destinations.
Generated	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.
Local discards	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.
Fragmented	Number of IPv6 packets successfully fragmented.
Fragmentation failed	Number of IPv6 packets discarded because they needed to be fragmented but could not be.
Fragments generated	Number of output packet fragments generated as a result of fragmentation.
Multicast packets	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, 9000, 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, 9000, 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

IPv6 6to4 tunnel	Indicates whether 6to4 tunneling is enabled or disabled on the switch.
Tunnel	Tunnel ID.
IPv6 Address/Prefix Length	IPv6 address associated with the tunnel.
Source IPv4	Source IPv4 address for the tunnel.
Destination IPv4	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, 9000, 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

Local Address	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.
Port	Local Port number for the UDP connection.
Interface	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, 9000, 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

Default hop limit	The value placed in the hop limit field in router advertisements
Path MTU entry minimum lifetime	Minimum lifetime for entries in the path MTU.
Neighbor stale lifetime	Minimum lifetime for neighbor entries in the stale state.
Local Unicast Global ID	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

local	Redistributes local IPv6 routes.
static	Redistributes static IPv6 routes.
rip	Specifies RIP as the source or destination (into) protocol.
ospf	Specifies OSPF as the source or destination (into) protocol.
bgp	This parameter is currently not supported.
isis	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.
enable	Enables the administrative status of the redistribution configuration.
disable	Disables the administrative status of the redistribution configuration.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
permit	Permits the IPv6 address for redistribution.
deny	Denies the IPv6 address for redistribution.
all-subnets	Redistributes or denies all the subnet routes that match the network portion of the IP address as specified by the mask length.
no-subnets	Redistributes or denies only those routes that exactly match the IP address and the mask length.
aggregate	Redistributes an aggregate route if there are one or more routes that match or are subnets of this address.

Defaults

parameter	default
permit deny	permit
all-subnets no-subnets aggregate	all-subnets

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ipv6 access-list	Creates an IPv6 access list that is used to specify multiple IPv6 addresses for a route map configuration.
show ipv6 access-list	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

rip	Displays the route map redistribution configurations that specify RIP as the destination (into) protocol.
ospf	Displays the route map redistribution configurations that specify OSPF as the destination (into) protocol.
bgp	This parameter is not supported.

Defaults

By default all route map redistribution configurations are shown.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Source Protocol	The protocol from which the routes are learned.
Destination Protocol	The protocol into which the source protocol routes are redistributed..
Status	The administrative status (Enabled or Disabled) of the route map redistribution configuration.
Route Map	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, 9000, 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
      Address /
Name  Prefix Length  Effect  Redistribution
-----+-----+-----+-----
al_3  128::/64        permit  all-subnets
al_4  124::/64        permit  no-subnets
```

```
-> show ipv6 access-list 4
      Address /
Name  Prefix Length  Effect  Redistribution
-----+-----+-----+-----
al_4  124::/64        permit  no-subnets
```

output definitions

Name	Name of the IPv6 access list.
Address/Prefix Length	IPv6 address that belongs to the access list.
Effect	Indicates whether the IPv6 address is permitted or denied for redistribution.
Redistribution Control	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

all	All RIPng routes are added to any triggered updates.
updated-only	Only route changes that are causing the triggered update are included in the update packets.
none	RIPng routes are not added to triggered updates.

Defaults

parameter	default
all updated-only none	updated-only

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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 21, "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

ipv6 redist	Loads RIPng into memory.
ipv6 rip status	Enables or disables RIPng on the switch.
ipv6 rip interface rcv-status	Configures IPv6 RIPng interface "Receive" status. When this status is set to "enable", packets can be received on this interface.
ipv6 rip interface send-status	Configures IPv6 RIPng interface "Send" status. When this status is set to "enable", packets can be sent on this interface.
show ipv6 rip interface	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, 9000, 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
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

if_name IPv6 interface name.

enable | disable Interface “Send” status.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

[ipv6 redist](#) Loads RIPng into memory.

[ipv6 rip status](#) Enables/disables RIPng on the switch.

[ipv6 rip interface rcv-status](#) 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.
none split-only poison	none - Disables loop prevention mechanisms. split-only - Enables split-horizon, without poison-reverse. poison - Enables split-horizon with poison-reverse.

Defaults

parameter	default
none split-only poison	poison

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

show ipv6 rip interface	Displays information for all or specified RIPng interfaces.
show ipv6 rip routes	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, 9000, 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

Status	RIPng protocol status (enabled or disabled).
Number of routes	Number of RIPng routes in Forwarding Information Base (FIB).
Route tag	Route tag value for RIP routes generated by the switch. Valid range is 0-65535. Default is 0.
Invalid interval	Invalid Timer setting, in seconds.
Garbage interval	Garbage Timer setting, in seconds.
Holddown interval	Holddown Timer setting, in seconds.
Jitter interval	Jitter setting.
Triggered updates	Triggered Updates setting (All Routes, Updated Routes, and None).

Release History

Release 6.1; command was introduced.

Related Commands

ipv6 rip status	Enables or disables RIPng routing on the switch.
ipv6 rip route-tag	Configures the route tag value for RIP routes generated by the switch.
ipv6 rip update-interval	Configures the Interval, in seconds, so that RIPng routing updates are sent out.
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	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.
ipv6 rip holddown-timer	Configures the amount of time a route is placed in a holddown state.
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.
ipv6 rip triggered-sends	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, 9000, 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

Interface name	Interface name.
IPv6 interface index	IPv6 index of this interface.
Status	Interface status (Active/Inactive).
Packets Recvd	Number of packets received by the interface.

output definitions (continued)

Packets Sent	Number of packets sent by the interface.
Metric	RIPng metric (cost) configured for the interface.
IPv6 interface index	IPv6 interface index number.
Interface status	Interface status (Active/Inactive).
Next update	Seconds remaining until the next update on this interface.
Horizon mode	Interface Horizon Mode (routing loop prevention mechanisms). Displayed modes are none/split-only/poison-reverse.
MTU size	Maximum transmission size for RIPng packets on the interface.
Send status	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.
Receive status	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.
Packets received	Number of packets received by the interface.
Packets sent	Number of packets sent by the interface.

Release History

Release 6.1; command was introduced.

Related Commands

ipv6 rip interface	IPv6 interface name.
ipv6 rip status	Enables or disables RIPng routing on the switch.
ipv6 rip interface rcv-status	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.
ipv6 rip interface send-status	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.
ipv6 rip interface metric	Configures the RIPng metric (cost) for the interface.
ipv6 rip interface horizon	Configures the interface Horizon Mode (routing loop prevention mechanisms).
show ipv6 rip	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, 9000, 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

Address	IPv6 address of the peer.
Seen on Interface	Interface used to reach the peer.
Packets Recvd	Number of packets received from the peer.
Last Update	Number of seconds since the last update was received from the peer.
Peer address	Peer IPv6 address.
Received packets	Number of packets received from the peer.
Received bad packets	Number of bad packets received from the peer.
Received routes	Number of RIPng routes received from the peer.
Received bad routes	Number of bad RIPng routes received from the peer.

Release History

Release 6.1; command was introduced.

Related Commands

show ipv6 rip interface	Displays all or specified RIPng interface status.
show ipv6 rip routes	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

dest	Displays all routes whose destination matches the IPv6 prefix/prefix length.
gateway	Displays all routes whose gateway matches the specified IPv6 address.
detail	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, 9000, 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

Destination	IPv6 address/address length of the destination.
Gateway	IPv6 gateway used to reach the destination.
State	Route status (Active/Inactive).
Metric	Routing metric for this route.
Protocol	Protocol used to learn the route.
Mask Length	Prefix Length.
Out Interface	The interface used to reach the destination.
Status	Route status (Active/Inactive).
Age	The number of seconds since the route was last updated.
Tag	The route tag value for the route.

Release History

Release 6.1; command was introduced.

Related Commands

ipv6 rip interface	Creates/deletes a RIPng interface.
ipv6 rip interface metric	Configures the RIPng metric or cost for a specified interface.
show ipv6 rip interface	Displays all or specified RIPng interface status.

MIB Objects

alaRipngRouteTable
 alaRipngRouteEntry
 alaRipngRoutePrefixLen
 alaRipngRouteNextHop
 alaRipngRouteType
 alaRipngRouteAge
 alaRipngRouteTag
 alaRipngRouteStatus
 alaRipngRouteMetric

34 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).
sa-authentication	Indicates that the key value is used by an authentication algorithm.
sa-encryption	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, 9000, 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

ipsec sa	Configures an IPsec Security Association (SA).
show ipsec key	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, 9000, 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).
in	Specifies that the policy is applied to the inbound IPv6 traffic.
out	Specifies that the policy is applied to the outbound IPv6 traffic.
discard	Specifies that traffic to which this policy applies is discarded.
ipsec	Specifies that IPsec processing is required on traffic to which this policy applies.
none	Specifies that no IPsec processing is done on traffic to which this policy applies.
<i>description</i>	The detailed description of the policy.
no shutdown	Administratively enables the policy.
shutdown	Administratively disables the policy.

Defaults

parameter	default
<i>priority</i>	100
<i>port</i>	any port
any icmp6 tcp udp ospf vrrp number	any
discard ipsec none	ipsec
no shutdown shutdown	no shutdown

Platforms Supported

OmniSwitch 6850, 9000, 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:

protocol
any
icmp6 [<i>type type</i>]
tcp
udp
ospf
vrrp
number <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

ipsec policy rule	Adds, modifies, or removes an IPsec rule for a security policy.
show ipsec policy	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.
ah	Specifies that the rule requires the presence of an Authentication Header (AH).
esp	Specifies that the rule requires the presence of an Encrypted Security Payload (ESP).

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 9000, 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

ipsec policy	Configures an IPsec security policy.
show ipsec policy	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.
esp	Specifies the type of security association as ESP.
ah	Specifies the type of security association as AH.
source <i>ipv6_address</i>	Specifies the source address of the IPv6 traffic that will be covered by the SA.
destination <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.
encryption	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.
authentication	Specifies the authentication algorithm to be used for traffic covered by the SA.
<i>description</i>	The detailed description of the SA.
no shutdown	Administratively enables the SA.
shutdown	Administratively disables the SA.

Defaults

parameter	Defaults
authentication { none hmac-md5 hmac-sha1 aes-xcbc-mac }	none (ESP SAs only; no default value for AH SAs)
no shutdown shutdown	no shutdown

Platforms Supported

OmniSwitch 6850, 9000, 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

ipsec key	Configures the authentication and encryption keys for a manually configured IPsec SA.
show ipsec sa	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, 9000, 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

Name	The name of the security policy.
Priority	The priority value assigned to the policy. If the same traffic is covered by multiple policies, the policy with the highest priority is applied.
Source -> Destination	Indicates the source and destination of traffic covered by this policy.
Protocol	Indicates the protocol traffic covered by this policy. The protocol name (TCP) or protocol number (80) will be displayed in this field.
Direction	Indicates whether the policy has been applied to the incoming or outgoing traffic.
Action	Indicates the action to be taken on the traffic covered by this policy.
State	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

Name	The name of the security policy.
Priority	The priority value assigned to the policy. If the same traffic is covered by multiple policies, the policy with the highest priority is applied.
Source	Indicates the source of the traffic covered by this policy.
Destination	Indicates the destination of the traffic covered by this policy.
Protocol	Indicates the protocol traffic covered by this policy. The protocol name (TCP) or protocol number (80) will be displayed in this field.
Direction	Indicates whether the policy has been applied to the incoming or outgoing traffic.
Action	Indicates the action to be taken on the traffic covered by this policy.
State	Indicates the operational state of this policy.
Rules	Indicates the rules specified for this policy.
Description	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).
esp	Restricts the display to ESP SAs.
ah	Restricts the display to AH SAs.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 9000, 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-sha1 active
telnet-out-esp ESP  3ffe::200->2000::/48[100120]  aes-cbc(128) hmac-sha1 active
```

output definitions

Name	The SA name.
Type	The SA type (AH or ESP).
Source -> Destination [SPI]	The traffic source, destination, and SPI for this SA.
Encryption	The encryption algorithm used for this SA.
Authentication	The authentication algorithm used for this SA.
State	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

Name	The SA name.
Type	The SA type (AH or ESP).
Source	The traffic source for this SA.
Destination	The traffic destination for this SA.
SPI	The SPI for this SA.
Encryption	The encryption algorithm used for this SA.
Authentication	The authentication algorithm used for this SA.
State	The operational state of this SA.
Description	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, 9000, 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

Name	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.
Length	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, 9000, 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

Successful (inbound)	The number of incoming packets requiring IPsec processing that were successfully handled.
Discarded (inbound)	The number of incoming packets discarded because they matched a discard policy.
Policy violation (inbound)	The number of incoming packets dropped due to policy violations.

output definitions

No SA found (inbound)	The number of incoming packets dropped because no matching SA was found.
Unknown SPI (inbound)	The number of incoming packets dropped because the SPI was unknown.
AH replay check failed (inbound)	The number of incoming packets that failed the AH replay check.
ESP replay check failed (inbound)	The number of incoming packets that failed the ESP replay check.
AH authentication success (inbound)	The number of incoming packets that successfully passed AH authentication.
AH authentication failure (inbound)	The number of incoming packets that failed AH authentication.
ESP authentication success (inbound)	The number of incoming packets that successfully passed ESP authentication.
ESP authentication failure (inbound)	The number of incoming packets that failed ESP authentication.
Packet not valid (inbound)	The number of incoming packets requiring IPsec processing that were not valid.
No memory available (inbound)	The number of incoming packets requiring IPsec processing that were dropped because memory was not available.
Successful (outbound)	The number of outgoing packets requiring IPsec processing that were successfully handled.
Discarded (outbound)	The number of outbound packets discarded because they matched a discard policy.
Policy violation (outbound)	The number of outgoing packets dropped due to policy violation.
No SA found (outbound)	The number of outgoing packets dropped because no matching SA was found.
Packet not valid (outbound)	The number of outgoing packets requiring IPsec processing that were not valid.
No memory available (outbound)	The number of outgoing IPsec packets dropped because memory was not available.

Release History

Release 6.3.4; command was introduced.

Related Commands

show ipsec policy	Displays the IPsec security policy configuration for the switch.
show ipsec sa	Displays information about manually configured IPsec Security Associations.
show ipsec key	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

35 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

enable	Enables RDP on the switch.
disable	Disables RDP on the switch.

Defaults

By default, RDP is disabled on the switch.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enables an RDP interface for the specified IP interface.
disable	Disables an RDP interface for the specified IP interface.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip router-discovery	Enables or disables RDP for the switch.
ip interface	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.
all-systems-multicast	Specifies 224.0.0.1 as the destination address for RDP advertisement packets.
Broadcast	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
all-systems-multicast broadcast	all-systems-multicast

Platforms Supported

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

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 advertisement-lifetime	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

parameter	default
<i>seconds</i>	0.75 * maximum advertisement interval

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip router-discovery	Enables or disables RDP on the switch.
ip router-discovery interface	Enables or disables an RDP 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.
ip router-discovery interface advertisement-lifetime	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. The range is the value set for the maximum advertisement interval to 9000.

Defaults

parameter	default
<i>seconds</i>	3 * maximum advertisement interval

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

parameter	default
<i>level</i>	0

Platforms Supported

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

Status	The status of RDP. Enabled allows RDP interfaces to advertise router IP addresses; Disabled stops RDP traffic on all switch interfaces. Use the ip router-discovery command to enable or disable RDP on the switch.
RDP uptime	Indicates the amount of time, in seconds, that RDP has remained active on the switch.
#Packets Tx	The number of RDP packets transmitted from all active RDP interfaces on the switch.
#Packets Rx	The number of RDP packets received on all active RDP interfaces on the switch.
#Send Errors	The number of RDP packet transmission errors that have occurred.
#Recv Errors	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

alaRDPCfg
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, 9000, 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
      IP i/f   RDP i/f   VRRP i/f   Next   #Pkts
      Name    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

Name	The user-defined IP interface name defined at the time the IP interface was configured.
IP i/f status	The IP status for this interface (Enabled or Disabled).
RDP i/f status	The RDP status for this interface (Enabled or Disabled).
VRRP i/f status (#mast)	The VRRP status for this interface (Enabled or Disabled), and the number of VRRP masters on the network for this interface.
Next Advt	Time remaining until the next advertisement is sent.
#Pkts sent/recvd	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

Name	The user-defined IP interface name defined at the time the IP interface was configured.
IP Address	The IP address associated with the IP interface name.
IP Mask	The subnet mask associated with the interface IP address.
IP Interface status	The IP status for this interface (Enabled or Disabled).
RDP Interface status	The RDP status for this interface (Enabled or Disabled).
VRRP Interface status	The VRRP status for this interface (Enabled or Disabled). See Chapter 40, “VRRP Commands,” for more information.
Advertisement address	The destination address for RDP advertisement packets: 224.0.0.1 (all-systems-multicast) or 255.255.255.255 (broadcast). Configured using the ip router-discovery interface advertisement-address command.
Max Advertisement interval	The maximum time, in seconds, RDP allows between each advertisement packet the router transmits from this interface. Configured using the ip router-discovery interface max-advertisement-interval command.
Min Advertisement interval	The minimum time, in seconds, RDP allows between each advertisement packet the router transmits from this interface. Configured using the ip router-discovery interface min-advertisement-interval command.
Advertisement lifetime	The maximum amount of time, in seconds, that router IP addresses advertised from this interface are considered valid. Configured using the ip router-discovery interface advertisement-lifetime command.
Preference Level	The preference level, displayed in hex, for each IP address advertised on this interface. Configured using the ip router-discovery interface preference-level command.
#Packets sent	The number of advertisement packets transmitted from this interface.
#Packets received	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

36 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 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 binding timeout**
- ip helper dhcp-snooping binding action**
- ip helper dhcp-snooping binding persistency**
- ip helper boot-up**
- ip helper boot-up enable**
- 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**

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, 6855, 9000, 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

ip helper address vlan	Specifies or deletes DHCP Relay based on the VLAN of the DHCP request.
ip helper forward delay	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.
ip helper maximum hops	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
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  
    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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

ip helper standard	Sets DHCP Relay forwarding option to standard. All DHCP packets are processed.
ip helper per-vlan only	Sets the DHCP Relay forwarding option to process only DHCP packets received on authenticated ports from a specific, identified VLAN.
ip helper forward delay	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.
ip helper maximum hops	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
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 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, 6855, 9000, 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

ip helper address vlan	Configures a DHCP Relay service for the specified VLAN.
ip helper standard	Sets DHCP Relay forwarding option to standard. All DHCP packets are processed.
ip helper avlan only	Sets DHCP Relay forwarding option to process only DHCP packets received on authenticated VLAN ports from clients that are not yet authenticated.
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 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, 6855, 9000, 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

ip helper address	Adds or deletes one or more DHCP server IP addresses to the DHCP Relay configuration.
ip helper maximum hops	Sets the maximum number of hops value to specify how many relays a BOOTP/DHCP packet can traverse.
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
iphelperForwDelay

ip helper maximum hops

Sets the maximum number of hops value for the DHCP Relay configuration. This value specifies the maximum number of relays a BOOTP/DHCP packet is allowed to traverse until it reaches its server destination. Limiting the number of hops that can forward a packet prevents packets from looping through the network.

ip helper maximum hops *hops*

Syntax Definitions

hops The maximum number of relays (1–16).

Defaults

By default, the maximum hops value is set to four hops.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- If a packet contains a hop count equal to or greater than the *hops* value, DHCP Relay discards the packet.
- The maximum hops value only applies to DHCP Relay and is ignored by other services.

Examples

```
-> ip helper maximum hops 1  
-> ip helper maximum hops 10
```

Release History

Release 6.1; command was introduced.

Related Commands

ip helper address	Adds or deletes one or more DHCP server IP addresses to the DHCP Relay configuration.
ip helper forward delay	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.
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
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

enable	Enables the relay agent Option-82 feature for the switch.
disable	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, 6855, 9000, 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

ip helper agent-information policy	Configures a policy to determine how the relay agent handles DHCP packets that already contain the Option-82 field.
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

`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

drop	Drop DHCP packets that already contain an Option-82 field.
keep	Keep the existing Option-82 field information and continue to relay the DHCP packet.
replace	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, 6855, 9000, 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

ip helper agent-information	Enables the insertion of relay agent information Option-82 into DHCP packets.
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

`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

enable	Enables PXE support.
disable	Disables PXE support.

Defaults

By default, PXE support is disabled for the switch.

Platforms Supported

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

enable	Enables DHCP Snooping for the switch.
disable	Disables DHCP Snooping for the switch.

Defaults

By default, this feature is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enables DHCP MAC address verification for the switch.
disable	Disables DHCP MAC address verification for the switch.

Defaults

By default, this feature is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip helper dhcp-snooping	.Globally enables or disables DHCP Snooping for the switch.
ip helper dhcp-snooping option-82 data-insertion	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

enable	Enables inserting the DHCP Option-82 field into DHCP packets.
disable	Disables inserting the DHCP Option-82 field into DHCP packets.

Defaults

By default, this feature is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- Using this command to change the operational status for Option-82 data insertion is only allowed when DHCP Snooping is globally enabled for the switch.
- Note that disabling the Option-82 data insertion operation is not allowed when the binding table functionality is enabled.

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

ip helper dhcp-snooping option-82 format	Configures the type of information that is inserted in both the Circuit ID and Remote ID suboption of the Option-82 field.
ip helper dhcp-snooping	.Globally enables or disables DHCP Snooping for the switch.
ip helper dhcp-snooping binding	Enables or disables the DHCP Snooping binding table functionality
show ip helper	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 in both the Circuit ID and Remote ID suboption fields of the Option-82 field.

ip helper dhcp-snooping option-82 data-insertion format {**base-mac** | **system-name** | **user-string** *string* / **interface-alias** | **auto-interface-alias**}

Syntax Definitions

base-mac	The base MAC address of the switch.
system-name	The system name of the switch.
<i>string</i>	A user-defined text string up to 64 characters.
interface-alias	The alias configured for the interface.
auto-interface-alias	The switch automatically generates the interface-alias in the following format: <i>SystemName_slot_port</i> .

Defaults

parameter	value
base-mac system-name user-string <i>string</i>	base-mac

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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

enable	Bypasses the Option-82 field check.
disable	Checks DHCP packets for the Option-82 field.

Defaults

By default, this feature is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip helper dhcp-snooping	Globally enables or disables DHCP Snooping for the switch.
show ip helper	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).
mac-address verification	Enables or disables verifying the source MAC address of DHCP packets with the client MAC address contained in the same packet.
option-82 data-insertion	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
mac-address verification	Enabled
option-82 data-insertion	Enabled

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

[ip helper dhcp-snooping](#)

Globally enables or disables DHCP Snooping for the switch.

[ip helper dhcp-snooping binding](#)

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).
block	Blocks all DHCP traffic on the port.
client-only	Allows only DHCP client traffic on the port.
trust	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, 6855, 9000, 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}
```

Syntax Definitions

<i>num</i>	Specifies the link aggregate ID number.
block	Blocks all DHCP traffic on the port.
client-only	Allows only DHCP client traffic on the port.
trust	Allows all DHCP traffic on the link aggregate. The port behaves as if DHCP Snooping was not enabled.

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, 6855, 9000, 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.

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).
enable	Enables traffic suppression for the specified port.
disable	Disables traffic suppression for the specified port.

Defaults

By default, traffic suppression is disabled for the port.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

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.
ip helper dhcp-snooping port	Configures the DHCP Snooping trust mode for a port.
ip helper dhcp-snooping port ip-source-filtering	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).
enable	Enables IP source filtering for the specified port.
disable	Disables IP source filtering for the specified port.

Defaults

By default, IP source filtering is disabled for the port.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

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.
ip helper dhcp-snooping port	Configures the DHCP Snooping trust mode for a port.
ip helper dhcp-snooping port traffic-suppression	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

enable	Enables the creation of binding table entries.
disable	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 binding timeout

Configures the amount of time between each automatic save of the DHCP Snooping binding table contents maintained in memory to a file on the switch. This functionality preserves binding table contents across switch reboots.

ip helper dhcp-snooping port binding timeout *seconds*

Syntax Definitions

seconds The number of seconds (180 to 600) to wait before the next save.

Defaults

By default, the timeout value is set to 300 seconds.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The timeout value is only valid if the DHCP Snooping binding table functionality is enabled.
- The contents of the binding table is saved to the **dhcpBinding.db** file in the **/flash/switch** directory.
- The **dhcpBinding.db** file is time stamped when a save of the binding table contents is successfully completed.

Examples

```
-> ip helper dhcp-snooping binding timeout 600
-> ip helper dhcp-snooping binding timeout 250
```

Release History

Release 6.1.2; command was introduced.

Related Commands

ip helper dhcp-snooping binding .Enables or disables the DHCP Snooping binding table functionality.

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

```
iphelperDhcpSnoopingBindingDatabaseSyncTimeout
iphelperDhcpSnoopingBindingDatabaseLastSyncTime
```

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

purge	Clears all binding table entries that are maintained in switch memory.
renew	Populates the binding table with entries saved in the dhcpBinding.db file located in the /flash/switch directory on the switch.

Defaults

By default, the timeout value is set to 300 seconds.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip helper dhcp-snooping binding	.Enables or disables the DHCP Snooping binding table functionality.
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.

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

enable	Enables DHCP Snooping binding persistency.
disable	Disables DHCP Snooping binding persistency.

Defaults

By default, DHCP Snooping binding persistency is disabled.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip helper dhcp-snooping binding	Enables or disables the DHCP Snooping binding table functionality.
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 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

enable	Enables automatic IP address configuration for default VLAN 1.
disable	Disables automatic IP address configuration for default VLAN 1.

Defaults

By default, this feature is disabled on the switch.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

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, 6855, 9000, 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.

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

BOOTP	BOOTP/DHCP well-known ports 67/68.
NBDD	NBDD well-known port 138.
NBNSNBDD	NBNS/NBDD well-known ports 137/138.
DNS	DNS well-known port 53.
TACACS	TACACS well-known port 65.
TFTP	TFTP well-known port 69.
NTP	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, 6855, 9000, 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

BOOTP	BOOTP/DHCP well-known ports 67/68.
NBDD	NBDD well-known port 138.
NBNSNBDD	NBNS/NBDD well-known ports 137/138.
DNS	DNS well-known port 53.
TACACS	TACACS well-known port 65.
TFTP	TFTP well-known port 69.
NTP	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, 6855, 9000, 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, 6855, 9000, 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
```

The following example shows what the display output looks like when the DHCP relay agent information (Option 82) feature is enabled and the DHCP Snooping feature is disabled:

```
-> show ip helper
Ip helper :
  Forward Delay(seconds) = 3,
  Max number of hops     = 4,
  Relay Agent Information = Enabled,
  Relay Agent Information Policy = Drop
  DHCP Snooping Status   = Disabled
  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 = Disabled,
  Forward option         = standard
  Vlan Number NA
  Bootup Option Disable
  Forwarding Address :
    5.5.5.5
    21.2.2.10
    172.19.4.1
```

output definitions

Forward Delay	The current forward delay time (default is three seconds). Use the ip helper forward delay command to change this value.
Max number of hops	The current maximum number of hops allowed (default is four hops). Use the ip helper maximum hops command to change this value.
Forward option	The current forwarding option setting: standard or avlan only . Use the ip helper standard and ip helper avlan only commands to change this value.
Relay Agent Information	Indicates the status (Enabled or Disabled) of the DHCP relay agent information option (Option 82) feature. Configured through the ip helper agent-information command. This feature is disabled if the DHCP snooping feature is enabled.
Relay Agent Information Policy	The current policy action (Drop , Keep , Replace) applied to DHCP packets that contain an Option-82 field. Configured through the ip helper agent-information policy command. Note that this field only appears when the DHCP relay agent information Option-82 feature is enabled.
DHCP Snooping Status	Indicates the status (Disabled , Switch-Level Enabled , or VLAN-Level Enabled) of the DHCP snooping feature. Configured through the ip helper dhcp-snooping or ip helper dhcp-snooping vlan command. This feature is disabled if the DHCP relay agent information option is enabled.
Option 82 Data Insertion Per Switch	Indicates whether or not the DHCP Option 82 field is added to DHCP packets (Enabled or Disabled). Configured through the ip helper dhcp-snooping option-82 data-insertion command. Note that this field only appears when DHCP snooping is enabled at the switch level.

output definitions

MAC Address Verification Per Switch	Indicates whether or not MAC address verification is performed on the DHCP packets (Enabled or Disabled). Configured through the ip helper dhcp-snooping mac-address verification command. Note that this field only appears when DHCP snooping is enabled at the switch level.
DHCP Snooping Bypass Opt82-Check	Indicates whether or not an Option-82 check is performed for DHCP packets ingressing on untrusted ports (Enabled or Disabled). Configured through the ip helper dhcp-snooping bypass option-82-check command.
DHCP Snooping Opt 82 Format	The type of information (base MAC address for the switch, system name for the switch, or user-defined text) that is inserted into the Option-82 field when Option-82 data insertion is enabled for the switch. Configured through the ip helper dhcp-snooping option-82 format command.
DHCP Snooping Opt 82 String	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 ip helper dhcp-snooping option-82 format command.
DHCP Binding DB Status	Indicates if the DHCP snooping binding table (database) functionality is Enabled or Disabled .
Database Sync Timeout	The amount of time, in seconds, that the switch waits between each synchronization of the DHCP snooping binding table with the dhcpBinding.db file (default is 300 seconds). Configured through the ip helper dhcp-snooping binding timeout command. Note that this field does not appear if the binding table functionality is disabled.
Database Last Sync Time	The last time and day the DHCP snooping binding table was synchronized with the dhcpBinding.db file. Note that this field does not appear if the binding table functionality is disabled.
Binding Persistency Status	Indicates whether or not the DHCP snooping binding table retains entries with MAC addresses that were cleared from the MAC address table (Enabled or Disabled). Configured through the ip helper dhcp-snooping binding persistency command.
Bootup Option	Indicates whether or not automatic IP address configuration for default VLAN 1 is done when the switch boots up (Enabled or Disabled). Configured through the ip helper boot-up command.
Bootup Packet Option	Indicates if the Bootup Option broadcasts a DHCP or BOOTP packet to obtain an IP address for default VLAN 1. Configured through the ip helper boot-up enable command. Note that this field does not appear if the Bootup Option is disabled.
Forwarding Addresses	IP addresses for DHCP servers that will receive BOOTP/DHCP packets forwarded by this DHCP Relay service. Use the ip helper address 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.

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

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, 6855, 9000, 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

Reception From Client	Number of packets DHCP Relay has received from the DHCP client.
Forw Delay Violation	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.
Max Hops Violation	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.
Agent Info Violation	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 Drop or a DHCP packet has no Option-82 field and contains a non-zero giaddr.
Invalid Gateway IP	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.
Invalid Agent Info From Server	Number of invalid Option-82 DHCP server packets dropped by the relay agent.
Delta	Total number of packets processed since the last time the ip helper statistics were checked during any user session.
Server	DHCP server IP address that receives BOOTP/DHCP packets forwarded by this DHCP Relay service. Use the ip helper address command to add or remove DHCP server IP addresses from DHCP Relay configuration.
Tx Server	Number of packets DHCP Relay has transmitted to the DHCP server.
Delta	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, 6855, 9000, 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

VLAN ID	The VLAN identification number for the DHCP Snooping VLAN.
MAC Address Verification	Indicates whether or not MAC address verification is enabled for the VLAN (Enabled or Disabled). Configured through the ip helper dhcp-snooping vlan command.
Opt-82 Data Insertion	Indicates whether or not Option-82 data insertion is enabled for the VLAN (Enabled or Disabled). Configured through the ip helper dhcp-snooping vlan 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, 6855, 9000, 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

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).
Trust Mode	The DHCP Snooping trust mode for the port (Blocked , Client-Only , or Trusted). Configured through the ip helper dhcp-snooping port command.
IP Src Filtering	Indicates whether or not IP source filtering is enabled for the port (Enabled or Disabled). Configured through the ip helper dhcp-snooping port ip-source-filtering command.
Opt82 Violation	The number of DHCP packets dropped due to a DHCP Snooping Option-82 violation.
MAC Violation	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.
Server Violation	The number of DHCP server packets dropped because they originated from outside the network or firewall.
Relay Violation	The number of DHCP packets dropped because the packet included a relay agent IP address that was not 0.0.0.0.
Binding Violation	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

show ip helper	Displays current DHCP Relay configuration information.
show ip helper dhcp-snooping vlan	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, 6855, 9000, 9000E

Usage Guidelines

- Use the [ip helper dhcp-snooping binding](#) 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

MAC Address	The MAC address of the client.
Slot/Port	The slot/port designation for the switch port that received the DHCP request
IP Address	The IP address offered by the DHCP server.
Lease Time	The IP address lease time assigned by the DHCP server. A value of 0 indicates a static entry.
VLAN ID	The VLAN ID of the VLAN to which the client belongs.
Binding Type	Indicates whether the binding table entry is dynamic or static . Static entries are created using the ip helper dhcp-snooping binding 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

BOOTP	BOOTP/DHCP well-known ports 67/68.
NBDD	NBDD well-known port 138.
NBNSNBDD	NBNS/NBDD well-known ports 137/138.
DNS	DNS well-known port 53.
TACACS	TACACS well-known port 65.
TFTP	TFTP well-known port 69.
NTP	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, 6855, 9000, 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

Service	The UDP service number. (1 through 7 for well-known service ports and 8 and above for user-defined service ports).
Port(s)	The UDP service port number.
Description	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

BOOTP	BOOTP/DHCP well-known ports 67/68.
NBDD	NBDD well-known port 138.
NBNSNBDD	NBNS/NBDD well-known ports 137/138.
DNS	DNS well-known port 53.
TACACS	TACACS well-known port 65.
TFTP	TFTP well-known port 69.
NTP	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, 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

Service	The active UDP service name.
VLAN	The VLAN assigned to the UDP service port that will forward traffic destined for that port. Use the ip udp relay vlan command to configure this value.
Pkts Sent	The number of packets sent from this service port to the server.
Pkts Recvd	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

BOOTP	BOOTP/DHCP well-known ports 67/68.
NBDD	NBDD well-known port 138.
NBNSNBDD	NBNS/NBDD well-known ports 137/138.
DNS	DNS well-known port 53.
TACACS	TACACS well-known port 65.
TFTP	TFTP well-known port 69.
NTP	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, 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

Service	The active UDP service name.
Port	The UDP service port number.
VLANs	The VLAN assigned to the UDP service port that will forward traffic destined for that port. Use the ip udp relay vlan 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
```

37 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, 9000, 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

ip rip status	Enables/disables RIP routing on the switch.
show ip rip	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

enable	Enables RIP routing on the switch.
disable	Disables RIP routing on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip load rip	Loads RIP into the switch memory.
show ip rip	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, 9000, 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 21, "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

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 status	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, 9000, 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 21, “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, 9000, 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.
none	RIP packets will not be sent by the interface.
v1	Only RIPv1 packets will be sent by the interface.
v1compatible	Only RIPv2 broadcast packets (not multicast) will be sent by the interface.
v2	Only RIPv2 packets will be sent by the interface.

Defaults

parameter	default
none v1 v2 v1compatible	v2

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
v1	Only RIPv1 packets will be received by the interface.
v2	Only RIPv2 packets will be received by the interface.
both	Both RIPv1 and RIPv2 packets will be received by the interface.
none	Interface ignores any RIP packets received.

Defaults

parameter	default
v1 v2 both none	both

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
none	No authentication will be used.
simple	Simple authentication will be used.
md5	MD5 authentication will be used.

Defaults

parameter	default
none simple	none

Platforms Supported

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

ip rip interface auth-type	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

Status	RIP status (Enabled or Disabled).
Number of routes	Number of network routes in the RIP routing table.
Host Route Support	Host route status (Enabled or Disabled). Indicates whether or not RIP can add host routes (routes with a 32-bit mask) to the RIP table.
Route Tag	Route tag value for RIP routes generated by the switch. Valid values are 0–2147483647.
Update interval	The RIP routing update interval, in seconds. Valid range is 1–120. Default is 30.
Invalid interval	The RIP invalid timer value, in seconds. Valid range is 3–360. Default is 180.
Garbage interval	The RIP garbage timer value, in seconds. Valid range is 0–180. Default is 120.

output definitions

Holddown interval	The hold-down time interval, in seconds. Valid range is 0–120. Default is 0.
Forced Hold-Down Timer	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

ip rip status	Enables/disables RIP routing on the switch.
ip rip force-holddowntimer	Configures the interval during which a RIP route remains in the forced hold-down state.
ip rip update-interval	Configures the time interval during which RIP routing updates are sent out.
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 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 holddown-timer	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, 9000, 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

Destination	Destination network IP address.
Gateway	The Gateway IP address (switch from which the destination address was learned).
State	The associated state of the route, which can be A (Active) , H (Holddown) , or G (Garbage) .
Metric	Metric associated with this network. Generally, this is the RIP hop count (the number of hops from this switch to the destination switch).
Proto	The type of route (Local , Rip , or Redist).

```
-> 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

Destination	Destination network IP address.
Mask length	Length of the destination network IP subnet mask.
Gateway	The Gateway IP address (switch from which the destination address was learned).
Protocol	The type of the route (Local , Rip , or Redist).
Out Interface	The RIP interface through which the next hop is reached.
Metric	Metric associated with this network. Generally, this is the RIP hop count (the number of hops from this switch to the destination switch).
Status	The RIP interface status (Installed or Not Installed).
State	The associated state of the route (Active , Holddown , or Garbage).
Age	The age of the route in seconds (the number of seconds since this route was last updated or otherwise determined to be correct).
Tag	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, 9000, 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

Interface IP Name	The IP Interface name.
Interface IP Address	Interface IP address.
IP Interface Number	Interface VLAN ID number.
Interface Admin Status	The RIP administrative status (enabled/disabled).
IP Interface Status	Interface status (enabled /disabled).
Interface Config AuthType	The type of authentication that will be used for the RIP interface (None or Simple).

output definitions (continued)

Interface Config AuthKey Length	The authentication key length used for the RIP interface.
Interface Config Send-Version	Interface send option (none, v1, v2, and v1 compatible). Default is v2.
Interface Config Receive-Version	Interface receive option (none, v1, v2, and both). Default is both.
Interface Config Default Metric	Default redistribution metric. Default is 1.
Received Packets	Number of packets received on the interface.
Received Bad Packets	Number of bad packets received and discarded. Normally this value is zero (0).
Received Bad Routes	Number of bad routes received and discarded. Normally this value is zero (0).
Sent Updates	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, 9000, 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

IP Address	Peer IP address.
Total recvd	Total number of RIP packets received from the peer.
Bad Packets	Number of bad packets received from peer.
Bad Routes	Number of bad routes received from peer.
Version	Peer's RIP version as seen on the last packet received.
Secs since last update	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
```

38 IPX Commands

The Internet Packet Exchange (IPX) protocol, developed by Novell for NetWare, is a protocol used to route packets through IPX networks. IPX specifies a connectionless datagram similar to the IP packet of TCP/IP networks. An IPX network address consists of two parts: a network number and a node number. The IPX network number is assigned by the network administrator. The node number is the Media Access Control (MAC) address for a network interface in the end node.

IPX exchanges information using its own Routing Information Protocol (RIP), which sends updates every 60 seconds. NetWare also supports a Service Advertising Protocol (SAP) to allow network resources, including file and print servers, to advertise their network addresses and the services they provide. The user can also define a specific route. These routes, called static routes, have higher priority than routes learned through RIP.

IPX supports multiple encapsulation types for Ethernet: 802.3 Raw, 802.3, Ethernet v2, and SNAP.

MIB information for the IPX commands is as follows:

Filename: AlcatelIND1IPX.mib
Module: alaIPXMIB

A summary of the available commands is listed here:

ipx routing
ipx default-route
ipx route
clear ipx route
ping ipx
ipx filter rip
ipx filter sap
ipx filter gns
ipx type-20-propagation
ipx packet-extension
ipx timers
show ipx interface
show ipx traffic
show ipx default-route
show ipx route
show ipx servers
show ipx filter
show ipx type-20-propagation
show ipx packet-extension
show ipx timers

ipx routing

Enables/disables IPX routing on the switch. When IPX routing is enabled and an IPX router port has been created for a VLAN on the switch, the switch is able to exchange routing information with external IPX routers; and hosts connected to VLANs with IPX router ports are able to communicate.

ipx routing

no ipx routing

Syntax Definitions

N/A

Defaults

IPX routing is enabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to disable IPX routing.
- You must configure an IPX router port on a VLAN for the switch to communicate with other VLAN router ports. You can only create one IPX router port per VLAN. VLAN router ports are not active until at least one active physical port is assigned to the VLAN. See [Chapter 21, “VLAN Management Commands.”](#)

Examples

```
-> ipx routing
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx route](#) Displays IPX routing table information.

MIB Objects

```
ipxBasicSysTable  
    ipxBasicSysInstance  
    ipxBasicSysExistState
```

ipx default-route

Creates/deletes an IPX default route. A default IPX route can be configured for packets destined for networks that are unknown to the switch. If RIP messages are disabled, packets can still be forwarded to a router that knows where to send them.

ipx default-route [*vlan*] *network_number* [*network_node*]

no ipx default-route [*vlan*]

Syntax Definitions

<i>vlan</i>	VLAN number of the destination node for the default route (valid range 0–4094).
<i>network_number</i>	IPX network number of the router used to reach the first hop in the default route.
<i>network_node</i>	IPX node number of the router used to reach the first hop in the default route in hexadecimal format (xx:xx:xx:xx:xx:xx). This is only required if the network number is directly connected to the switch.

Defaults

parameter	default
<i>network_number</i>	00000000
<i>network_node</i>	00:00:00:00:00:00

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to delete a default route. To delete a default route to specific VLAN, enter the VLAN number. To delete a default route to a specific network, enter the network number.
- If fewer than eight hex digits are entered for an IPX network number, the entry is automatically prefixed with zeros to equal eight digits. For example, if you enter IPX network number 222, the leading zeros are automatically added to the number (e.g., 00000222).
- To create a default route to a specific VLAN, enter the VLAN number (e.g., **ipx default-route 10**).
- The network node number is the physical address assigned to the interface board that connects the device to the network.
- IPX requires the node number to be unique only within the same IPX network. For example, a node on network FEDCBA98 can use the number 1A2B3C5D7E9F, and a node on network 1234567D can also use the number 1A2B3C5D7E9F. Because each node has a different network number, IPX recognizes each node as having a legitimate, unique address.

Examples

```
-> ipx default-route 222 00:20:da:99:88:77
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx default-route](#) Displays IPX default route(s).

MIB Objects

```
alaIpxDefRouteTable  
  alaIpxDefRouteVlanId  
  alaIpxDefRouteNet  
  alaIpxDefRouteNode  
  alaIpxDefRouteRowStatus
```

ipx route

Creates/deletes an IPX static route. A static route enables you to send traffic to a router other than those learned through routing protocols. Static routes have higher priority than routes learned through RIP.

ipx route *network_number next_hop_network next_hop_node [hop_count] [delay]*

no ipx route *network_number*

Syntax Definitions

<i>network_number</i>	IPX network number of the static route's destination.
<i>next_hop_network</i>	IPX network number of the router used to reach the first hop in the static route.
<i>next_hop_node</i>	IPX node number of the router used to reach the first hop in the static route in hexadecimal format (xx:xx:xx:xx:xx:xx).
<i>hop_count</i>	Number of hops to the destination node.
<i>delay</i>	Delay, in ticks, to reach the route's destination. One clock tick is the equivalent to 1/18 of a second (approximately 55 ms).

Defaults

parameter	default
<i>next_hop_network</i>	00000000
<i>next_hop_node</i>	00:00:00:00:00:00
<i>hop-count</i>	0
<i>delay</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- If fewer than eight hex digits are entered for an IPX network number, the entry is automatically prefixed with zeros to equal eight digits. For example, if you enter IPX network number 222, the leading zeros are automatically added to the number (e.g., 00000222).
- The amount of time taken by a packet to arrive at another IPX network segment is expressed, in ticks, as the static route's path cost. Path cost refers to the network path preference assigned to the static route. This parameter is used to advertise the static route to other RIP routers.
- Static routes do not age out of the routing tables; however, they can be deleted.
- To delete a static route you only need to enter the network number of the destination node.
- The network node number is the physical address assigned to the interface board that connects the device to the network.

- IPX requires the node number to be unique only within the same IPX network. For example, a node on network FEDCBA98 can use the number 1A2B3C5D7E9F, and a node on network 1234567D can also use the number 1A2B3C5D7E9F. Because each node has a different network number, IPX recognizes each node as having a legitimate, unique address.

Examples

```
-> no ipx route 222
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx route](#) Displays IPX routing table information.

MIB Objects

```
alaIpxStaticRouteTable  
  alaIpxStaticRouteNetNum  
  alaIpxStaticRouteNextHopNet  
  alaIpxStaticRouteNextHopNode  
  alaIpxStaticRouteHopCount  
  alaIpxStaticRouteTicks  
  alaIpxStaticRouteRowStatus
```

clear ipx route

Flushes the IPX Routing Information Protocol (RIP) Routing and/or Service Address Protocol (SAP) Bindary Tables. RIP Routing Tables are used to keep track of optimal destinations to remote IPX networks. The SAP Bindary Table contains information about available network services. NetWare workstations use SAP to obtain the network addresses of NetWare servers. IPX routers use SAP to gather service information and then share it with other IPX routers. The RIP Table and SAP Bindery Table can contain a maximum of 5,000 entries each. This number includes configured VLAN routes.

clear ipx route {rip | sap | all}

Syntax Definitions

rip	Flushes all RIP routes from the RIP Routing Table.
sap	Flushes all SAP routes from the SAP Bindary Table.
all	Flushes both the RIP Routing and SAP Bindary Tables.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- When you flush the table(s), only routes learned by RIP and SAP are deleted. Static routes are not removed. Use the **no** form of the **ipx route** command to delete a static route.
- After the routes are cleared, the switch begins soliciting RIPs and SAPs from adjacent routers and RIP and SAP information is re-learned.

Examples

```
-> clear ipx route all
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx route](#)

Displays IPX routing table information.

[show ipx servers](#)

Displays the servers in the SAP Bindary Table, sorted by server name.

MIB Objects

alaIpxRoutingGroup

alaIpxFlush

ping ipx

Pings an IPX node to test its reachability. The software supports two different types of IPX pings: Novell—used to test the reachability of NetWare servers currently running the NetWare Loadable Module called IPXRTR.NLM; and alcatel-lucent—used to test the reachability of Alcatel-Lucent switches on which IPX routing has been enabled.

ping ipx *network_number network_node* [**count** *packets*] [**size** *bytes*] [**timeout** *seconds*] [**type** *packet_type*]

Syntax Definitions

<i>network_number</i>	Network of the node you want to ping.
<i>network_node</i>	Node you want to ping in hexadecimal format (xx:xx:xx:xx:xx:xx).
<i>packets</i>	Number of ping messages (packets) to send.
<i>bytes</i>	Message packet size, in bytes. Valid range is 1–8192 (1–1492 for Ethernet)
<i>seconds</i>	Number of seconds in which a response must be returned (0 = infinite).
<i>packet_type</i>	Packet type (novell or alcatel-lucent).

Defaults

parameter	default
<i>packets</i>	5
<i>bytes</i>	64
<i>seconds</i>	1
<i>packet_type</i>	novell

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- When entering the network number you only need to enter the necessary characters and the system will backfill the remainder of the number format.
- Use the basic command to send a default packet. The packet will use the default parameters for count, size, timeout, and type.
- Use the **novell** packet type to test the reachability of NetWare servers running the NetWare Loadable Module (IPXRTR.NLM). This type cannot be used to reach NetWare workstations running IPXODI. Novell uses a unique type of ping for this purpose (implemented by their IPXPNG.EXE program), which is not currently supported by the switch software. Other vendors' switches may respond to this type of ping.

- Use the **alcatel-lucent** packet type to test the reachability of Alcatel-Lucent switches on which IPX routing is enabled.
- Alcatel-Lucent switches respond to either ping type.

Examples

```
-> ping ipx 304 00:20:da:05:16:94
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx servers](#)

Displays the servers in the SAP Bindary Table, sorted by the server name.

MIB Objects

alaIpxDefRouteTable

 alaIpxDefRouteNode

alaIpxStaticRouteTable

 alaIpxStaticRouteNextHopNode

ipx filter rip

Creates/deletes an IPX RIP filter. IPX RIP filters allow you to minimize the number of entries put in the IPX RIP Routing Table. RIP filters work only on switches running the RIP protocol. They do not work for routers running the NLSP protocol.

ipx filter [*vlan*] **rip** {**in** | **out**} {**allow** | **block**} [*network_number* [**mask** *network_mask*]]

no ipx filter [*vlan*] **rip** {**in** | **out**} {**allow** | **block**} [*network_number* [**mask** *network_mask*]]

Syntax Definitions

<i>vlan</i>	To apply the filter to a specific VLAN or delete a filter from a specific VLAN, enter the VLAN number.
in	Filters incoming RIP updates.
out	Filters outgoing RIP updates.
allow	Allows the traffic specified in the filter.
block	Blocks the traffic specified in the filter.
<i>network_number</i>	To apply the filter to a specific network or delete a filter from a specific network, enter the IPX network number.
<i>network_mask</i>	If you are configuring a specific network as described above, enter the network mask.

Defaults

parameter	default
<i>vlan</i>	0
allow block	allow
<i>network_number</i>	00000000
<i>network_mask</i>	ffffff

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to delete a RIP filter.
- To apply a global filter, use only the basic command syntax (e.g., **ipx filter rip in allow**). Do not enter the optional *vlan*, *network*, or *network_mask* parameters.
- If you do not enter a network number, the filter will be applied to all networks.
- Use RIP filters with care because they can partition a physical network into two or more segments.

- The default setting for all filters is to allow traffic. Therefore, you will typically only have to define a filter to block traffic. However, defining a filter to allow certain traffic may be useful in situations where a more generic filter has been defined to block the majority of the traffic.

Examples

```
-> ipx filter rip in block
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx filter](#) Displays the current IPX RIP, SAP, and GNS filters.

MIB Objects

```
alaIpxRipSapFilterTable  
  alaIpxRipSapFilterVlanId  
  alaIpxRipSapFilterType  
  alaIpxRipSapFilterNet  
  alaIpxRipSapFilterNetMask  
  alaIpxRipSapFilterNode  
  alaIpxRipSapFilterNodeMask  
  alaIpxRipSapFilterSvcType  
  alaIpxRipSapFilterMode  
  alaIpxRipSapFilterRowStatus
```

ipx filter sap

Creates/deletes an IPX SAP filter. IPX SAP filters allow you to minimize the number of entries put in the IPX SAP Bindery Table. SAP input filters control the SAP updates received by the switch prior to a switch accepting information about a service. The switch will filter all incoming service advertisements received before accepting information about a service. SAP output filters control which services are included in SAP updates sent by the switch.

```
ipx filter [vlan] sap {all | sap_type} {in | out} {allow | block} [network_number [mask network_mask]  
[network_node [mask node_mask]]]
```

```
no ipx filter [vlan] sap {all | sap_type} {in | out} {allow | block} [network_number [mask network_mask]  
[network_node [mask node_mask]]]
```

Syntax Definitions

<i>vlan</i>	To apply the filter to a specific VLAN or delete a filter from a specific VLAN, enter the VLAN number.
all	Enter all to include all the SAP filters.
<i>sap_type</i>	To configure a specific SAP filter, enter the 4-digit hex SAP filter type as defined by NetWare.
in	Filters incoming traffic.
out	Filters outgoing traffic.
allow	Allows the traffic specified in the filter.
block	Blocks the traffic specified in the filter.
<i>network_number</i>	To apply the filter to a specific network or delete a filter from a specific network, enter the IPX network number.
<i>network_mask</i>	If you are configuring a specific network, enter the network mask.
<i>network_node</i>	To apply the filter to a specific network node or delete a filter from a specific network node, enter the network node number. (You must also enter a network number and network mask as described above.)
<i>node_mask</i>	If you are configuring a specific node, enter the node mask.

Defaults

parameter	default
<i>vlan</i>	0
allow block	allow
<i>network_number</i>	00000000
<i>network_mask</i>	ffffff
<i>network_node</i>	00:00:00:00:00:00
<i>node_mask</i>	00:00:00:00:00:00

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to delete a SAP filter.
- To apply a global filter, use only the basic command syntax (e.g., **ipx filter sap all in allow**). Do not enter the optional *vlan*, *network*, *network_mask*, *network_node*, or *node_mask* parameters.
- If you do not enter a network number, the filter will be applied to all networks.
- If you do not enter a node number, the filter will be applied to all nodes of the specified network.
- The network node number is the physical address assigned to the interface board that connects the device to the network.

Examples

```
-> ipx filter sap 0004 in block
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx filter](#) Displays the current IPX RIP, SAP, and GNS filters.

MIB Objects

```
alaIpxRipSapFilterTable  
  alaIpxRipSapFilterVlanId  
  alaIpxRipSapFilterType  
  alaIpxRipSapFilterNet  
  alaIpxRipSapFilterNetMask  
  alaIpxRipSapFilterNode  
  alaIpxRipSapFilterNodeMask  
  alaIpxRipSapFilterSvcType  
  alaIpxRipSapFilterMode  
  alaIpxRipSapFilterRowStatus
```

ipx filter gns

Creates/deletes an IPX Get Next Server (GNS) filter. GNS output filters control which servers are included in the GNS responses sent by the router. GNS supports output filters only.

ipx filter [*vlan*] **gns** {**all** | *gns_type*} **out** {**allow** | **block**} [*network_number* [**mask** *network_mask*]
[*network_node* [**mask** *node_mask*]]]

no ipx filter [*vlan*] **gns** {**all** | *gns_type*} **out** {**allow** | **block**} [*network_number* [**mask** *network_mask*]
[*network_node* [**mask** *node_mask*]]]

Syntax Definitions

<i>vlan</i>	To apply the filter to a specific VLAN or delete a filter from a specific VLAN, enter the VLAN number.
all	Enter all to include all GNS filters.
<i>gns_type</i>	To configure a specific SAP filter, enter the 4-digit hex GNS filter type as defined by NetWare.
out	Optional command syntax. GNS supports output filters only.
allow	Allows the traffic specified in the filter.
block	Blocks the traffic specified in the filter.
<i>network_number</i>	To apply the filter to a specific network or delete a filter from a specific network, enter the IPX network number.
<i>network_mask</i>	If you are configuring a specific network, enter the network mask.
<i>network_node</i>	To apply the filter to a specific network node or delete a filter from a specific network node, enter the network node number. (You must also enter a network number and network mask as described above.)
<i>node_mask</i>	If you are configuring a specific node, enter the node mask.

Defaults

parameter	default
<i>vlan</i>	0
allow block	allow
<i>network_number</i>	00000000
<i>network_mask</i>	ffffff
<i>network_node</i>	00:00:00:00:00:00
<i>node_mask</i>	00:00:00:00:00:00

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to delete a GNS filter.
- To apply a global filter, use only the basic command syntax (e.g., **ipx filter gns all allow**). Do not enter the optional *vlan*, *network*, *network_mask*, *network_node*, or *node_mask* parameters.
- If you do not enter a network number, the filter will be applied to all networks.
- If you do not enter a node number, the filter will be applied to all nodes of the specified network.
- The network node number is the physical address assigned to the interface board that connects the device to the network.

Examples

```
-> ipx filter gns all block
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx filter](#) Displays the current IPX RIP and SAP filters.

MIB Objects

```
alaIpxRipSapFilterTable  
  alaIpxRipSapFilterVlanId  
  alaIpxRipSapFilterType  
  alaIpxRipSapFilterNet  
  alaIpxRipSapFilterNetMask  
  alaIpxRipSapFilterNode  
  alaIpxRipSapFilterNodeMask  
  alaIpxRipSapFilterSvcType  
  alaIpxRipSapFilterMode  
  alaIpxRipSapFilterRowStatus
```

ipx type-20-propagation

Enables/disables Type 20 packet forwarding. Type 20 is an IPX packet type that refers to any propagated packet. If Type 20 packet forwarding is enabled on the switch, the switch receives and propagates type 20 packets through all its interfaces. If Type 20 packet forwarding is disabled on the switch, the switch discards, rather than propagates, any Type 20 packet it receives.

ipx type-20-propagation [*vlan*] {**enable** | **disable**}

no ipx type-20-propagation [*vlan*]

Syntax Definitions

<i>vlan</i>	To enable/disable Type 20 packet forwarding on a specific VLAN, enter the VLAN number.
enable	Enables Type 20 packet forwarding.
disable	Disables Type 20 packet forwarding.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to disable Type 20 packet forwarding.
- To enable/disable Type 20 packet forwarding on all VLANs, use only the basic command syntax (e.g., **ipx type-20-propagation enable**). Do not enter the optional *vlan* parameter.
- If Type 20 packet forwarding is enabled it may cause problems with highly redundant IPX networks by causing what appears to be a broadcast storm.

Examples

```
-> ipx type-20-propagation enable
```

Release History

Release 6.1; command was introduced.

Related Commands

show ipx type-20-propagation Displays the current status of Type 20 packet forwarding.

MIB Objects

```
alaIpxType20Table  
  alaIpxType20VlanId  
  alaIpxType20Mode  
  alaIpxType20RowStatus
```

ipx packet-extension

Enables/disables extended RIP/SAP packets. Larger RIP and SAP packets can be transmitted to reduce network congestion. RIP packets can contain up to 68 network entries. SAP packets can contain up to 8 network entries. Extended RIP and SAP packets are disabled by default.

ipx packet-extension [*vlan*] {**enable** | **disable**}

no ipx packet-extension [*vlan*]

Syntax Definitions

<i>vlan</i>	To enable/disable extended RIP/SAP packets on a specific VLAN, enter the VLAN number.
enable	Enables extended RIP/SAP packets.
disable	Disables extended RIP/SAP packets.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to disable extended RIP/SAP packets.
- To enable/disable extended RIP/SAP packets on all VLANs, use only the basic command syntax (e.g., **ipx packet-extension enable**). Do not enter the optional *vlan* parameter.
- Transmitting larger RIP and SAP packets reduces network congestion; however, other switches and routers in the network must support a larger, or extended, packet sizes if this feature is configured on the switch.

Examples

```
-> ipx packet-extension
```

Release History

Release 6.1; command was introduced.

Related Commands

show ipx packet-extension Displays the current status of extended RIP and SAP packets.

MIB Objects

```
alaIpxExtMsgTable  
  alaIpxExtMsgVlanId  
  alaIpxExtMsgMode  
  alaIpxExtMsgRowStatus
```

ipx timers

Configures the frequency of RIP/SAP updates. RIP and SAP are the routing and service advertising protocols traditionally used by NetWare systems to exchange route and service information on an IPX network. By default, RIP and SAP packets are broadcast every 60 seconds, even if no change has occurred anywhere in a route or service. This command allows you to control how often a router broadcasts these updates.

```
ipx timers [vlan] rip_timer sap_timer
```

```
no ipx timers [vlan]
```

Syntax Definitions

<i>vlan</i>	To configure the IPX timer on a specific VLAN, enter the VLAN number.
<i>rip_timer</i>	RIP timer value, in seconds (valid range 1–180).
<i>sap_timer</i>	SAP timer value, in seconds (valid range 1–180).

Defaults

parameter	default
<i>rip_timer</i>	60
<i>sap_timer</i>	60

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- Use the **no** form of this command to return the timers to the default value of 60.
- To configure the IPX timer on all VLANs, use only the basic command syntax (e.g., **ipx timers 60 60**). Do not enter the optional *vlan* parameter.
- You must set both timer values at the same time (e.g., **ipx timers 120 60**).
- A reduced interval may impact switch performance.

Examples

```
-> ipx timers 120 60
```

Release History

Release 6.1; command was introduced.

Related Commands

[show ipx timers](#)

Displays the current RIP and SAP timer values.

MIB Objects

```
alaIpxTimerTable  
  alaIpxTimerVlanId  
  alaIpxTimerSap  
  alaIpxTimerRip  
  alaIpxTimerRowStatus
```

show ipx interface

Displays the current IPX configuration information.

show ipx interface [*vlan*]

Syntax Definitions

vlan VLAN that you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- To display IPX information for all VLANs use only the basic command syntax (e.g., **show ipx interface**). Do not enter the optional *vlan* parameter.
- This command is only functional if RIP is enabled on an IPX VLAN interface.

Examples

```
-> show ipx interface
```

VLAN	State	Address	Encapsulation
4	active	00000020.00d0956a7ca2	ETHERNET2
5	active	00000040.00d0956a7ca2	NOVELL

output definitions

VLAN	VLAN number.
State	VLAN status (up/down and active/inactive).
Address	Interface IPX address.
Encapsulation	Type of port encapsulation used for the interface (Ethernet, FDDI, and Token Ring).

```

-> show ipx interface 4

VLAN 4 is up, line is inactive
IPX address is 00000020.00d0956a7ca2
Encapsulation ETHERNET2
Delay of this Novell network, in ticks is 1
WAN processing not enabled on this interface.
IPX RIP update interval is 60 seconds
IPX SAP update interval is 60 seconds
RIP/SAP mode is active
RIP Input filter list is not set
RIP Output filter list is not set
SAP Input filter list is not set
SAP Output filter list is not set
SAP GNS filter list is not set
Extended packets is not set
Type 20 packets is not set
Default route is not set
state changes      = 1      CMM Routed pkts = 0
Type 20 pkts rcvd = 0      Broadcast pkts rcvd = 0
RIP is ON: sent = 0  rcvd = 999, update interval = 60 secs.
SAP is ON: sent = 0  rcvd = 1, update interval = 60 secs.

```

output definitions

VLAN	Displays VLAN status (Up/Down).
IPX address	IPX address of the interface (network and node).
Encapsulation	Type of port encapsulation used for the interface (e.g., Ethernet, FDDI, Token Ring, SNAP, and Ethernet 2).
Delay	Delay, in ticks, to reach the route's destination.
WAN processing	WAN processing is not available.
IPX RIP update interval	RIP update timer interval for the interface.
IPX SAP update interval	SAP update timer interval for the interface.
RIP/SAP mode	RIP/SAP state (active/inactive).
RIP input filter list	Indicates whether or not RIP input filters are configured (set indicates that RIP input filters are configured; not set indicates RIP input filters are not configured).
RIP output filter list	Indicates whether or not RIP output filters are configured (set indicates that RIP output filters are configured; not set indicates RIP output filters are not configured).
SAP input filter list	Indicates whether or not SAP input filters are configured (set indicates that SAP input filters are configured; not set indicates SAP input filters are not configured).
SAP output filter list	Indicates whether or not SAP output filters are configured (set indicates that SAP output filters are configured; not set indicates SAP output filters are not configured).
SAP GNS filter list	Indicates whether or GNS filters are configured (set).
Extended packets	State of IPX packet extension feature (set indicates that packet extension is enabled, not set indicates packet extension is disabled).
Type 20 packets	State of IPX Type 20 propagation (set indicates that Type 20 propagation is enabled; not set indicates Type 20 propagation is not enabled).

output definitions (continued)

Default route	IPX default route. If a default route is configured for the interface, the route number will appear. If not, the status is “not set”.
state changes	Number of state changes that have occurred on this interface (up to down and down to up).
CMM routed packets	Number of packets routed by the CMM(s).
Type 20 pkts rcvd	Number of Type 20 packets received.
Broadcast pkts rcvd	Number of RIP/SAP broadcast packets received.
RIP	RIP state (ON or OFF) and number of RIP packets sent/received.
sent	Number of RIP packets sent.
rcvd	Number of RIP packets received.
update interval	Frequency of RIP updates (default is 60 seconds).
SAP	SAP state (ON or OFF) and number of SAP packets sent/received.
sent	Number of SAP packets sent.
rcvd	Number of SAP packets received.
update interval	Frequency of SAP updates (default is 60 seconds).

Release History

Release 6.1; command was introduced.

Related Commands

ipx filter rip	Creates/deletes an IPX RIP filter.
ipx filter sap	Creates/deletes an IPX SAP filter.
ipx filter gns	Creates/deletes an IPX GNS filter.
ipx type-20-propagation	Enables/disables Type 20 packet forwarding.
ipx packet-extension	Enables/disables extended RIP/SAP packets.
ipx timers	Configures the frequency of RIP/SAP updates.

MIB Objects

```
alaIpxType20Table
  alaIpxType20VlanId
  alaIpxType20Mode
  alaIpxType20RowStatus
alaIpxTimerTable
  alaIpxTimerVlanId
  alaIpxTimerRip
  alaIpxTimerSap
  alaIpxTimerRowStatus
alaIpxRipSapFilterTable
  alaIpxRipSapFilterVlanId
  alaIpxRipSapFilterType
  alaIpxRipSapFilterNet
  alaIpxRipSapFilterNetMask
  alaIpxRipSapFilterNode
  alaIpxRipSapFilterNodeMask
  alaIpxRipSapFilterSvcType
  alaIpxRipSapFilterMode
  alaIpxRipSapFilterRowStatus
```

show ipx traffic

Displays IPX routing statistics and errors.

show ipx traffic [*vlan*]

Syntax Definitions

vlan VLAN that you want to display.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

To display IPX routing statistics and errors for all VLANs, use only the basic command syntax (e.g., **show ipx traffic**). Do not enter the optional *vlan* parameter.

Examples

```
-> show ipx traffic
```

```
IPX Routing is ON                               Total      Since Last - 644
seconds
IPX Input Statistics:
  pkts rcv                                     =          0          0
  pkts delivered locally                       =          0          0
  pkts discarded                               =          0          0
  input header errors                          =          0          0
IPX Output Statistics:
  pkts generated locally                       =          0          0
  pkts discarded                               =          0          0
  pkts with no route found                     =          0          0
  pkts with a bad checksum                     =          0          0
  pkts with too many hops                      =          0          0
  NETBIOS packets                             =          0          0
  Forwarded packets                           =          0          0
  RIP bad packets                             =          0          0
  SAP bad packets                              =          0          0
2 VLANs active
```

```
VLAN 4      Network 00000020  Statistics and Errors:
state changes = 1      Software Routed pkts = 0/0
Type 20 pkts rcvd = 0/0      Broadcast pkts rcvd = 0/0
RIP is ON: sent = 1000/11  rcvd = 0/0, update interval = 60 secs.
SAP is ON: sent = 1/0  rcvd = 0/0, update interval = 60 secs.
```

```

VLAN 5      Network 00000040  Statistics and Errors:
state changes      = 1      Software Routed pkts = 0/0
Type 20 pkts rcvd = 0/0      Broadcast pkts rcvd = 0/0
RIP is ON: sent = 999/11  rcvd = 0/0, update interval = 60 secs.
SAP is ON: sent = 1/0  rcvd = 0/0, update interval = 60 secs.

```

output definitions

IPX Input Statistics

pkts rcvd Number of packets received.

pkts delivered locally Number of received packets delivered to local IPX applications (RIP and SAP).

pkts discarded Number of discarded packets.

input header errors Number of packets discarded due to IPX packet header errors.

IPX Output Statistics

pkts generated locally Number of received packets forwarded that were generated by local IPX applications (RIP and SAP).

pkts discarded Number of discarded packets.

pkts with no route found Number of packets that could not be forwarded because a route to the destination IPX network could not be found.

pkts with a bad checksum Number of IPX packets received with incorrect checksums.

pkts with too many hops Number of IPX packets discarded because they exceeded the maximum hop count.

NETBIOS packets Number of NETBIOS packets received.

Forwarded packets Number of IPX packets forwarded.

RIP bad packets Number of incorrectly formatted RIP packets received.

SAP bad packets Number of incorrectly formatted SAP packets received.

VLANs active Number of active IPX VLANs.

VLAN Statistics and Errors

state changes Number of state changes that have occurred on this interface (up to down and down to up).

Software Routed pkts Number of packets routed through software.

Type 20 packets rcvd Number of Type 20 packets received.

broadcast pkts rcvd Number of RIP/SAP broadcast packets received.

RIP RIP state (ON/OFF).

sent Number of RIP packets sent.

rcvd Number of RIP packets received.

update interval Frequency of RIP updates (default is 60 seconds).

SAP SAP state (ON/OFF).

sent Number of SAP packets sent.

rcvd Number of SAP packets received.

update interval Frequency of SAP updates (default is 60 seconds).

Release History

Release 6.1; command was introduced.

Related Commands

ipx filter rip	Creates/deletes an IPX RIP filter.
ipx filter sap	Creates/deletes an IPX SAP filter.
ipx filter gns	Creates/deletes an IPX GNS filter.
ipx type-20-propagation	Enables/disables Type 20 packet forwarding.

MIB Objects

```
ipxCircTable
  ipxCircSysInstance
  ipxCircIndex
  ipxCircExistState
  ipxCircOperState
  ipxCircIfIndex
  ipxCircName
  ipxCircType
  ipxCircDialName
  ipxCircLocalMaxPacketSize
  ipxCircCompressState
  ipxCircCompressSlots
  ipxCircStaticStatus
  ipxCircCompressedSent
  ipxCircCompressedInitSent
  ipxCircCompressedRejectsSent
  ipxCircUncompressedSent
  ipxCircCompressedReceived
  ipxCircCompressedInitReceived
  ipxCircCompressedRejectsReceived
  ipxCircUncompressedReceived
  ipxCircMediaType
  ipxCircNetNumber
  ipxCircStateChanges
  ipxCircInitFails
  ipxCircDelay
  ipxCircThroughput
  ipxCircNeighRouterName
  ipxCircNeighInternalNetNum
ipxBasicSysTable
  ipxBasicSysInstance
  ipxBasicSysExistState
```



```
ipxAdvSysTable
  ipxAdvSysInstance
  ipxAdvSysMaxPathSplits
  ipxAdvSysMaxHops
  ipxAdvSysInTooManyHops
  ipxAdvSysInFiltered
  ipxAdvSysInCompressDiscards
  ipxAdvSysNETBIOSPkets
  ipxAdvSysForwPkets
  ipxAdvSysOutFiltered
  ipxAdvSysOutCompressDiscards
  ipxAdvSysCircCount
  ipxAdvSysDestCount
  ipxAdvSysServCount
```

show ipx default-route

Displays IPX default route(s).

show ipx default-route

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

N/A

Examples

```
-> show ipx default-route
```

```
VLAN      Default Route
-----
110       00000120.000c45786420
global    00000010
```

output definitions

VLAN	VLAN associated with the default route.
Default Route	IPX default route number and MAC address, if applicable.

Release History

Release 6.1; command was introduced.

Related Commands

[ipx default-route](#) Creates/deletes an IPX default route.

MIB Objects

alaIpxDefRouteTable

alaIpxDefRouteVlanId
alaIpxDefRouteNet
alaIpxDefRouteNode
alaIpxDefRouteRowStatus

ipxCircTable

ipxCircSysInstance
ipxCircIndex
ipxCircExistState
ipxCircOperState
ipxCircIfIndex
ipxCircName
ipxCircType
ipxCircDialName
ipxCircLocalMaxPacketSize
ipxCircCompressState
ipxCircCompressSlots
ipxCircStaticStatus
ipxCircCompressedSent
ipxCircCompressedInitSent
ipxCircCompressedRejectsSent
ipxCircUncompressedSent
ipxCircCompressedReceived
ipxCircCompressedInitReceived
ipxCircCompressedRejectsReceived
ipxCircUncompressedReceived
ipxCircMediaType
ipxCircNetNumber
ipxCircStateChanges
ipxCircInitFails
ipxCircDelay
ipxCircThroughput
ipxCircNeighRouterName
ipxCircNeighInternalNetNum

show ipx route

Displays the IPX routing table information.

show ipx route {*network_number* / **vlan** *vlan*}

Syntax Definitions

network_number IPX network number.

vlan VLAN that you want to display. Displays information on the specified VLAN only.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

- When entering the network number, you only need to enter the necessary characters and the system will backfill the remainder of the number format.
- To display IPX routing table information for all networks/VLANs, use only the basic command syntax (e.g., **show ipx route**).

Examples

```
-> show ipx route
```

Codes: C - Connected network, S - Static, R - RIP

4 routes

Type	Network	Next Hop [hops/delay]	Next Hop	VLAN
C	20	[0/1](ETHERNET_802.3),	20.00d0956a7ca2,	5
C	40	[0/1](ETHERNET_II),	40.00d0956a7ca2,	4
R	eeee	[1/2] via	20.0020daec9e7c,	4
R	55555555	[1/3] via	40.0000391b790c,	5

output definitions

Type	Network type (connected, static, and RIP).
Network	IPX network number.
Next Hop (hops/delay)	The first number in brackets is the hop count (the number of routers between this node and the destination network). The second number is the tick count (the number of ticks between this node and the destination network). If the route is directly connected, the media type is shown in parenthesis. If the route was learned through routing protocols, the media type is not shown.

output definitions (continued)

Next Hop	Network node of the next hop.
VLAN	VLAN number of the next hop.

Release History

Release 6.1; command was introduced.

Related Commands

ipx route	Creates/deletes an IPX static route.
clear ipx route	Flushes the IPX RIP Routing and/or SAP Bindary Tables.

MIB Objects

```
alaIpxStaticRouteTable
  alaIpxStaticRouteNetNum
  alaIpxStaticRouteNextHopNet
  alaIpxStaticRouteNextHopNode
  alaIpxStaticRouteTicks
  alaIpxStaticRouteHopCount
  alaIpxStaticRouteRowStatus
alaIpxDefRouteTable
  alaIpxDefRouteVlanId
  alaIpxDefRouteNet
  alaIpxDefRouteNode
  alaIpxDefRouteRowStatus
```

show ipx servers

Displays the servers in the SAP Bindary Table, sorted by server name.

show ipx servers {*vlan vlan* | *server_name* / *server_type*}

Syntax Definitions

<i>vlan</i>	VLAN that you want to display. Displays all servers on the specified VLAN.
<i>server_name</i>	Server name. Displays information on the specified server only.
<i>server_type</i>	Server type. Displays information on all servers of the specified type.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

To display all servers in the SAP Bindary Table, use only the basic command syntax (e.g., **show ipx servers**).

Examples

-> show ipx servers

```

7 servers
Svc  Name                               Net Address           Port Route Hops VLAN
-----
0640 NMS-TEST-18                        222.00b0d062faa6:e885 [0/1] 1    1
0640 NMS-TEST-4                         222.0090271c8b5c:e885 [0/1] 1    1
0640 NMSTEST17                          222.006008c1d7c2:e885 [0/1] 1    1
044f NMSTEST17                          222.006008c1d7c2:85d8 [0/1] 1    1
044f NMSTEST28                          222.00b0d0427fe2:85d8 [0/1] 1    1
0640 NMSTEST28                          222.00b0d0427fe2:e885 [0/1] 1    1
8001 SERVER1                            222.00b0d062faf1:1329 [0/1] 1    1

```

output definitions

Svc	IPX server type as defined by Novell (e.g., 0047 is an advertising print server and 0004 is a file server).
Name	Server name.
Net Address	Server IPX network address.
Port	Port number.

output definitions (continued)

Route	Hop and tick counts. The first number is the hop count (the number of routers between this node and the destination network). The second number is the tick count (the number of ticks between this node and the destination network).
Hops	Number of routers between this node and the destination network.
VLAN	VLAN number.

Release History

Release 6.1; command was introduced.

Related Commands

[ping ipx](#) Pings an IPX node to test its reachability.

MIB Objects

```
ipxServTable
  ipxServSysInstance
  ipxServType
  ipxServName
  ipxServProtocol
  ipxServNetNum
  ipxServNode
  ipxServSocket
  ipxServHopCount
```

show ipx filter

Displays the current IPX RIP, SAP, and GNS filters.

show ipx filter {*vlan* | **rip in** | **rip out** | **sap in** | **sap out** | **gns out** | **global**}

Syntax Definitions

<i>vlan</i>	VLAN that you want to display. Displays information on the specified VLAN only.
rip in	Displays only RIP input filters.
rip out	Displays only RIP output filters.
sap in	Displays only SAP input filters.
sap out	Displays only SAP output filters.
gns out	Displays only GNS output filters.
global	Displays only global filters.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

To display all RIP and SAP filters, use only the basic command syntax (e.g., **show ipx filter**).

Examples

```
-> show ipx filter
```

Vlan	Type	Net/Mask	Node/Mask	Svc Md
global	SAP OUT	ALL Networks	ALL Nodes	0020 A
global	GNS OUT	00000005/ffffffff	112233445566/ffffffffffff	0007 A

output definitions

Vlan	VLAN that is being filtered, if applicable. Global indicates a global filter.
Type	Filter type (RIP input filter and SAP output filter).
Net/Mask	Network and corresponding mask that is being filtered. ALL Networks indicates a global filter.
Node/Mask	Node and corresponding mask that is being filtered. ALL Nodes indicates a global filter.

output definitions (continued)

Svc	Filter type (SAP and GNS filters only).
Md	Filter Mode—allow (A) or block (B).

Release History

Release 6.1; command was introduced.

Related Commands

ipx filter rip	Creates/deletes an IPX RIP filter.
ipx filter sap	Creates/deletes an IPX SAP filter.
ipx filter gns	Creates/deletes an IPX GNS filter.

MIB Objects

```
alaIpxRipSapFilterTable  
  alaIpxRipSapFilterVlanId  
  alaIpxRipSapFilterType  
  alaIpxRipSapFilterNet  
  alaIpxRipSapFilterNetMask  
  alaIpxRipSapFilterNode  
  alaIpxRipSapFilterNodeMask  
  alaIpxRipSapFilterSvcType  
  alaIpxRipSapFilterMode  
  alaIpxRipSapFilterRowStatus
```

show ipx type-20-propagation

Displays the current status of Type 20 packet forwarding.

show ipx type-20-propagation

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

N/A

Examples

```
-> show ipx type-20-propagation
```

```
VLAN      Type 20 Packet Forwarding
-----  -
110       Enabled
120       Enabled
```

output definitions

VLAN	VLAN on which Type 20 packet forwarding is enabled/disabled. Global indicates a global filter.
Type 20 Packet Forwarding	Type 20 packet forwarding status.

Release History

Release 6.1; command was introduced.

Related Commands

[ipx type-20-propagation](#) Enables/disables Type 20 packet forwarding.

MIB Objects

```
alaIpxType20Table
  alaIpxType20VlanId
  alaIpxType20Mode
  alaIpxType20RowStatus
```

show ipx packet-extension

Displays the current status of the extended RIP/SAP packet feature.

show ipx packet-extension

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Usage Guidelines

N/A

Examples

```
-> show ipx packet-extension
```

```
VLAN    Extended RIP/SAP Packets
-----  -
110     Disabled
120     Enabled
```

output definitions

VLAN	VLAN on which packet extension is enabled/disabled. Global indicates a global filter.
Extended RIP/SAP Packets	Packet extension status.

Release History

Release 6.1; command was introduced.

Related Commands

[ipx packet-extension](#) Enables/disables the extended RIP/SAP packets.

MIB Objects

```
alaIpxExtMsgTable
  alaIpxExtMsgVlanId
  alaIpxExtMsgMode
  alaIpxExtMsgRowStatus
```

show ipx timers

Displays the current RIP and SAP timer values.

show ipx timers

Syntax Definitions

N/A

Defaults

N/A

Usage Guidelines

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000

Examples

-> show ipx timers

```

VLAN          RIP Timer(secs)  SAP Timer(secs)
-----
global          60              60
110             45              120

```

output definitions

VLAN	VLAN on which RIP/SAP timer is set. Global indicates a global timer setting.
RIP Timer	RIP timer value, in seconds (default is 60).
SAP Timer	SAP timer value, in seconds (default is 60).

Release History

Release 6.1; command was introduced.

Related Commands

[ipx timers](#) Configures the frequency of RIP/SAP updates.

MIB Objects

```
alaIpxTimerTable  
  alaIpxTimerVlanId  
  alaIpxTimerSap  
  alaIpxTimerRip  
  alaIpxTimerRowStatus
```

39 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:

Global BFD commands	ip bfd-std status ip bfd-std transmit ip bfd-std receive ip bfd-std mode ip bfd-std echo interval ip bfd-std l2-hold-timer show ip bfd-std show ip bfd-std sessions show ip bfd-std session
BFD Interface commands	ip bfd-std interface ip bfd-std interface status ip bfd-std interface transmit ip bfd-std interface receive ip bfd-std interface multiplier ip bfd-std interface mode ip bfd-std interface echo-interval ip bfd-std interface l2-hold-timer show ip bfd-std interfaces
Commands to configure BFD supported protocols	ip ospf bfd-std status ip ospf bfd-std all-interfaces ip ospf interface bfd-std ip ospf interface bfd-std drs-only ip ospf interface bfd-std all-nbrs ip bgp bfd-std status ip bgp bfd-std all-neighbors ip bgp neighbors bfd-std vrrp bfd-std vrrp track address bfd-std ip static-route all bfd-std ip static-routes bfd-std status

ip bfd-std status

Enables or disables the global BFD protocol status for the switch.

ip bfd-std status {enable | disable}

Syntax Definitions

enable	Enables BFD.
disable	Disables BFD.

Defaults

By default, BFD is disabled for the switch.

Platforms Supported

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

echo-only	Specifies echo only mode.
demand echo enable	Specifies demand mode with the echo function enabled.
demand echo disable	Specifies demand mode with the echo function disabled.
asynchronous echo enable	Specifies asynchronous mode with the echo function enabled.
asynchronous echo disable	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

ip bfd-std interface status	Configures the administrative status of a BFD interface.
show ip bfd-std interfaces	Displays the status and statistics of a BFD interface.
show ip bfd-std sessions	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.
enable	Enables the BFD interface.
disable	Disables the BFD interface.

Defaults

By default, a BFD interface is disabled when it is created.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip bfd-std interface	Creates a BFD interface.
show ip bfd-std interfaces	Displays the status and statistics of a BFD interface.
show ip bfd-std sessions	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, 9000, 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

ip bfd-std interface	Creates a BFD interface.
ip bfd-std transmit	Configures a global BFD transmit time interval.
show ip bfd-std interfaces	Displays the status and statistics of a BFD interface.
show ip bfd-std sessions	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, 9000, 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

ip bfd-std interface	Creates a BFD interface.
ip bfd-std receive	Configures a global BFD receive time interval.
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
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, 9000, 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

ip bfd-std interface	Creates a BFD interface.
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
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, 9000, 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

ip bfd-std interface	Creates a BFD interface.
ip bfd-std echo interval	Configures a global BFD echo time interval.
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
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.
echo-only	Specifies echo only mode.
demand echo enable	Specifies demand mode with the echo function enabled.
demand echo disable	Specifies demand mode with the echo function disabled.
asynchronous echo enable	Specifies asynchronous mode with the echo function enabled.
asynchronous echo disable	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, 9000, 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, 9000, 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

ip bfd-std interface	Creates a BFD interface.
ip bfd-std l2-hold-timer	Configures the global BFD Layer 2 hold-down time interval.
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
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

enable	Enables BFD Status.
disable	Disables BFD Status.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip ospf bfd-std all-interfaces	Enables or disables BFD for all OSPF interfaces configured.
ip ospf interface bfd-std	Enables or disables BFD for a specific OSPF interface.
ip ospf interface bfd-std drs-only	Establishes BFD sessions only on neighbors in full state.
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.

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, 9000, 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

ip ospf bfd-std status	Enables or disables the BFD status for the OSPF protocol.
ip ospf interface bfd-std	Enables or disables BFD for a specific OSPF interface.
ip ospf interface bfd-std drs-only	Establishes BFD sessions only on neighbors in full state.
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.

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.
enable	Enables the OSPF interface.
disable	Disables the OSPF interface.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip ospf bfd-std status	Enables or disables the BFD status for the OSPF protocol.
ip ospf bfd-std all-interfaces	Enables or disables BFD for all OSPF interfaces configured.
ip ospf interface bfd-std drs-only	Establishes BFD sessions only on neighbors in full state.
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.

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, 9000, 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

ip bfd-std interface status	Enables or disables the BFD status for OSPF protocol.
ip ospf bfd-std all-interfaces	Enables or disables BFD for all OSPF interfaces configured.
ip ospf interface bfd-std	Enables or disables BFD for a specific OSPF interface.
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.

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, 9000, 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

ip bfd-std interface status	Enables or disables the BFD status for OSPF protocol.
ip ospf bfd-std all-interfaces	Enables or disables BFD for all OSPF interfaces configured.
ip ospf interface bfd-std	Enables or disables BFD for a specific OSPF interface.
ip ospf interface bfd-std drs-only	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

enable	Enables BGP.
disable	Disables BGP.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

- | | |
|--|--|
| ip bgp bfd-std all-neighbors | Enables or disables BFD for all BGP neighbors. |
| ip bgp neighbors bfd-std | 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, 9000, 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

- | | |
|--|--|
| ip bgp bfd-std status | Enables or disables BGP with BFD protocol. |
| ip bgp neighbors bfd-std | 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.
enable	Enables BGP neighbor.
disable	Disables BGP neighbor.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

ip bgp bfd-std status	Enables or disables BGP with BFD protocol.
ip bgp bfd-std all-neighbors	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

enable	Enables BFD for VRRP.
disable	Disables BFD for VRRP.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enables BFD.
disable	Disables BFD.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enables BFD.
disable	Disables BFD.

Defaults

N/A

Platforms Supported

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

ip bfd-std l2-hold-timer	Configures BFD at Global Level.
ip static-route all bfd-std	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, 9000, 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

Version	Refers to BFD Version.
Status	Refers to BFD global admin status.
Transmit interval	Refers to BFD global Tx interval.
Receive interval	Refers to BFD global Rx interval.
Echo status	Refers to Echo functionality status.
Echo interval	Refers to BFD echo Rx interval.
Mode	Refers to BFD echo operational mode.
Protocols registered	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, 9000, 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

Interface address	Refers to BFD Interface address.
Admin status	Refers to BFD interface admin status.
Mode	Refers to BFD interface operational mode.
Echo status	Refers to Interface Echo functionality status.
Transmit Interval	Refers to BFD interface Tx interval.
Receive Interval	Refers to BFD interface Rx interval.
Multiplier	Refers to BFD interface Multiplier.

output definitions (continued)

Echo interval	Refers to BFD interface echo Rx interval.
Layer2 Hold down Interval	Refers to BFD Layer 2 hold down interval.

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  
  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, 9000, 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

Interface address	The IP address associated with the BFD interface.
State	The state of the BFD session.
Neighbor address	The IP address of the BFD neighbor.
Local discriminator	The local discriminator.
Remote discriminator	The remote discriminator.
Protocol	The protocols registered with the BFD session.
Negotiated Tx interval	The negotiated transmit interval.
Negotiated Rx interval	The negotiated receive interval.
Echo Rx interval	The Echo packet receive interval.
Multiplier	The BFD multiplier number.
Tx packet counter	The transmit packet counter.
Rx packet counter	The receive packet counter.
Protocols enabled	The protocols enabled for 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.
show ip bfd-std session	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, 9000, 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

Interface address	The IP address associated with the BFD interface.
State	The state of the BFD session.
Neighbor address	The IP address of the BFD neighbor.
Local discriminator	The local discriminator.
Remote discriminator	The remote discriminator.
Protocol	The protocols registered with the BFD session.
Negotiated Tx interval	The negotiated transmit interval.
Negotiated Rx interval	The negotiated receive interval.
Echo Rx interval	The Echo packet receive interval.

output definitions (continued)

Multiplier	The BFD multiplier number.
Tx packet counter	The transmit packet counter.
Rx packet counter	The receive packet counter.
Protocols enabled	The protocols enabled for 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.
show ip bfd-std sessions	Displays all BFD sessions.

MIB Objects

```
alaBfdIntfTable  
  alaBfdSessNeighborAddr  
  alaBfdIntfAddr  
  alaBfdSessState  
  alaBfdSessDiscriminator  
  alaBfdSessRemoteDiscr  
  alaBfdIntfProtocols  
  alaBfdSessNegotiatedTxInterval  
  alaBfdSessNegotiatedRxInterval  
  alaBfdIntfReqMinEchoRxInterval  
  alaBfdIntfL2HoldTimer  
  alaBfdSessPerfPktOut  
  alaBfdSessPerfPktIn  
  alaBfdSessProtocols
```

40 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.
enable	Enables the virtual router. A virtual router may only be enabled if an IP address is configured for the virtual router.
disable	Disables the virtual router. Cannot be combined on the same line with other parameters.
on	Alternate syntax for enabling the virtual router.
off	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.
preempt	Specifies that a higher priority router may preempt a lower priority master router.
no preempt	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
enable disable on off	disable (off)
<i>priority</i>	100
preempt no preempt	preempt
<i>seconds</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

vrrp	Configures a new VRRP virtual router or modifies an existing one. Used to enable to disable a virtual router.
show vrrp statistics	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.
enable	Enables the tracking policy.
disable	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

parameter	default
enable disable	enable
<i>value</i>	25

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

vrrp	Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.
show vrrp track-association	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, 9000, 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, 9000, 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, 9000, 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

vrrp all	Changes the administrative status of all the virtual routers on the switch.
vrrp set	Sets the new default parameter values to existing virtual routers on the switch.
show vrrp	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, 9000, 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

vrrp all

Changes the administrative status of all the virtual routers on the switch.

vrrp set

Sets the new default parameter values to existing virtual routers on the switch.

show vrrp

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

preempt	Specifies that a higher priority router may preempt a lower priority master router by default.
no preempt	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, 9000, 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

vrrp all	Changes the administrative status of all the virtual routers on the switch.
vrrp set	Sets the new default parameter values to existing virtual routers on the switch.
show vrrp	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

disable	Disables all the virtual routers on the switch.
enable	Enables the virtual routers that have not previously been disabled individually or collectively via the vrrp group all command.
enable all	Enables all the virtual routers on the switch including those virtual routers that have been disabled individually or collectively via the vrrp group all command.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

vrrp interval	Modifies the default advertising interval value assigned to the virtual routers on the switch.
vrrp priority	Modifies the default priority value assigned to the virtual routers on the switch.
vrrp preempt	Modifies the default preempt mode assigned to the virtual routers on the switch.
vrrp set	Sets the new default parameter values to existing virtual routers on the switch.
show vrrp	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

interval	Sets the VRRP advertisement interval value to the new default value.
priority	Sets the priority value to the new default value.
preempt	Sets the preempt mode to the new default mode.
all	Sets all the parameters value to the new default value.
override	Overrides the specified parameters configured value with the new default value.

Defaults

parameter	default
interval priority preempt all	all

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

vrrp interval	Modifies the default advertising interval value assigned to the virtual routers on the switch.
vrrp priority	Modifies the default priority value assigned to the virtual routers on the switch.
vrrp preempt	Modifies the default preempt mode assigned to the virtual routers on the switch.
vrrp all	Changes the administrative status of all the virtual routers on the switch.
show vrrp	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.
preempt	Specifies that a higher priority router may preempt a lower priority master router by default.
no preempt	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
preempt no preempt	preempt

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

vrrp group all	Changes the administrative status of all the virtual routers in a virtual router group using a single command.
vrrp group set	Sets the new modified default value to all the virtual routers in a virtual router group.
vrrp group-association	Adds a virtual router to a virtual router group.
show vrrp group	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.
disable	Disables all the virtual routers in the group.
enable	Enables those virtual routers that have not previously been disabled individually in the group.
enable all	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, 9000, 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

vrrp group	Creates a new virtual router group or modifies the configuration parameters of an existing virtual router group.
vrrp group set	Sets the new modified default value to all the virtual routers in a virtual router group.
show vrrp	Displays the virtual router configuration for all virtual routers or for a specific virtual router.
show vrrp group	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.
interval	Sets the VRRP advertisement interval value to the new default value.
priority	Sets the priority value to the new default value.
preempt	Sets the preempt mode to the new default mode.
all	Sets all the parameters' value to the new default value.
override	Overrides the parameter's configured value with the group default value.

Defaults

parameter	default
interval priority preempt all	all

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

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.
show vrrp	Displays the virtual router configuration for all virtual routers or for a specific virtual router.
show vrrp group	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, 9000, 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.
enable	Enables the virtual router.
disable	Disables the virtual router. Cannot be combined on the same line with other parameters.
on	Alternate syntax for enabling the virtual router.
off	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.
preempt	Specifies that a higher priority router may preempt a lower priority master router.
no preempt	Specifies that a higher priority router may not preempt a lower priority master router.
accept	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.
no accept	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
enable disable on off	disable (off)
<i>priority</i>	100
preempt no preempt	preempt
accept / no accept	accept
<i>centiseconds</i>	100

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

vrrp3	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
show vrrp3 statistics	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, 9000, 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, 9000, 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

vrrp3	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
show vrrp3 track-association	Displays the tracking policies associated with VRRP3 virtual routers.

MIB Objects

```
alaVrrp3AssoTrackTable  
  alaVrrp3AssoTrackId  
  alaVrrp3TrackRowStatus
```

show vrrp

Displays the virtual router configuration for all virtual routers or for a specific virtual router.

show vrrp [*vrid*]

Syntax Definitions

vrid The virtual router ID, in the range from 1–255.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the **show vrrp** command to display information about configuration parameters, which may be set through the **vrrp** command. Use the **show vrrp statistics** command to get information about VRRP packets.

Examples

The following is an example of the output display on an OmniSwitch 6800:

```
-> show vrrp
VRRP trap generation: Enabled
VRRP startup delay: 75
```

VRID	VLAN	IP Address(es)	Admin Status	Priority	Preempt	Adv. Interval
1	1	192.168.170.1 192.168.170.2	Enabled	255	Yes	1
2	15	10.2.25.254	Disabled	100	No	1

The following is an example of the output display on an OmniSwitch 6850, 6855, and 9000:

```
-> show vrrp
VRRP default advertisement interval: 5 seconds
VRRP default priority: 99
VRRP default preempt: No
VRRP trap generation: Enabled
VRRP startup delay: 45 (expired)
```

VRID	VLAN	IP Address(es)	Admin Status	Priority	Preempt	Adv. Interval
1	101	192.60.245.240	Enabled	99	No	5
2	102	192.60.246.240	Enabled	99	No	5

```

-> show vrrp 1
Virtual Router VRID = 1 on VLAN = 1
  Admin Status      = Enabled
  Priority          = 255
  Preempt          = Yes
  Adv. Interval    = 1
  Virtual MAC      = 00-00-5E-00-02-01
  IP Address(es)
    192.168.170.1
    192.168.170.2

```

output definitions

VRRP default advertisement interval	The default advertising interval for all virtual routers on the switch. Note that this field is not displayed on the OmniSwitch 6800.
VRRP default priority	The default priority value for all virtual routers on the switch. Note that this field is not displayed on the OmniSwitch 6800.
VRRP default preempt	The default preempt mode for all virtual routers on the switch. Note that this field is not displayed on the OmniSwitch 6800.
VRRP trap generation	Indicates whether or not the VRRP trap generation is enabled or disabled; configured through the vrrp track command.
VRRP startup delay	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 vrrp delay command.
VRID	Virtual router identifier. Configured through the vrrp command.
VLAN	The VLAN associated with the VRRP instance. Configured through the vrrp command.
IP Address(es)	The assigned IP addresses. Configured through the vrrp address command.
Admin Status	The administrative status of this virtual router instance; enabled allows the virtual router instance to operate; disabled disables the virtual router instance without deleting it.
Priority	Indicates the VRRP router's priority for the virtual router. For more information about priority, see the vrrp command description on page 40-3 .
Preempt	Controls whether a higher priority virtual router will preempt a lower priority master router: preempt indicates that a higher priority virtual router will preempt a lower priority master; no preempt 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.
Virtual MAC	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 backup or initialize state.
Adv. Interval	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

vrrp	Configures a new VRRP virtual router or modifies an existing one. Used to enable or disable a virtual router.
vrrp address	Configures an IP address for a virtual router.
vrrp interval	Modifies the default advertising interval value assigned to the virtual routers on the switch.
vrrp priority	Modifies the default priority value assigned to the virtual routers on the switch.
vrrp preempt	Modifies the default preempt mode assigned to the virtual routers on the switch.
show vrrp statistics	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
```

show vrrp statistics

Displays statistics about VRRP packets for all virtual routers configured on the switch or for a specific virtual router.

show vrrp [*vrid*] **statistics**

Syntax Definitions

vrid The virtual router ID, in the range from 1–255.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the **show vrrp statistics** command to display information about VRRP packets. Use the **show vrrp** command to display information about the virtual router configuration.

Examples

```
-> show vrrp statistics
```

Checksum	Version	VRID
Errors	Errors	Errors
0	0	0

VRID	VLAN	State	UpTime	Become Master	Adv. Rcvd
1	1	master	378890	1	0
2	15	backup	4483	0	44
7	2	initialize	0	0	0

output definitions

Checksum Errors	The total number of VRRP packets received with an invalid checksum value.
Version Errors	The total number of VRRP packets received with an invalid version number.
VRID Errors	The total number of VRRP packets received with invalid VRIDs.
VRID	The virtual router identifier.
VLAN	The VLAN associated with the VRRP instance.

output definitions (continued)

State	The operational state of the VRRP router instance; initialize specifies that the interface or VLAN is either disabled or down, or if the startup delay timer has not expired; backup specifies that this instance is monitoring the availability of the master router; master specifies that this instance is functioning as the master router.
UpTime	Time interval (in hundredths of a second) since this virtual router was last initialized.
Become Master	The total number of times this virtual router's state has transitioned from backup to master.
Adv. Rcvd	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

VRID	The virtual router identifier.
VLAN	The VLAN associated with the VRRP instance.
State	The operational state of this VRRP router instance; initialize specifies that the interface or VLAN is either disabled or down, or the startup delay timer has not expired; backup specifies that this instance is monitoring the availability of the master router; master specifies that this instance is functioning as the master router.
UpTime	Time interval (in hundredths of a second) since this virtual router was last initialized.
Become master	The total number of times this virtual router's state has transitioned from backup to master.
Advertisements received	The total number of VRRP advertisements received by this instance.
Type errors	The total number of VRRP packets received with an invalid value in the VRRP type field.
Advertisement interval errors	The total number of VRRP packets received in which the advertisement interval differs from the one configured for the virtual router.
Authentication errors	The total number of VRRP packets received with an unknown or invalid authentication type.
IP TTL errors	The total number of VRRP packets received with a TTL value other than 255.

output definitions (continued)

IP address list errors	The total number of VRRP packets in which the IP address list does not match the configured list for the virtual router.
Packet length errors	The total number of VRRP packets received with a length less than the length of the VRRP header.
Zero priority advertisements sent	The total number of VRRP advertisements with a priority of 0 sent by the virtual router.
Zero priority advertisements received	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

vrrp	Configures a new VRRP virtual router or modifies an existing one. Used to enable to disable a virtual router.
show vrrp	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, 9000, 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

Track ID	The ID of the tracking policy.
Policy	The slot/port, IP address, or VLAN tracked by the policy.
Admin State	Whether the tracking policy is administratively enabled or disabled.
Oper State	Indicates whether the operating state of the tracking policy is Up or Down.
Pri	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, 9000, 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

VRID	The virtual router identifier.
VLAN	The VLAN ID associated with the virtual router.
Conf Pri	The priority configured for the virtual router through the vrrp command.
Cur Pri	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.
Track ID	The ID of the tracking policy.
Policy	The VLAN, IP address, or slot/port being tracked by this policy.
Admin State	The administrative state of the tracking policy configured through the vrrp track command.

output definitions (continued)

Oper State	Whether the tracking policy is operational (Up) or not (Down).
Track Pri	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

vrrp track-association	Associates a VRRP tracking policy with a virtual router.
vrrp track	Creates a new tracking policy or modifies an existing tracking policy.

MIB Objects

```
alaVrrpAssoTrackTable
  alaVrrpAssoTrackId
alaVRRPTrackTable
  alaVrrpTrackState
  alaVrrpTrackAdminState
  alaVrrpTrackPriority
  alaVrrpTrackEntityType
  alaVrrpTrackEntityVlan
  alaVrrpTrackEntityPort
  alaVrrpTrackEntityIpAddress
  alaVrrpTrackEntityInterface
```

show vrrp group

Displays the default parameter values for all the virtual router groups or for a specific virtual router group.

```
show vrrp group [vrgid]
```

Syntax Definitions

vrgid The virtual router group ID, in the range from 1–255.

Defaults

By default, the default parameter values are displayed for all the virtual router groups.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the *vrgid* parameter with this command to display the default values for a specific virtual router group.

Examples

```
-> show vrrp group 2
Virtual Router Group GROUPID = 2
  Interval = 11
  Priority = 250
  Preempt Mode = Yes
  3 Associated Virtual Routers
```

output definitions

Group ID	The virtual router group identifier.
Adv Interval	Indicates the time interval, in seconds, between the sending of advertisement messages. Only the master router sends advertisements.
Priority	Indicates the VRRP router's priority for the virtual router group. For more information about priority, see the vrrp command description on page 40-3 .
Preempt Mode	Controls whether a higher priority virtual router will preempt a lower priority master; preempt indicates that a higher priority virtual router will preempt a lower priority master; no preempt 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.

Release History

Release 6.3.1; command was introduced.

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

show vrrp group-association

Displays the virtual routers that are associated with a group.

```
show vrrp group-association [vrgid]
```

Syntax Definitions

vrgid The virtual router group ID, in the range from 1–255.

Defaults

By default, all virtual router group associations are displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the *vrgid* parameter with this command to display the association details of a specific virtual router group.

Examples

```
-> show vrrp group-association 2
GROUPID VRID  VLAN
-----+-----+-----+
     2      3     2
         4     2
         5     2
```

output definitions

GROUPID	The virtual router group identifier.
VRID	The virtual router identifier.
VLAN	The VLAN associated with the VRRP instance. Configured through the vrrp command.

Release History

Release 6.3.1; command was introduced.

Related Commands

[vrrp group-association](#)

Adds a virtual router to a virtual router group.

MIB Objects

alaVrrpAssoGroupTable

alaVrrp3OperVrId

show vrrp3

Displays the virtual router configuration for all virtual routers or for a specific virtual router.

show vrrp3 [*vrid*]

Syntax Definitions

vrid The virtual router ID, in the range from 1–255.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the **show vrrp3** command to display information about configuration parameters, which may be set through the **vrrp3** command. Use the **show vrrp3 statistics** command to get information about VRRP3 packets.

Examples

```
-> show vrrp3
VRRP trap generation: Enabled
VRRP startup delay: 45 (expired)
```

VRID	VLAN	IPv6 Address(es)	Admin Status	Priority	Preempt	Accept	Adv. Interval
1	101	fe80::200:5eff:fe00:201 1010::30	Enabled	200	No	Yes	100
2	102	fe80::200:5eff:fe00:202 1020::30	Enabled	200	No	Yes	100
3	103	fe80::200:5eff:fe00:203 1030::30	Enabled	200	No	Yes	100
4	104	fe80::200:5eff:fe00:204 1040::30	Enabled	200	No	Yes	100
5	105	fe80::200:5eff:fe00:205 1050::30	Enabled	200	No	Yes	100
6	106	fe80::200:5eff:fe00:206 1060::30	Enabled	200	No	Yes	100
7	107	fe80::200:5eff:fe00:207 1070::30	Enabled	200	No	Yes	100
8	108	fe80::200:5eff:fe00:208 1080::30	Enabled	200	No	Yes	100
9	109	fe80::200:5eff:fe00:209 1090::30	Enabled	200	No	Yes	100
10	110	fe80::200:5eff:fe00:20a 1100::30	Enabled	200	No	Yes	100

output definitions

VRRP trap generation	Whether or not VRRP trap generation is enabled or disabled.
VRRP startup delay	The amount of time after a reboot that virtual routers will wait before they go active; allows time for routing tables to stabilize.
VRID	Virtual router identifier. Configured through the vrrp3 command.
VLAN	The VLAN associated with the VRRP3 instance. Configured through the vrrp3 command.
IPv6 Address(es)	The assigned IPv6 addresses. Configured through the vrrp3 address command.
Admin Status	The administrative status of this virtual router instance; enabled allows the virtual router instance to operate; disabled disables the virtual router instance without deleting it.
Priority	Indicates the VRRP3 router's priority for the virtual router. For more information about priority, see the vrrp3 command description on page 40-30 .
Preempt	Controls whether a higher priority virtual router will preempt a lower priority master: preempt indicates that a higher priority virtual router will preempt a lower priority master; no preempt 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.
Accept	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.
Virtual MAC	Displays the virtual MAC address for the virtual router when the router is in the master 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 backup or initialize state.
Adv. Interval	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

vrrp3	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
vrrp3 address	Configures an IPv6 address for a virtual router.
show vrrp3 statistics	Displays statistics for all virtual routers configured on the switch or for a specific virtual router.

MIB Objects

```
alaVrrp3OperTable  
  alaVrrp3OperAdminState  
  alaVrrp3OperPriority  
  alaVrrp3OperPreemptMode  
  alaVrrp3OperAcceptMode  
  alaVrrp3OperAdvinterval
```

show vrrp3 statistics

Displays statistics about VRRP3 packets for all virtual routers configured on the switch or for a specific virtual router.

show vrrp3 [vrid] statistics

Syntax Definitions

vrid The virtual router ID, in the range from 1–255.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

Use the **show vrrp3 statistics** command to display information about VRRP3 packets. Use the **show vrrp3** command to display information about the virtual router configuration.

Examples

```
-> show vrrp3 statistics
Checksum    Version    VRID
Errors      Errors     Errors
-----+-----+-----
              0         0         0

VRID VLAN   State     UpTime    Become Master Adv. Rcvd
-----+-----+-----
   1  101 Master     2983          1         0
   2  102 Master    60675          1         0
   3  103 Master    60675          1         0
   4  104 Master    60675          1         0
   5  105 Master    60675          1         0
   6  106 Master    60675          1         0
   7  107 Master    60675          1         0
   8  108 Master    60675          1         0
   9  109 Master    60675          1         0
  10  110 Master    60675          1         0
```

output definitions

Checksum Errors	The total number of VRRP3 packets received with an invalid checksum value.
Version Errors	The total number of VRRP3 packets received with an invalid version number.
VRID Errors	The total number of VRRP3 packets received with invalid VRIDs.
VRID	The virtual router identifier.

output definitions (continued)

VLAN	The VLAN associated with the VRRP3 instance.
State	The administrative state of the VRRP3 instance; initialize specifies that the interface or vlan is either disabled or down and the startup delay timer has not expired; backup specifies that this instance is monitoring the availability of the master router; master specifies that this instance is functioning as the master router.
UpTime	Time interval (in hundredths of a second) since this virtual router was last initialized.
Become Master	The total number of times this virtual router's state has transitioned from backup to master.
Adv. Rcvd	The total number of VRRP3 advertisements received by this instance.

Release History

Release 6.1.3; command was introduced.

Related Commands

vrrp3	Configures a new VRRP3 virtual router or modifies an existing one. Used to enable or disable a virtual router.
show vrrp3	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, 9000, 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

VRID	The virtual router identifier.
VLAN	The VLAN ID associated with the virtual router.
Conf Pri	The priority configured for the virtual router through the vrrp3 command.
Cur Pri	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.
Track ID	The ID of the tracking policy.
Policy	The VLAN, IPv6 address, or slot/port being tracked by this policy.
Admin State	The administrative state of the tracking policy.

output definitions (continued)

Oper State	Indicates whether the tracking policy is operational (Up) or not (Down).
Track Pri	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

```

41 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:

Global OSPF Commands	<pre> ip ospf status ip load ospf ip ospf exit-overflow-interval ip ospf extlsdb-limit ip ospf host ip ospf mtu-checking ip ospf default-originate ip ospf route-tag ip ospf spf-timer ip ospf virtual-link ip ospf neighbor show ip ospf show ip ospf border-routers show ip ospf ext-lsdb show ip ospf host show ip ospf lsdb show ip ospf neighbor show ip ospf routes show ip ospf virtual-link show ip ospf virtual-neighbor </pre>
OSPF Area Commands	<pre> ip ospf area ip ospf area default-metric ip ospf area range show ip ospf area show ip ospf area range show ip ospf area stub </pre>
OSPF Interface Commands	<pre> ip ospf interface ip ospf interface area ip ospf interface auth-key ip ospf interface auth-type ip ospf interface dead-interval ip ospf interface hello-interval ip ospf interface md5 ip ospf interface md5 key ip ospf interface type ip ospf interface cost ip ospf interface poll-interval ip ospf interface priority ip ospf interface retrans-interval ip ospf interface transit-delay show ip ospf interface </pre>
OSPF Graceful Restart Commands	<pre> ip ospf restart-support ip ospf restart-interval ip ospf restart-helper status ip ospf restart-helper strict-lsa-checking status ip ospf restart initiate show ip ospf restart </pre>

ip ospf status

Enables or disables the administration status of OSPF on the router.

ip ospf status {enable | disable}

Syntax Definitions

enable	Enables OSPF.
disable	Disables OSPF.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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

parameter	default
<i>metric</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 6855, 9000, 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

only	Advertises only when there is a default route in the routing table.
always	Advertises the default route regardless of whether the routing table has a default route.
type1	Sets the external route as type1.
type2	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, 9000, 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, 9000, 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, 9000, 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.
none	Sets the virtual link authorization type to no authentication.
simple	Sets the virtual link authorization type to simple authentication. If simple is selected, a key must be specified as well.
md5	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.
dead-interval <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.
hello-interval <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.
retrans-interval <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.
transit-delay <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
none simple md5	none
<i>key_string</i>	null string
dead-interval <i>seconds</i>	40
hello-interval <i>seconds</i>	10
retrans-interval <i>seconds</i>	5
transit-delay <i>seconds</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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
eligible non-eligible	eligible

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
enable	Enables summarization.
disable	Disables summarization.
normal	Sets the area as a regular OSPF area.
stub	Configures an OSPF area as a stub area.
nssa	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, 9000, 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 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

- | | |
|------------------------------------|---|
| ip ospf area default-metric | Creates or deletes an OSPF default metric. |
| ip ospf area range | Creates a route summarization instance whereby a range of addresses will be advertised as a single route. |
| show ip ospf area | 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.
ospf	Advertises external routes as OSPF autonomous system external (ASE) routes.
type1	Advertises external routes as a Type 1 (non-OSPF) metric.
type2	Advertises external routes as a Type 2 (calculated weight value from non-OSPF protocol) metric.

Defaults

parameter	default
<i>tos</i>	0
ospf type 1 type 2	ospf

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip ospf area	Creates or deletes an OSPF area.
ip ospf area range	Creates a route summarization instance whereby a range of addresses will be advertised as a single route.
show ip ospf area	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.
summary	Advertises the address range as a summary link state advertisement (LSA).
nssa	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.
admatching	Determines that routes specified falling within the specified range will be advertised.
noMatching	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, 9000, 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

ip ospf area	Creates or deletes an OSPF area.
ip ospf area default-metric	Creates or deletes an OSPF default metric.
show ip ospf area range	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, 9000, 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

interface_name The name of the interface. This option is not supported on OmniSwitch 6800 Series switches.

enable Enables the OSPF interface.

disable Disables the OSPF interface.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

show ip ospf area	Displays either all the OSPF areas, or a specified OSPF area.
show ip ospf interface	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, 9000, 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 41-31](#), 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

ip ospf interface auth-type	Sets the authentication type.
show ip ospf interface	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.
none	No authentication.
simple	Simple, clear text authentication.
md5	MD5 encrypted authentication.

Defaults

parameter	default
none simple md5	none

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 41-30](#).
- 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 41-35](#) and [page 41-37](#). 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, 9000, 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, 9000, 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.
enable	Enables the interface key.
disable	Disables the interface key.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 41-31](#) and [page 41-37](#).
- 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

<code>ip ospf interface auth-type</code>	Sets the OSPF interface authentication type.
<code>ip ospf interface md5 key</code>	Configures the OSPF key ID and key.
<code>show ip ospf interface</code>	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, 9000, 9000E

Usage Guidelines

- This command is used in conjunction with the commands described above on [page 41-31](#) and [page 41-35](#).
- 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

ip ospf interface auth-type	Sets the OSPF interface authentication type.
ip ospf interface md5	Creates and deletes the OSPF interface MD5 key identification number.
show ip ospf interface	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.
point-to-point	Sets the interface to be a point-to-point OSPF interface.
point-to-multipoint	Sets the interface to be a point-to-multipoint OSPF interface.
broadcast	Sets the interface to be a broadcast OSPF interface.
non-broadcast	Sets the interface to be NBMA (Non Broadcast Multi Access) OSPF interface.

Defaults

parameter	default
broadcast non-broadcast point-to-point point-to-multipoint	broadcast

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip ospf neighbor	Creates a static neighbor on a Non Broadcast Multi Access (NBMA) interface.
show ip ospf interface	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

enable	Enables the capability of an OSPF router to operate in helper mode.
disable	Disables the capability of an OSPF router to operate in helper mode.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

- ip ospf restart-support** Administratively enables and disables support for the graceful restart feature on an OSPF router.
- 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.
- show ip ospf restart** 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

enable	Enables whether or not a changed LSA will result in termination of graceful restart by a helping router.
disable	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, 9000, 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

- | | |
|--------------------------------------|---|
| ip ospf restart-support | Administratively enables and disables support for the graceful restart feature on an OSPF router. |
| 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. |
| show ip ospf restart | 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, 9000, 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, 9000, 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

Router Id	The unique identification for the router.
OSPF Version Number	The version of OSPF the router is running.
Admin Status	Whether OSPF is currently enabled or disabled on the router.
Area Border Router?	Whether the router status is an area router or not.
AS Border Router Status	Whether the area Autonomous System Border Router status of this router is enabled or disabled.
Route Tag	Shows the route tag for this router.
SPF Hold Time	Shows the time in seconds between the reception of an OSPF topology change and the start of a SPF calculation.
SPF Delay Time	Shows the time in seconds between consecutive SPF calculations.
MTU Checking	Shows whether Maximum Transfer Unit checking is enabled or disabled. This is set using the ip ospf mtu-checking command.
# of routes	The total number of OSPF routes known to this router.
# of AS-External LSAs	The number of external routes learned from outside the router's Autonomous System (AS).
# of self-originated LSAs	The number of times a new Link State Advertisement has been sent from this router.
# of LSAs received	The number of times a new Link State Advertisement has been received by this router.
External LSDB Limit	The maximum number of entries allowed in the external Link State Database.
Exit Overflow Interval	The number of seconds the router remains in the overflow state before attempting to leave it. This is set using the ip ospf exit-overflow-interval command.
# of SPF calculations done	The number of SPF calculations that have occurred.
# of Incr SPF calculations done	The number of incremental SPF calculations done.
# of Init State Nbrs	The number of neighbors in the initialization state.
# of 2-Way State Nbrs	The number of OSPF 2-way state neighbors on this router.
# of Exchange State Nbrs	The number of neighbors in the exchange state.
# of Full State Nbrs	The number of neighbors in the full state.
# of attached areas	The number of areas that are configured on the router.
# of Active areas	The number of areas that are active.
# of Transit areas	The number of transit areas that are configured on the router.
# of attached NSSAs	The number of Not So Stubby Areas that are configured on the router.

Release History

Release 6.1; command was introduced.

Related Commands

ip ospf status	Enables or disables the administration of OSPF on the router.
ip ospf mtu-checking	Enables or disables the use of Maximum Transfer Unit (MTU) checking.
ip ospf spf-timer	Configures timers for SPF calculation.
ip ospf extlsdb-limit	Assigns a limit to the number of External Link-State Database (LSDB) entries that can be learned.
ip ospf exit-overflow-interval	This command sets the overflow interval value.
ip ospf route-tag	Configures a tag value for Autonomous System External (ASE) routes created.
ip router router-id	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, 9000, 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

Router ID	The unique identification for the router.
Area ID	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
Gateway	The next hop interface on which the border router has been learned.
ToS	The Type of Service. Only ToS value 0 is supported at this time.
Metric	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, 9000, 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

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.
Orig Router-Id	The router ID of the router that originated the external LSDB.
SeqNo	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
Age	The age of the LSA in seconds. That is, the duration for which this entry has existed in the external database.
Protocol	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, 9000, 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

Host Address	A 32-bit IP address for a directly attached host. This can be set using the ip ospf host command.
ToS	The Type of Service traffic from the host is labeled as. ToS is set using the ip ospf host command.
Metric	The metric assigned to the host. Metric is set using the ip ospf host command.
Status	Whether the host is enabled or disabled.
AreaId	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.
rtr	Specifies router LSAs.
net	Specifies network LSAs.
netsum	Specifies network summary LSAs.
asbrsum	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, 9000, 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

Area Id	The area identification for the area to which the record belongs.
Type	The protocol type from where the route was learned.
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.

output definitions (continued)

Orig Router-Id	The router ID of the router that originated the external LSDB.
SeqNo	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
Age	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

Displays information on OSPF non-virtual neighbor routers.

show ip ospf neighbor [*ip_address*]

Syntax Definitions

ip_address A 32-bit IP address of the neighboring router.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 ip ospf neighbor
```

IP Address	Area Id	Router Id	Vlan	State	Mode
1.1.1.1	255.255.255.255	0.0.0.0	0	Down	Static

output definitions

IP Address	The IP address of the neighbor.
Area Id	A unique 32-bit value, such as an IP address, that identifies the neighboring router in the Autonomous System.
Router Id	The unique identification for the neighboring router.
VlanId	The VLAN corresponding to this interface on which the neighbor is reachable.
State	The state of the OSPF neighbor adjacency.
Mode	What type of neighbor, either Dynamic (learned) or Static .

```

-> 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

Neighbor's IP Address	The IP address of the neighbor.
Neighbor's Router Id	The identification number for the selected host's record. It is most often the router's IP address.
Neighbor's Area Id	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.
Neighbor's DR Address	The address of the neighbors Designated Router.
Neighbor's BDR Address	The address of the neighbors Backup Designated Router.
Neighbor's Priority	The priority value for this neighbor becoming the DR.
Neighbor's State	The condition of the OSPF neighbor's state machine.
Hello Suppressed	Whether sending hello messages to this neighbor is suppressed.
Neighbor's type	What type of neighbor this is, either dynamic or static.
DR Eligible	Shows the eligibility status of the static neighbor. If it is configured as "ineligible" during creation of the neighbor, it shows up as No . Otherwise, if configured as Eligible (the default), it shows up as Yes .
# of State Events	The number of state events restricted for this neighbor and the local router.
Mode	The role the neighbor has with the local router during DD Exchange, which can be Master or Slave.
MD5 Sequence Number	The sequence number of the MD5 authorization key.
Time since Last Hello	The amount of time (in seconds) since the last HELLO messages was received from this neighbor.
# of Outstanding LS Requests	The number of Link State requests to this neighbor that have not received a response from this neighbor.
# of Outstanding LS Acknowledgements	Number of Link state Acknowledgements queued up by the local router to be sent to the neighbor.

output definitions (continued)

# of Outstanding LS Retransmissions	The number of Link State updates to the neighbor that need to be retransmitted by the OSPF router.
Restart Helper Status	Indicates whether the router is acting as a hitless restart helper for the neighbor.
Restart Age	The remaining time, in seconds, for the current OSPF hitless restart interval if the router is acting as a restart helper for the neighbor.
Last Restart Helper Exit Reason	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, 9000, 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

Destination/Mask	The destination address of the route. This can also display the destination IP address mask if it is known.
Gateway	The gateway address of the route.
Metric	The cost of the route.
Vlan	The VLAN number on which the gateway can be routed.
Type	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

show ip ospf virtual-link

Displays virtual link information. A virtual link is used to connect OSPF backbone routers that are not physically contiguous.

`show ip ospf virtual-link [router_id]`

Syntax Definitions

router_id The router ID of the remote end of the virtual link that is to be viewed.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

See the Related Commands section below to modify the list.

Examples

`-> show ip ospf virtual-link`

```

      State
Transit AreaId      Router-id      Link / Adjacency  AuthType  OperStatus
-----+-----+-----+-----+-----
1.1.1.1             172.17.1.1    P2P / Full       none      up
```

output definitions

Transit AreaId	The area identification for the area assigned to the virtual link.
Router-Id	The destination router identification for the virtual link.
State Link	The state of the virtual link with regards to the local router.
State Adjacency	The state of the virtual link adjacency.
AuthType	The type of authorization employed by the virtual link.
OperStatus	Displays whether the virtual link is enabled or disabled.

Release History

Release 6.1; command was introduced.

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, 9000, 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

AreaId	The area identification for the area of which the virtual neighbor is a part.
RouterId	The router identification of the virtual neighbor.
Priority	The number used to determine whether the virtual neighbor will become the designated router for its area.
Events	The number of OSPF control message sent by the neighbor to the router.
RxmtQlen	The length (in number of packets) of the retransmit queue.
LastHello	The last Hello message sent by the neighbor
State	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

Neighbor's IP Address	The IP address of the virtual neighbor.
Neighbor's Router Id	The identification number for the selected host's record. It is most often the router's IP address.
Neighbor's Area Id	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.
Neighbor's DR Address	The address of the virtual neighbor's Designated Router.
Neighbor's BDR Address	The address of the virtual neighbor's Backup Designated Router.
Neighbor's Priority	The priority value for this virtual neighbor becoming the DR.
Neighbor's State	The condition of the OSPF virtual neighbor's state machine.
Hello Suppressed	Whether sending hello messages to this virtual neighbor is suppressed.
Neighbor's type	What type of virtual neighbor this is, either dynamic or static.
DR Eligible	Shows the eligibility status of the virtual neighbor. If it is configured as "ineligible" during creation of the neighbor, it shows up as No . Otherwise, if configured as Eligible (the default), it shows up as Yes .
# of State Events	The number of state events restricted for this virtual neighbor and the local router.
Mode	The role the virtual neighbor has with the local router during DD Exchange, which can be Master or Slave.
MD5 Sequence Number	The sequence number of the MD5 authorization key.
Time since Last Hello	The amount of time (in seconds) since the last HELLO messages was received from this virtual neighbor.
Last DD I_M_MS	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)

# of Outstanding LS Requests	The number of Link State requests to this virtual neighbor that have not received a response from this virtual neighbor.
# of Outstanding LS Acknowledgements	Number of Link state Acknowledgements queued up by the local router to be sent to the virtual neighbor.
# of Outstanding LS Retransmissions	The number of Link State updates to the virtual neighbor that need to be retransmitted by the OSPF router.
Restart Helper Status	Indicates whether the router is acting as a hitless restart helper for the virtual neighbor.
Restart Age	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.
Last Restart Helper Exit Reason	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, 9000, 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

Area Identifier	The unique 32-bit value, such as IP address, that identifies the OSPF area in the AS.
Admin Status	Whether the area is enabled or disabled.
Operational Status	Whether the area is active.
Area Type	The area type. This field will be normal , stub , or NSSA .
Area Summary	Whether Area Summary is enabled or disabled.
Time since last SPF Run	The last time the Shortest Path First calculation was performed.
# of Area Border Routers known	The number of Area Border Routers in the area.
# of AS Border Routers known	The number of Autonomous System Border Routers in the area.
# of LSAs	The total number of Link State Advertisements for the Area.
# of SPF Calculations	The number of times the area has calculated the Shortest Path.
# of Incremental SPF Calculations	The number of incremental Shortest Path First calculations that have been performed in the area.
# of Neighbors in Init State	The number of OSPF neighbors that are in initialization.
# of Neighbors in 2-Way State	The number of OSPF 2-way state neighbors in this area.
# of Neighbors in Exchange State	The number of OSPF neighbors that are currently establishing their status.
# of Neighbors in Full State	The number of OSPF neighbors.
# of Interfaces attached	The number of OSPF interfaces.
Attached Interfaces	The names of the OSPF interfaces attached to this area. This field is not displayed on OmniSwitch 6800 Series switches.

Release History

Release 6.1; command was introduced.

Related Commands

ip ospf area	Creates or deletes an OSPF area, assigning default metric, cost, and type.
ip ospf area range	Creates a route summarization instance whereby a range of addresses will be advertised as a single route.
show ip ospf interface	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.
summary	Specifies that routes are summarized.
nssa	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, 9000, 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

AreaId	The area identification for the area range.
Type	The type of area the range is associated with.
Destination	The destination address of the range.
Advertise	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, 9000, 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

Area Id	The identification number of the stub area.
TOS	The Type of Service assignment.
Metric	The metric assignment of the default router in the stub area.
MetricType	The metric type of the stub area. It will be either ospf , type1 , or type2 .

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, 9000, 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

Interface Name	The name of the interface.
DR Address	The designated router IP address on this network segment. Make sure you configure a VLAN for the router IP. (See Chapter 21, “VLAN Management Commands,” for more information.)
Backup DR Address	The IP address of the backup designated router.
Vlan	The VLAN to which the interface is assigned.
Admin Status	The current administration status of the interface, either enabled or disabled .
Oper Status	Whether the interface is an active OSPF interface.
State	The current state of the OSPF interface. It will be down , up , dp , dr , or other .

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

Interface IP Name	The name of the VLAN to which the interface is assigned. This field is not displayed on OmniSwitch 6800 Series switches.
VLAN Id	The VLAN to which the interface is assigned.
Interface IP Address	The IP address assigned to the interface.
Interface IP Mask	The IP mask associated with the IP address assigned to the interface.
Admin Status	The current administration status of the interface, either enabled or disabled .
Operational Status	Whether the interface is an active OSPF interface.
OSPF Interface State	The current state of the OSPF interface. It will be down , up , dp , dr , or other .
Interface Type	The OSPF interface type, which can be Broadcast, NBMA, Point-to-Point, or Point-to-Multipoint.
Area Id	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.
Designated Router IP Address	The designated router IP address.
Designated Router RouterId	The identification number of the designated router.

output definitions (continued)

Backup Designated Router IP Address	The IP address of the backup designated router.
Backup Designated Router RouterId	The identification number of the backup designated router.
MTU	The Maximum Transfer Unit (in bytes) for the interface.
Metric Cost	The cost added to routes learned on this interface.
Priority	The priority of the interface with regards to becoming the designated router. The higher the number, the higher the priority.
Hello Interval	The number of seconds between hello messages sent out on the interface.
Transit Delay	The estimated number of seconds required to transmit a link state update over this interface.
Retrans Interval	The number of seconds the interface waits before resending hello messages.
Dead Interval	The number of seconds the interface waits for hello messages received from a neighbor before declaring the neighbor as dead.
Poll Interval	The larger time interval, in seconds, between hello messages sent to inactive neighbors.
Link Type	The IP interface type, either broadcast or non broadcast .
Authentication Type	The type of authentication used by this interface, either none , simple , or md5 .
#	The indexing of the MD5 key. (This field is only displayed for MD5 authentication.)
Id	A key identifier that identifies the algorithm and MD5 secret key associated with this interface. (This field is only displayed for MD5 authentication.)
Key	Indicates whether the MD5 key has been set or not. (This field is only displayed for MD5 authentication.)
Status	The status of the configured MD5 authentication key. (This field is only displayed for MD5 authentication.)
StartAccept	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.)
StopAccept	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.)
StartGen	The time that the OSPF router will start using this key for packet generation. (This field is only displayed for MD5 authentication.)
StopGen	The time that the OSPF router will stop using this key for packet generation. (This field is only displayed for MD5 authentication.)
Authentication Key	This field displays whether the authentication key has been configured or not. (This field is only displayed for simple and no authentication.)
# of Events	The number of interface state machine events.
# of Init State Neighbors	The number of OSPF neighbors in the initialization state.

output definitions (continued)

# of 2-Way State Neighbors	The number of OSPF 2-way state neighbors on this interface.
# of Exchange State Neighbors	The number of OSPF neighbors in the exchange state.
# of Full State Neighbors	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

ip ospf interface	Creates and deletes an OSPF interface.
ip ospf interface auth-key	Configures an OSPF authentication key for simple authentication on an interface.
ip ospf interface dead-interval	Configures the OSPF interface dead interval.
ip ospf interface hello-interval	Configures the OSPF interface hello interval.
ip ospf interface md5	Creates and deletes the OSPF interface MD5 key identification number.
ip ospf interface md5 key	Configures the OSPF key string.
ip ospf interface cost	Configures the OSPF interface cost.
ip ospf interface poll-interval	Configures the OSPF poll interval for a Non Broadcast Multi Access (NBMA) interface.
ip ospf interface priority	Configures the OSPF interface priority.
ip ospf interface retrans-interval	Configures the OSPF interface retransmit interval.
ip ospf interface transit-delay	Configures the OSPF interface transit delay.
ip ospf interface auth-type	Sets the OSPF interface authentication type.
ip ospf interface area	Configures an OSPF interface area.
ip ospf interface type	Configures the OSPF interface type.
ip ospf interface status	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, 9000, 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

Restart Support	The administrative status of OSPF graceful restart, which can be Enabled or Disabled .
Restart Interval	The configured OSPF hitless restart timeout interval, in seconds. Use the ip ospf restart-interval command to modify this parameter.
Restart Status	The current status of OSPF graceful restart, which can be Not Restarting , Unplanned Restart (after a CMM takeover), or Planned Restart (before CMM takeover).
Restart Age	The remaining time, in seconds, for the current OSPF graceful restart interval.

output definitions (continued)

Last Restart Exit Reason	The outcome of the last attempt at a graceful restart. If the value is None , then no restart has yet been attempted. If the value is In Progress , then a restart attempt is currently underway. Other possible values include Completed (successfully completed), Timed Out (timed out), and Topology Changed (aborted due to topology change).
Restart Helper Support	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 Enabled or Disabled . Use the ip ospf restart-helper status command to modify this parameter.
Restart Helper Strict Checking	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 Enabled or Disabled . Use the ip ospf restart-helper strict-lsa-checking status command to modify this parameter.
Restart Helper Mode	Whether this OSPF router is operating as a helper to a restarting router.

42 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 9000 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:

Global OSPFv3 Commands	<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>
OSPFv3 Area Commands	<code>ipv6 ospf area</code> <code>show ipv6 ospf area</code>
OSPFv3 Interface Commands	<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, 9000, 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, 9000, 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

parameter	default
<i>metric</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
dead-interval <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.
hello-interval <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.
retrans-interval <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.
transit-delay <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
dead-interval <i>seconds</i>	40
hello-interval <i>seconds</i>	10
retrans-interval <i>seconds</i>	5
transit-delay <i>seconds</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
normal	Sets the area as a regular OSPFv3 area.
stub	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
normal stub	normal

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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.
enable	Enables the OSPFv3 interface.
disable	Disables the OSPFv3 interface.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

Status	Displays whether OSPFv3 is currently enabled or disabled on the router.
Router Id	The unique identification for the router.
# Areas	Number of areas to which the router belongs.
# Interface	Number of interfaces participating in OSPF
Area Border Router	Displays whether the router status is an area router or not.
AS Border Router	Displays whether the area Autonomous System Border Router status of this router is enabled or disabled.
External Route Tag	Displays the route tag for this router.
SPF Hold (seconds)	Displays the time in seconds between the reception of an OSPFv3 topology change and the start of a SPF calculation.
SPF Delay (seconds)	Displays the time in seconds between consecutive SPF calculations.
MTU Checking	Displays whether Maximum Transfer Unit checking is enabled or disabled. This is set using the ipv6 ospf mtu-checking command.
# SPF calculations performed	Displays the number of SPF calculation performed.
Last SPF run (seconds ago)	N/A
Full state	Displays the number of neighbor routers that are in Full state.
Loading state	Displays the number of neighbor routers that are in Loading state.
Exchange state	Displays the number of neighbor routers that are in Exchange state.
Exstart state	Displays the number of neighbor routers that are in Exstart state.
2way state	Displays the number of neighbor routers that are in 2way state.
Init state	Displays the number of neighbor routers that are in Init state.
Attempt state	Displays the number of neighbor routers that are in Attempt state.
Down state	Displays the number of neighbor routers that are in Down state.

Release History

Release 6.1.3; command was introduced.

Related Commands

ipv6 ospf status	Enables or disables the administration of OSPFv3 on the router.
ipv6 ospf mtu-checking	Enables or disables the use of Maximum Transfer Unit (MTU) checking.
ipv6 ospf spf-timer	Configures timers for SPF calculation.
ipv6 ospf route-tag	Configures a tag value for Autonomous System External (ASE) routes created.
ip router router-id	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, 9000, 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

Router ID	The unique identification for the router.
Area	A unique 32-bit value, such as an IP address, that identifies a neighboring router in the Autonomous System.
Metric	The metric used by the routes.
Type	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, 9000, 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

Area	A 32-bit IP address for a directly attached host. This can be set using the ipv6 ospf host command.
Metric	The metric assigned to the host. Metric is set using the ipv6 ospf host command.
Address	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.
rtr	Specifies router LSAs.
net	Specifies network LSAs.
netsum	Specifies network summary LSAs.
asbrsum	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, 9000, 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

Area	The identification of the area to which the router belongs.
Type	The protocol type from where the route was learned.
Link ID	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.
Advertising Rtr	The ID of the router that advertises the routes.
Sequence #	The advertisement sequence number (i.e., a value used to identify old and duplicate link state advertisements).
Age	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, 9000, 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

Router ID	The unique identification for the router.
Area/Transit Area	The area identifier.
State	The state of the OSPF neighbor adjacency.
Interface	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

Router ID	The unique identification for the router.
Area/Transit Area	The area identifier.
State	The state of the OSPF neighbor adjacency.
Interface	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, 9000, 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

Prefix	The destination address of the IPv6 route in the hexadecimal format.
Gateway Address	The address of the gateway.
Interface	The outgoing interface on the switch.
Path Type	The type of routes specified (intra or inter).
Path Metric	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

show ipv6 ospf virtual-link

Displays virtual link information. A virtual link is used to connect OSPFv3 backbone routers that are not physically contiguous.

```
show ipv6 ospf virtual-link [router_id]
```

Syntax Definitions

router_id The router ID of the remote end of the virtual link.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show ipv6 ospf virtual-link
```

Transit Area	Peer Router ID	Intf State	Nbr State	Cost
0.0.0.1	6.6.6.6	P2P	FULL	2

output definitions

Transit Area	The area identification for the area assigned to the virtual link.
Peer Router ID	The destination router identification for the virtual link.
Intf State	The state of the virtual link with regards to the local router.
Nbr State	The state of the virtual link adjacency.
Cost	The cost metric of the route.

Release History

Release 6.1.3; command was introduced.

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, 9000, 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

Area Type	The area type. This field will be normal or stub .
Area Stub Metric	Indicates whether the area is enabled or disabled.
# Router LSAs	The total number of Link State Advertisements for the Area.

output definitions (continued)

# Network LSAs	The total number of inter-area Link State Advertisements.
# of SPF calculations	The number of times the area has calculated the Shortest Path.
# Interfaces	The number of OSPF interfaces.
# Intra-area-prefix LSAs	The number of intra-area-prefix LSAs, which associates a list of IPv6 address prefixes with a router by referencing a router-LSA.
# Inter-area-prefix LSAs	The number of inter-area-prefix LSAs. Corresponds to Type 3 summary-LSA of OSPF.
# Inter-area-router LSAs	The number of inter-area-router LSAs. Corresponds to Type 4 summary-LSA of OSPF.
# hosts	The number of directly attached hosts.

Release History

Release 6.1.3; command was introduced.

Related Commands

ipv6 ospf area	Creates or deletes an OSPFv3 area, assigning default metric, cost, and type.
show ipv6 ospf interface	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, 9000, 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

Name	The name of the interface.
DR Router ID	The designated router address on this network segment. Make sure you configure a VLAN for the router IP. (See Chapter 21, “VLAN Management Commands,” for more information.)
BDR Router ID	The IP address of the backup designated router.
Vlan	The VLAN to which the interface is assigned.
Admin Status	The current administration status of the interface, either enabled or disabled .
Oper Status	Indicates whether the interface is an active OSPF interface.
State	The current state of the OSPF interface. It will be DR , BDR , other .

```

-> 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

Type	The OSPF interface type, which can be Broadcast, NBMA, Point-to-Point, or Point-to-Multipoint.
Admin Status	The current administrative status of the interface, either enabled or disabled .
IPv6 Interface Status	The current administrative status of the IPv6 interface, either up or down .
Oper Status	Indicates whether the interface is an active OSPF interface.
State	The current state of the OSPF interface. It will be down , up , dp , dr , or other .
Area	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.
Priority	The priority of the interface with regards to becoming the designated router. The higher the number, the higher the priority.
Cost	The cost added to routes learned on this interface.
Designated Router	The identification number of the designated router.
Backup Designated Router	The identification number of the backup designated router.
Hello Interval	The number of seconds between hello messages sent out on the interface.
Router Dead Interval	The number of seconds the interface waits for hello messages received from a neighbor before declaring the neighbor as dead.
Retransmit Interval	The number of seconds the interface waits before resending hello messages.
Transit Delay	The estimated number of seconds required to transmit a link state update over this interface.

output definitions (continued)

Ifindex	The unique value assigned to an interface.
IPv6 'ifindex'	The unique value assigned to an IPv6 interface.
MTU	The Maximum Transfer Unit (in bytes) for the interface.
# of attached neighbors	The number of OSPFv3 neighbors in the initialization state.
Globally reachable prefix #0	A globally unique IPv6 address.

Release History

Release 6.1.3; command was introduced.

Related Commands

ipv6 ospf interface	Creates and deletes an OSPFv3 interface.
ipv6 ospf interface dead-interval	Configures the OSPFv3 interface dead interval.
ipv6 ospf interface hello-interval	Configures the OSPFv3 interface hello interval.
ipv6 ospf interface cost	Configures the OSPFv3 interface cost.
ipv6 ospf interface priority	Configures the OSPFv3 interface priority.
ipv6 ospf interface retrans-interval	Configures the OSPFv3 interface retransmit interval.
ipv6 ospf interface transit-delay	Configures the OSPFv3 interface transit delay.
ipv6 ospf interface area	Configures an OSPFv3 interface area.
ipv6 ospf interface status	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
```

43 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 9000 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 system-wait-time
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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

enable	Enables IS-IS.
disable	Disables IS-IS.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

show ip isis status Displays the IS-IS status.

MIB Objects

```
isisSysTable
  isisSysAdminState
```

ip isis area-id

Configures the area ID for the switch.

ip isis area-id *area address*

no ip isis area-id *area address*

Syntax Definitions

area address 1–13 byte variable length integer, which specifies the area address.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove the area ID.
- The area ID is part of the Network Service Access Point (NSAP) address.
- Other parts of NSAP address (system ID and selector ID) are not configurable. System ID is derived from router ID and selector ID remains always as 00.
- You can configure a maximum of three area addresses.

Examples

```
-> ip isis area-id 49.0001  
-> no ip isis area-id 49.0001
```

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show ip isis status](#) Displays the IS-IS status.

MIB Objects

```
isisManAreaAddrTable  
  isisManAreaAddrExistState
```

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

level-1	Specifies that the router can operate at Level-1 only.
level-2	Specifies that the router can operate at Level-2 only.
level-1/2	Specifies that the router 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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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; support for OmniSwitch 9000 added.

Related Commands

ip isis auth-type	Enables authentication and configures the authentication type of IS-IS protocol globally.
ip isis level auth-type	Enables authentication and configures the authentication types for specific IS-IS levels.
show ip isis status	Displays the IS-IS status.

MIB Objects

```
vRtrIsisTable  
  vRtrIsisAuthCheck
```

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

simple	Simple authentication will be used.
md5	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.
none	No authentication will be used.

Defaults

parameter	default
simple / md5 / none	none

Platforms Supported

OmniSwitch 6850, 9000, 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; support for OmniSwitch 9000 added; **key** and **encrypt-key** parameters were added.

Related Commands

ip isis level auth-type	Enables authentication and configures the authentication types for specific IS-IS levels.
show ip isis status	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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

ip isis level csnp-auth	Configures CSNP authentication for specific IS-IS levels.
show ip isis status	Displays the IS-IS status.

MIB Objects

```
vRtrIisisTable  
    vRtrIisisCsnpAuthentication
```

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

vRtrIisisTable

vRtrIisisHelloAuthentication

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

vRtrIsisTable

vRtrIsisPsnpAuthentication

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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.

[show ip isis database](#) Displays IS-IS LSP database information of the adjacent routers.

MIB Objects

vRtrIsisTable
vRtrIsisLspLifetime

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

max-wait	Specifies the maximum interval between two successive LSPs, in seconds. The valid range is 1–120.
initial-wait	Specifies the initial LSP generation delay, in seconds. The valid range is 0–100.
second-wait	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

parameter	default
<i>seconds</i> (max-wait)	5
<i>seconds</i> (initial-wait)	0
<i>seconds</i> (second-wait)	1

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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

vRtrIisisTable

 vRtrIisisLspInitialWait

 vRtrIisisLspSecondWait

 vRtrIisisLspMaxWait

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

max-wait <i>seconds</i>	Specifies the maximum interval between two successive SPF calculations, in seconds. The valid range is 1–120 seconds.
initial-wait <i>milliseconds</i>	Specifies the initial SPF calculation delay, in milliseconds. The valid range is 10–100000 milliseconds.
second-wait <i>milliseconds</i>	Specifies the interval between first and second generated SPFs, in milliseconds. The valid range is 1–100000 milliseconds.

Defaults

parameter	default
max-wait <i>seconds</i>	10
initial-wait <i>milliseconds</i>	1000
second-wait <i>milliseconds</i>	1000

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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.
level-1	Specifies the IS-IS level as Level-1.
level-2	Specifies the IS-IS level as Level-2.
level-1/2	Specifies the IS-IS level as Level-1/2.

Defaults

parameter	default
level-1 level-2 level-1/2	level-1/2

Platforms Supported

OmniSwitch 6850, 9000, 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; support for OmniSwitch 9000 added; **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

vRtrIisisSummaryTable
vRtrIisisSummRowStatus

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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
timeout <i>seconds</i>	60

Platforms Supported

OmniSwitch 6850, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

```
vRtrIisisTable  
  vRtrIisisOverloadOnBoot  
  vRtrIisisOverloadOnBootTimeout
```

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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

enable	Enables the helper mode on the router.
disable	Disables the helper mode on the router.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

ip isis graceful-restart	Configures graceful restart on the router.
show ip isis status	Displays the IS-IS status.

MIB Objects

vRtrIisisTable

vRtrIisisGRHelperMode

ip isis system-wait-time

Configures the IS-IS system wait time. *This command is currently not supported.*

ip isis system-wait-time *time*

no ip isis system-wait-time

Syntax Definitions

time Specifies the time interval a router is in the delay state. The valid range is 1–65535 seconds.

Defaults

parameter	default
<i>time (in seconds)</i>	60

Platforms Supported

OmniSwitch 6850

Usage Guidelines

Use the **no** form of this command to revert to the default value.

Examples

```
-> ip isis system-wait-time 30
-> no ip isis system-wait-time
```

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; command was deprecated.

Related Commands

N/A

MIB Objects

```
isisSysTable
  isisSysWaitTime
```

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

1	Specifies the IS-IS level as Level-1.
2	Specifies the IS-IS level as Level-2.
simple	Simple authentication will be used.
md5	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.
none	No authentication will be used.

Defaults

parameter	default
simple / md5 / none	none

Platforms Supported

OmniSwitch 6850, 9000, 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; support for OmniSwitch 9000 added; **key** and **encrypt-key** parameters were added.

Related Commands

ip isis auth-type	Enables authentication and configures the authentication type of IS-IS protocol globally.
show ip isis status	Displays the IS-IS status.

MIB Objects

```
vRtrIsisLevelTable  
  vRtrIsisLevelAuthType  
  vRtrIsisLevelAuthKey
```

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

- | | |
|-------------------------------------|--|
| ip isis hello-auth | Enables or disables the authentication of Hello PDUs globally. |
| show ip isis status | 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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

- | | |
|-------------------------------------|--|
| ip isis csnp-auth | Enables or disables the authentication of CSNPs. |
| show ip isis status | 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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

- | | |
|-------------------------------------|--|
| ip isis psnp-auth | Enables or disables the authentication of PSNPs. |
| show ip isis status | Displays the IS-IS status. |

MIB Objects

```
vRtrIisisLevelTable  
vRtrIisisLevelPsnpAuthentication
```

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show ip isis status](#) Displays the IS-IS status.

MIB Objects

```
vRtrIisisLevelTable  
  VrtrIisisLevelWideMetricsOnly
```

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.
detail	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, 9000, 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

System ID	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.
Type	The level (L1 , L2 , or L1/L2) of the adjacent router.
State	The state of the adjacent router (Up or Down).
Hold	The Hold time of the adjacent router.
Interface	The interface name of the adjacent router.

output definitions

Host-name	The hostname of the adjacent router.
Adjacencies	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

SystemID	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.
Interface	The interface name of the adjacent router.
State	The state of the adjacent router (Up or Down).
Adj Level	The adjacency level (L1 or L2) of the router.
Nbr Sys Type	The type of the neighboring router(L1 , L2 or L1L2)
Hold Time	The Hold time of the adjacent router.
IPv4 Neighbor	The 32-bit IP address of the neighbor.
Restart Support	Indicates if graceful restart is enabled or disabled .
Restart Status	Indicates whether the router is currently helping an adjacent router to restart.
Restart Suppressed	Indicates whether the advertisement of LSPs are suppressed (enabled) or not (disabled) as per the request of adjacent router.
SNPA	The SNPA address of the adjacent router.
Up Time	Indicates the time period in seconds, during which the router was in the adjacency.

output definitions

Priority	The priority of the adjacent router.
Host-name	The hostname of the adjacent router.
L. CircType	Indicates the level circuit type (L1 , L2 or L1L2) of the adjacent router.
Max Hold	Indicates the maximum Hold time of the adjacent router.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added; 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.
detail	Indicates that the output is displayed in a detailed manner.
level	Indicates the IS-IS level, either 1 or 2 .

Defaults

By default the entire LSP database is displayed.

Platforms Supported

OmniSwitch 6850, 9000, 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

LSP ID	The LSP ID. Indicates the system ID and the pseudo-node ID of the originating router.
Sequence	The sequence number of the LSP. The sequence number is a value used to identify old and duplicate LSPs.
Checksum	The checksum value of the LSP.
Lifetime	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.
Attributes	The level capability of the router.
LSP Count	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

LSP ID	The LSP ID. Indicates the system ID and the pseudo-node ID of the originating router.
Sequence	The sequence number of the LSP. The Sequence number is a value used to identify old and duplicate LSPs.
Checksum	The checksum value of the LSP.
Lifetime	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.
Version	The version of the IS-IS protocol that has generated the LSP.
Pkt Type	The IS-IS PDU type number derived from the PDU header, which can be 18 or 20 . The number 18 represents L1 LSP PDU type and 20 represents L2 LSP PDU type.
Pkt Ver	The version of the IS-IS protocol that has generated the packet.
Attributes	The level capability of the router.
Max Area	The Maximum number of areas supported by the originating router of the LSP.
SysID Len	The length of the system-id as used by the originating router.
Used Len	The length used by the LSP.
Alloc Len	The length allocated for the LSP to be stored.
Area Address	The area ID of the router.
Supp protocols	The network layer protocols that are supported.
IS-Host Name	The host name of the router.
System ID	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.
IS Neighbors	The list of reachable IS-IS neighbors.
IPv4 Internal Reach	The list of IS-IS internal routes.
IP Prefix	The IP address and subnet mask of the destination.
Metrics	The metric value to reach the destination.
IPv4 External Reach	The list of external IS-IS routes.
level-1 LSP Count	The number of Level-1 LSPs.
level-2 LSP Count	The number of Level-2 LSPs.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

show ip isis hostname	Displays the database of IS-IS host name and its corresponding system ID.
clear ip isis lsp-database	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, 9000, 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

System Id	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.
Hostname	The host name of the router.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

Prefix	The IP prefix and mask of the destination routes.
Metric	The cost to reach the destination route.
Lvl/Type	The level and route type of the routes.
SPF-num	The version of the SPF calculation used to select the route.
Nexthop	The Next Hop address to reach the destination.
System ID	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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

Node	The system ID of the routers.
Interface	The Interface name of the router.
Nexthop	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

Node	The system ID of the routers.
Metric	The metric value used for SPF calculations.
Interface	The interface name of the router.
SNPA	The SNPA address of the router.
Nexthop	The system ID of the Next Hop router.
SPF count	The number of SPF calculations done by the router.

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

When	The date on which the SPF calculation was completed.
Duration	The time duration of the event.
L1-Nodes	The number of Level-1 nodes.
L2-Nodes	The number of Level-2 nodes.
Event-Count	The number of SPF calculations.
Log Entries	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

SpfTimeStamp	The timestamp when the SPF run started on the system.
spfRunTime	The time (in hundredths of a second) required to complete the SPF run.
Spf Involved L1 Nodes	The number of Level-1 nodes involved in the SPF calculation.
Spf Involved L2 Nodes	The number of Level-2 nodes involved in the SPF calculation.
Spf Event-count	The number of SPF events that triggered the SPF calculation.
Last TriggeredLspId	The LSP ID of the last LSP processed before the SPF run.
Spf trigger Reason	Indicates the reasons (newAdjacency , lspExpired , or lspChanged) for SPF calculations.
Log Entries	The number of SPF logs.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

ISIS Instance	The number of IS-IS instances.
SPF Runs	The number of SPF calculations that have been performed.
Purge Intiated	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.
LSP Regens	The number of LSPs that have been regenerated. An LSP is regenerated when it nears the end of its lifetime and has not changed.
Requests	The number of CSNP requests received.

output definitions (continued)

Request Drops	The number of CSNP requests that are dropped.
Paths Found	The number of paths found.
Paths Not Found	The number of paths not found.
PDU Type	The type of PDU.
Received	The number of PDUs received since IS-IS started or since the statistics were set to zero.
Processed	The number of PDUs that are processed (number of PDUs received less the number dropped).
Dropped	The number of PDUs that are dropped.
Sent	The number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
Retransmitted	The number of PDUs that are retransmitted.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

System Id	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.
Admin State	The state of the router (Up or Down).
Last Enabled	The date and time when the router is enabled.
Level Capability	The level capability of the router (L1 , L2 , or L1L2).
Authentication Check	Indicates the status of the authentication (true or false).
Authentication Type	The type of authentication (password or md5).
Graceful Restart	Indicates if graceful restart is Enabled or Disabled .
GR helper-mode	Indicates if the helper mode of graceful restart is Enabled or Disabled .
LSP Lifetime	The Lifetime of the LSP (in seconds).
LSP Wait	The Wait time of the LSP (in seconds).
Adjacency Check	The adjacency check configuration on the router
L1 Auth Type	The authentication type (password or md5) for Level-1 adjacency.
L2 Auth Type	The authentication type (password or md5) for Level-2 adjacency.
L1 Wide Metrics-only	Indicates whether wide metrics is Enabled or Disabled for Level-1 adjacency.
L2 Wide Metrics-only	Indicates whether wide metrics is Enabled or Disabled for Level-2 adjacency.
L1 LSDB Overload	Indicates whether LSDB Overload is Enabled or Disabled for Level-1 adjacency.
L2 LSDB Overload	Indicates whether LSDB Overload is Enabled or Disabled for Level-2 adjacency.
L1 LSPs	The number of LSPs for Level-1 adjacency.
L2 LSPs	The number of LSPs for Level-2 adjacency.
Last SPF	The date and duration of the last SPF calculation.
SPF Wait	The Wait time for the SPF calculation.
Hello-Auth Check	Indicates the status of global Hello authentication check (Enabled or Disabled).
Csnp-Auth Check	Indicates the status of global CSNP authentication check (Enabled or Disabled).
Psnp-Auth Check	Indicates the status of global PSNP authentication check (Enabled or Disabled).
L1 Hello-Auth Check	Indicates the status of L1 Hello authentication check (Enabled or Disabled).
L1 Csnp-Auth Check	Indicates the status of L1 CSNP authentication check (Enabled or Disabled).

output definitions (continued)

L1 Psnp-Auth Check	Indicates the status of L1 PSNP authentication check (Enabled or Disabled).
L2 Hello-Auth Check	Indicates the status of L2 Hello authentication check (Enabled or Disabled).
L2 Csnp-Auth Check	Indicates the status of L2 CSNP authentication check (Enabled or Disabled).
L2 Psnp-Auth Check	Indicates the status of L2 PSNP authentication check (Enabled or Disabled).
Area Address	The area address of the router.

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added; Adjacency Check field was added.

Related Commands

ip isis status	Enables or disables the administration status of IS-IS on the router.
ip isis level-capability	Configures the router level of the IS-IS protocol globally.
ip isis auth-type	Configures authentication type of IS-IS protocol globally.
ip isis csnp-auth	Enables or disables the authentication of CSNPs.
ip isis hello-auth	Enables or disables the authentication of Hello PDUs globally.
ip isis psnp-auth	Enables or disables the authentication of PSNPs.
ip isis graceful-restart	Configures graceful restart on the router.
ip isis overload	Sets the IS-IS router to operate in the overload state for a specified time period.
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 lsp-wait	Configures the time interval between successively generated LSPs.
ip isis spf-wait	Configures the time interval between successive Shortest Path First (SPF) calculations.
ip isis level auth-type	Enables the authentication and configures the authentication types for specific IS-IS levels.
ip isis level hello-auth	Enables or disables the authentication of Hello PDUs for specific IS-IS levels.
ip isis level csnp-auth	Enables or disables the authentication of CSNPs for specific IS-IS levels.
ip isis level psnp-auth	Enables or disables the authentication of PSNP PDUs for specific IS-IS levels.
ip isis level wide-metrics-only	Configures wide metrics in LSPs for specific IS-IS levels.
ip isis area-id	Configures the area ID for the switch.
ip isis auth-check	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, 9000, 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

Address	The summary address for a range of IPv4 addresses.
Level	The capability level of the router.
Summary Address	The number of summarized addresses.

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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.
enable	Administratively enables IS-IS on the interface.
disable	Administratively disables IS-IS on the interface.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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.
broadcast	Sets the interface as a broadcast IS-IS interface.
point-to-point	Sets the interface as a point-to-point IS-IS interface.

Defaults

parameter	default
broadcast point-to-point	broadcast

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

ip isis interface default-type	Sets the interface type to default
show ip isis interface	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

<i>interface_name</i>	The name of the interface.
<i>seconds</i>	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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show ip isis interface](#) Displays the IS-IS interface information.

MIB Objects

vRtrisisIftable
vRtrIisisIfCsnpInterval

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.
simple	Simple authentication will be used.
md5	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.
none	No authentication will be used.

Defaults

parameter	default
simple / md5 / none	none

Platforms Supported

OmniSwitch 6850, 9000, 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; support for OmniSwitch 9000 added; **key** and **encrypt-key** parameters were added.

Related Commands

ip isis interface level hello-auth-type	Configures the authentication of Hello PDUs for the specified IS-IS level of an interface.
show ip isis interface	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.
level-1	Specifies that the interface can operate at Level-1 only.
level-2	Specifies that the interface can operate at Level-2 only.
level-1/2	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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

ip isis level-capability	Configures the router level of the IS-IS protocol globally.
show ip isis interface	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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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.
1	Specifies the IS-IS level as Level-1.
2	Specifies the IS-IS level as Level-2.
simple	Simple authentication will be used.
md5	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.
none	No authentication will be used.

Defaults

parameter	default
simple / md5 / none	none

Platforms Supported

OmniSwitch 6850, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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

```
vRtrIsisIfLevelTable
  vRtrIsisIfLevelHelloAuthType
  vRtrIsisIfLevelHelloAuthKey
```

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show ip isis interface](#) Displays the IS-IS interface information.

MIB Objects

vRtrIisisIfLevelTable
vRtrIisisIfLevelHelloTimer

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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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.
1	Specifies the IS-IS level as Level-1.
2	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

parameter	default
<i>number</i>	10

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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.
1	Specifies the IS-IS level as Level-1.
2	Specifies the IS-IS level as Level-2.

Defaults

By default, the interface level passive configuration is disabled.

Platforms Supported

OmniSwitch 6850, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

ip isis interface passive	Configures the interface as passive.
show ip isis interface	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.
1	Specifies the IS-IS level as Level-1.
2	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, 9000, 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.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 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

Interface	The name of the IS-IS interface.
Level	The level capability of the interface.
CircID	The circuit ID of the interface.
Oper-state	The operational state of the interface (up or down).
Admin-state	The administrative state of the interface (up or down).
L1/L2 -Metric	The metric value of the router for the corresponding capability level.
Interfaces	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

Interface	The name of the IS-IS interface.
Level Capability	The level capability of the interface.
Oper State	The operational state of the interface (up or down).
Admin State	The administrative state of the interface (up or down).
Auth Type	Indicates the authentication type (simple , MD5 , or none) of the interface.
Circuit Id	The circuit ID of the interface.
RetransmitInt	Specifies the minimal interval of time, in seconds between retransmission of an LSP on the point-to-point interface.
Type	The type of interface: Broadcast or Pt-to-Pt (point to point).
LSP Pacing Int	The LSP Pacing interval.
Mesh Group	The status of the mesh group (Active or Inactive).
CSNP Int	The CSNP interval.
Level	Indicates the IS-IS level of the neighbor (L1 , L2 , or L1L2).
Adjacencies	The number of adjacencies formed.

output definitions (continued)

Desg IS	The ID of the LAN Designated Intermediate System on this circuit at this level.
Auth Type	Indicates the authentication type (simple , MD5 , or none) for the specified level.
Metric	The metric value of this circuit for a specific level.
Hello Timer	Indicates the Hello timer value.
Hello Mult	Indicates the Hello multiplier value.
Priority	The priority value of the interface.
Passive	Indicates whether the interface is configured as a passive interface (Yes or No).

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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

```



```
vRtrIisisIfLevelHelloTimer  
vRtrIisisLevelOperMetric  
vRtrIisisIfLevelAdminMetric
```

clear ip isis adjacency

Clears and resets the IS-IS adjacency database information.

clear ip isis adjacency [**system-id** *nbr-sys-id*]

Syntax Definitions

nbr-sys-id The system ID of the neighbor router.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 9000, 9000E

Usage Guidelines

If the *nbr-sys-id* parameter is specified, only the entries specific to that system ID are removed from the database.

Examples

```
-> clear ip isis adjacency system-id 1122.3344.5566
```

Release History

Release 6.2.1; command was introduced.
Release 6.3.1; support for OmniSwitch 9000 added.

Related Commands

[show ip isis adjacency](#) Displays information about IS-IS adjacent routers.

MIB Objects

```
isisISAdjTable
  isisISAdjIndex
  isisISAdjState
  isisISAdjNeighSNPAAddress
  isisISAdjNeighSysType
  isisISAdjNeighSysID
  isisISAdjUsage
  isisISAdjHoldTimer
  isisISAdjNeighPriority
  isisISAdjUpTime
vRtrIisisISAdjTable
  vRtrIisisISAdjExpiresIn
  vRtrIisisISAdjCircLevel
  vRtrIisisISAdjRestartSupport
  vRtrIisisISAdjRestartStatus
```

`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, 9000, 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.
Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> clear ip isis spf-log
```

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> clear ip isis statistics
```

Release History

Release 6.2.1; command was introduced.

Release 6.3.1; support for OmniSwitch 9000 added.

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  
  vRtrIisisCSFPPathsFound  
  vRtrIisisCSFPPathsNotFound
```

44 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, 9000 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:

Global BGP Commands	<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>
Aggregate Configuration	<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>
Network (local route) Configurations	<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>

Neighbor (Peer) Configuration	ip bgp neighbor
	ip bgp neighbor status
	ip bgp neighbor advertisement-interval
	ip bgp neighbor clear
	ip bgp neighbor route-reflector-client
	ip bgp neighbor default-originate
	ip bgp neighbor timers
	ip bgp neighbor conn-retry-interval
	ip bgp neighbor auto-restart
	ip bgp neighbor maximum-prefix
	ip bgp neighbor md5 key
	ip bgp neighbor ebgp-multihop
	ip bgp neighbor description
	ip bgp neighbor next-hop-self
	ip bgp neighbor passive
	ip bgp neighbor remote-as
	ip bgp neighbor remove-private-as
	ip bgp neighbor soft-reconfiguration
	ip bgp neighbor stats-clear
	ip bgp confederation neighbor
	ip bgp neighbor update-source
	ip bgp neighbor in-aspathlist
	ip bgp neighbor in-communitylist
	ip bgp neighbor in-prefixlist
	ip bgp neighbor in-prefix6list
	ip bgp neighbor out-prefix6list
	ip bgp neighbor out-aspathlist
	ip bgp neighbor out-communitylist
	ip bgp neighbor out-prefixlist
	ip bgp neighbor route-map
	ip bgp neighbor clear soft
	show ip bgp neighbors
	show ip bgp neighbors policy
	show ip bgp neighbors timer
	show ip bgp neighbors statistics

Policy Commands	ip bgp policy aspath-list ip bgp policy aspath-list action ip bgp policy aspath-list priority ip bgp policy community-list ip bgp policy community-list action ip bgp policy community-list match-type ip bgp policy community-list priority ip bgp policy prefix-list ip bgp policy prefix-list action ip bgp policy prefix-list ge ip bgp policy prefix-list le ip bgp policy prefix6-list ip bgp policy route-map ip bgp policy route-map action ip bgp policy route-map aspath-list ip bgp policy route-map asprepend ip bgp policy route-map community ip bgp policy route-map community-list 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 match-community ip bgp policy route-map match-mask ip bgp policy route-map match-prefix ip bgp policy route-map match-regexp ip bgp policy route-map med ip bgp policy route-map med-mode ip bgp policy route-map origin ip bgp policy route-map prefix-list ip bgp policy route-map weight ip bgp policy route-map community-strip show ip bgp policy aspath-list show ip bgp policy community-list show ip bgp policy prefix-list show ip bgp policy prefix6-list show ip bgp policy route-map
BGP Graceful Restart Commands	ip bgp graceful-restart ip bgp graceful-restart restart-interval
IPv6 Global BGP Commands	ipv6 bgp unicast ip bgp neighbor activate-ipv6 ip bgp neighbor ipv6-next-hop show ipv6 bgp path show ipv6 bgp routes
IPv6 BGP Network Configuration Commands	ipv6 bgp network ipv6 bgp network community ipv6 bgp network local-preference ipv6 bgp network metric ipv6 bgp network status show ipv6 bgp network

**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, 9000, 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

- | | |
|--|--|
| ip bgp autonomous-system | Configures the Autonomous system number for this BGP router. |
| ip bgp status | 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

enable	Enables BGP.
disable	Disables BGP.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

ipv6 bgp unicast	Enables or disables unicast IPv6 updates for the BGP routing process.
show ip bgp	Displays the current global settings for the local BGP speaker.
ip router router-id	Configures the router ID for the router.

MIB Objects

```
alaBgpGlobal  
  alaBgpMultiProtocolIpv4
```

ip bgp autonomous-system

Configures the Autonomous System (AS) number for this router. This number identifies this BGP speaker (this router) instance to other BGP routers. The AS number for a BGP speaker determines whether it is an internal or an external peer in relation to other BGP speakers. BGP routers in the same AS are internal peers while BGP routers in different ASs are external peers. BGP routers in the same AS exchange different routing information with each other than they exchange with BGP routers in external ASs. BGP speakers append their AS number to routes passing through them; this sequence of AS numbers is known as a route's AS path.

ip bgp autonomous-system *value*

Syntax Definitions

value The AS number. The valid range is 1–65535.

Defaults

parameter	default
<i>value</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- A router can belong to only one AS. Do not specify more than one AS value for each router.
- The BGP protocol must be disabled (using the [ip bgp status](#) command) before using this command.

Examples

```
-> ip bgp autonomous-system 64724
```

Release History

Release 6.1; command was introduced.

Related Commands

[ip bgp status](#) Enables and disables the BGP protocol.

MIB Objects

alaBgpGlobal
alaBgpAutonomousSystemNumber

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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

ip bgp neighbor clear	Restarts a BGP peer.
ip bgp neighbor auto-restart	Enables or disables BGP peer automatic restart.
ip bgp neighbor timers	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, 9000, 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, 9000, 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, 9000, 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 as-origin-interval

Specifies the frequency at which routes local to the autonomous system are advertised. These advertisements are also referred to as UPDATE messages. This interval applies to advertisements to internal peers.

ip bgp as-origin-interval *seconds*

no ip bgp as-origin-interval

Syntax Definitions

seconds The update interval in seconds. The valid range is 1–65535.

Defaults

parameter	default
<i>seconds</i>	15

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to reset the feature to the default value.
- A lower value may increase the likelihood of route flapping as route status is updated more frequently.

Examples

```
-> ip bgp as-origin-interval 15  
-> no ip bgp as-origin-interval
```

Release History

Release 6.1; command was introduced.

Related Commands

[ip bgp neighbor advertisement-interval](#) Set the route advertisement interval for external peers.

MIB Objects

```
alaBgpGlobal  
  alaBgpAsOriginInterval
```

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, 9000, 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 confederation identifier

Sets a confederation identification value for the local BGP speaker (this router). A confederation is a grouping of sub-ASs into a single AS. To peers outside a confederation, the confederation appears to be a single AS. Within the confederation multiple ASs may exist and even exchange information with each other as using external BGP (EBGP).

ip bgp confederation identifier *value*

Syntax Definitions

value The confederation identification value. The valid range is 0–65535.

Defaults

parameter	default
<i>value</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to restore the default value.
- A value of 0 means this local speaker is not a member of any confederation.
- The BGP protocol must be disabled (using the **ip bgp status** command) before using this command.
- Use this command in conjunction with the **ip bgp confederation neighbor** command to specify those peers that are a members of the same confederation as the local BGP speaker.

Examples

```
-> ip bgp confederation identifier 3
```

Release History

Release 6.1; command was introduced.

Related Commands

- ip bgp autonomous-system** Sets the AS number for this router.
- ip bgp confederation neighbor** Specifies peers that are members of a confederation.

MIB Objects

alaBgpGlobal
alaBgpConfedId

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, 9000, 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, 9000, 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, 9000, 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

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.
show ip bgp dampening	Displays the BGP route dampening settings.
show ip bgp dampening-stats	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, 9000, 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, 9000, 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.
enable	Enables this aggregate route.
disable	Disables this aggregate route.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

<code>ip bgp aggregate-address</code>	Creates an aggregate route.
<code>show ip bgp path</code>	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, 9000, 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, 9000, 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, 9000, 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

<i>ip_address</i>	A 32-bit IP address.
<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 MED attribute. The valid range is 0–4294967295.

Defaults

parameter	default
<i>value</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

<i>ip_address</i>	IP address for the aggregate route.
<i>ip_mask</i>	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, 9000, 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, 9000, 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.
enable	Enables this network.
disable	Disables this network.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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

ip bgp network	Creates or deletes a BGP network.
ip bgp bestpath med missing-as-worst	Specifies the MED value when it is missing.

MIB Objects

alaBgpNetworkTable
 alaBgpNetworkAddr
 alaBgpNetworkMask
 alaBgpNetworkMetric

ip bgp neighbor

Creates or deletes a BGP peer.

ip bgp neighbor *ip_address*

no ip bgp neighbor *ip_address*

Syntax Definitions

ip_address 32-bit IP address of the new BGP peer.

Defaults

No peers configured.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to delete a BGP peer.
- You must still enable a BGP peer after creating it. A BGP peer is enabled using the **ip bgp neighbor status** command.
- Once created, a BGP peer cannot be enabled until it is assigned an autonomous system number using the **ip bgp neighbor remote-as** command.

Examples

```
-> ip bgp neighbor 172.22.2.115  
-> no ip bgp neighbor 172.22.2.115
```

Release History

Release 6.1; command was introduced.

Related Commands

ip bgp neighbor status	Enable or disable a BGP peer.
ip bgp neighbor remote-as	Configure the AS number for the peer.

MIB Objects

alaBgpPeerTable
 alaBgpPeerAddr

ip bgp neighbor status

Enables or disables a BGP peer.

ip bgp neighbor *ip_address* status {enable | disable}

Syntax Definitions

<i>ip_address</i>	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, 9000, 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, 9000, 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

ip bgp neighbor clear

Restarts a BGP peer. The peer will be unavailable during this restart.

ip bgp neighbor *ip_address* **clear**

Syntax Definitions

ip_address 32-bit IP address of the neighbor.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use this command whenever changes occur to BGP-related access lists, weights, distribution lists, timer specifications, or administrative distance.
- Many peer commands restart the peer as soon as they are configured. The following commands restart the BGP peer for which they are configured:

ip bgp neighbor remote-as
ip bgp neighbor md5 key
ip bgp neighbor passive
ip bgp neighbor ebgp-multihop
ip bgp neighbor maximum-prefix
ip bgp neighbor update-source
ip bgp neighbor next-hop-self
ip bgp neighbor soft-reconfiguration
ip bgp neighbor route-reflector-client
ip bgp confederation neighbor
ip bgp neighbor remove-private-as
ip bgp neighbor update-source.

- You do not need to issue the **ip bgp neighbor clear** command after issuing any of the above commands.

Examples

```
-> ip bgp neighbor 172.22.2.115 clear
```

Release History

Release 6.1; command was introduced.

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 route-reflector-client

Configures this peer as a client to the local route reflector.

```
ip bgp neighbor ip_address route-reflector-client
```

```
no ip bgp neighbor ip_address route-reflector-client
```

Syntax Definitions

ip_address 32-bit IP address of the neighbor.

Defaults

This command is disabled by default.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove this peer as a client to the local route reflector.
- This command configures this peer as one of the clients to the local route reflector.
- All of the peers configured using this command become part of the client group. The remaining peers are members of the non-client group for the local route reflector.
- When route reflection is configured all of the internal BGP speakers in an autonomous system need not be fully meshed. The route reflector take responsibility for passing internal BGP-learned routes to its peers.

Examples

```
-> ip bgp neighbor 172.22.2.115 route-reflector-client  
-> no ip bgp neighbor 172.22.2.115 route-reflector-client
```

Release History

Release 6.1; command was introduced.

Related Commands

[ip bgp client-to-client reflection](#) Configures the local BGP speaker as a route reflector

MIB Objects

```
alaBgpPeerTable  
  alaBgpPeerAddr  
  alaBgpPeerClientStatus
```

ip bgp neighbor default-originate

Enables or disables BGP peer default origination.

ip bgp neighbor *ip_address* **default-originate**

no ip bgp neighbor *ip_address* **default-originate**

Syntax Definitions

ip_address 32-bit IP address of the neighbor.

Defaults

This command is disabled by default.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to disable this feature.
- When this command is enabled, the local BGP speaker advertises itself as a default to the peer. Such a default route overrides any learned default (propagation) and outbound policy. The default route 0.0.0.0 does not need to exist on the local router.

Examples

```
-> ip bgp neighbor 172.22.2.115 default-originate
-> no ip bgp neighbor 172.22.2.115 default-originate
```

Release History

Release 6.1; command was introduced.

Related Commands

[ip bgp neighbor](#) Creates or deletes a BGP peer.

MIB Objects

```
alaBgpPeerTable
  alaBgpPeerAddr
  alaBgpPeerDefaultOriginate
```

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, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
none	Removes the MD5 public key.

Defaults

parameter	default
<i>string</i>	no password

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip bgp neighbor ebgp-multihop

Allows external peers to communicate with each other even when they are not directly connected. The absence of communication between disconnected peers can occur when a router that is not running BGP sits between two BGP speakers; in such a scenario the BGP speakers are multiple hops from each other. By enabling this command, you allow the BGP peers to speak to each other despite the non-BGP router that sits between them.

ip bgp neighbor *ip_address* **ebgp-multihop** [*tth*]

no ip bgp neighbor *ip_address* **ebgp-multihop**

Syntax Definitions

ip_address 32-bit IP address of the BGP peer.

tth The Time to Live for the multi-hop connection, in seconds. The range is 1 to 255.

Defaults

parameter	default
<i>tth</i>	255

This command is disabled by default.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to disable multi-hop connections.
- By default an external BGP peer is on a directly connected subnet. This command allows you to configure an external BGP peer that is not directly connected and may be multiple hops away. It should be used with caution and only with the guidance of qualified technical support.
- As a safeguard against loops, the multi-hop connection will not be made if the only route to a multi-hop peer is the default route (0.0.0.0).
- The BGP peer is restarted after issuing this command.

Examples

```
-> ip bgp neighbor 172.22.2.115 ebgp-multihop 250  
-> no ip bgp neighbor 172.22.2.115 ebgp-multihop 50
```

Release History

Release 6.1; command was introduced.

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, 9000, 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, 9000, 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, 9000, 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
```

ip bgp neighbor remote-as

Assigns an AS number to this BGP peer.

ip bgp neighbor *ip_address* **remote-as** *value*

Syntax Definitions

ip_address 32-bit IP address of the BGP peer.

value Autonomous system number in the range 1 - 65535.

Defaults

parameter	default
<i>value</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- A BGP peer created with the **ip bgp neighbor** command cannot be enabled (**ip bgp neighbor status enable**) until it is assigned an autonomous system number. If the AS number matches the AS number assigned to 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.
- This BGP peer may not be operational within this router and it may be in an external AS, but it must still be configured on this router before the local BGP speaker can establish a connection to the peer. The local BGP speaker does not auto-discover peers in other routers; it initially learns about peers through the peer commands.
- The BGP peer is restarted after issuing this command.

Examples

```
-> ip bgp neighbor 172.22.2.115 remote-as 100
```

Release History

Release 6.1; command was introduced.

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, 9000, 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 are 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
none	Removes this AS path list from the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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).
none	Removes this community list from the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
none	Removes the prefix list from the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000 , 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, 9000, 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).
none	Removes the AS path list from the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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).
none	Removes the prefix list from the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
none	Deletes the route map if entered rather than a text string.
in	Designates this route map policy as an inbound policy.
out	Designates this route map policy as an outbound policy.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
in	Applies reconfiguration to the inbound policies.
out	Applies reconfiguration to the outbound policies.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

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 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.
ip bgp policy aspath-list priority	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.
permit	Allows matching routes to pass.
deny	Stops matching routes from passing.

Defaults

parameter	default
permit deny	permit

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 44-97 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

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 priority	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, 9000, 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 44-97 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.
none	Removes the community restrictions on the community section of the route map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes in this community are not advertised to any peer.
no-export-subconfed	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, 9000, 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

ip bgp neighbor in-communitylist	Assigns an inbound AS community list filter to a BGP peer.
ip bgp neighbor out-communitylist	Assigns an outbound AS community list filter to a BGP peer.
ip bgp policy community-list action	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.
ip bgp policy community-list match-type	Configures type of matching to be performed with a community string list.
ip bgp policy community-list priority	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.
none	Removes the community restrictions on the community section of the route map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes in this community are not advertised to any peer.
no-export-subconfed	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.
permit	Allows matching routes to pass.
deny	Stops matching routes from passing.

Defaults

parameter	default
permit deny	permit

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip bgp neighbor in-communitylist	Assigns an inbound AS community list filter to a BGP peer.
ip bgp neighbor out-communitylist	Assigns an outbound AS community list filter to a BGP peer.
ip bgp policy community-list match-type	Configures type of matching to be performed with a community string list.
ip bgp policy community-list priority	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.
none	Removes the community restrictions on the community section of the route map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes in this community are not advertised to any peer.
no-export-subconfed	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.
exact	Checks for an exact match of the community string and the community attribute.
occur	Checks for an occurrence of the community string anywhere in the community attribute.

Defaults

parameter	default
exact occur	exact

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip bgp neighbor in-communitylist	Assigns an inbound AS community list filter to a BGP peer.
ip bgp neighbor out-communitylist	Assigns an outbound AS community list filter to a BGP peer.
ip bgp policy community-list action	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.
ip bgp policy community-list priority	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.
none	Removes the community restrictions on the community section of the route map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes in this community are not advertised to any peer.
no-export-subconfed	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, 9000, 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

ip bgp policy community-list	Creates or deletes a community list.
ip bgp policy community-list action	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.
ip bgp policy community-list match-type	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, 9000, 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.
permit	Allows matching routes to pass.
deny	Stops matching routes from passing.

Defaults

parameter	default
permit deny	permit

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip bgp policy prefix-list	Creates or deletes a prefix match list.
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
  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

parameter	default
<i>value</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

- | | |
|---|--|
| ip bgp policy prefix-list | Creates or deletes a prefix match list. |
| 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 le | 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

parameter	default
<i>value</i>	0

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

- | | |
|---|--|
| ip bgp policy prefix-list | Creates or deletes a prefix match list. |
| 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. |

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 px_list_name prefix6/px_length [action{permit|deny}]  
[status{enable|disable}] [ge{masklength}] [le{masklength}]
```

```
no ip bgp policy prefix6-list px_list_name prefix6/px_length [action{permit|deny}]  
[status{enable|disable}] [ge{masklength}] [le{masklength}]
```

Syntax Definitions

<i>px_list_name</i>	Prefix list name.
<i>prefix6</i>	Prefix list IPv6 address for the prefix list.
<i>px_length</i>	Prefix length. Prefix length should be in the range of 0 to 128.
permit deny	Action to be taken which can be either permit or deny.
enable disable	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, 9000, 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, 9000, 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.
permit	Allows matching routes to pass.
deny	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, 9000, 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, 9000, 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, 9000, 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.
none	Removes the community restrictions on the community section of the route map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes in this community are not advertised to any peer.
no-export-subconfed	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, 9000, 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, 9000, 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.
add	Adds the community string specified in the command ip bgp policy route-map community .
replace	Replaces the community string specified in the command ip bgp policy route-map community .

Defaults

parameter	default
add replace	add

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

ip bgp policy prefix6-list	Creates or deletes a policy route map.
ip bgp policy route-map lpref-mode	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

name	The route map name.
sequence_number	The route map sequence number. The valid range is 1–255.
none	Do not set the local preference attribute.
inc	Increment the local preference attribute in the matching route by the value specified in the ip bgp policy route-map med command. No action is taken if no local preference attribute is found in the matching route.
dec	Decrement the local preference attribute in the matching route by the value specified in the ip bgp policy route-map med command. No action is taken if no local preference attribute is found in the matching route.
rep	Replace the local preference attribute in the matching route by the value specified in the ip bgp policy route-map med command even if no local preference attribute is found in the matching route.

Defaults

parameter	default
none inc dec rep	none

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

- | | |
|--------------------------------------|--|
| ip bgp policy prefix6-list | Creates or deletes a policy route map. |
| ip bgp policy route-map lpref | Configures the local preference value for the route map. |
| ip bgp policy route-map med | 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.
none	Removes the community match from the route-map.
no-export	Routes in this community are advertised within the AS but not beyond the local AS.
no-advertise	Routes matching the community restricting advertisement to any peer.
no-export-subconfed	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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 44-97.
- 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, 9000, 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

ip bgp policy route-map med-mode	Configures Multi-Exit Discriminator (MED) value for a route map.
ip bgp policy prefix6-list	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.
none	Do not set the MED.
inc	Increment the MED in the matching route by the value specified in the ip bgp policy route-map med command. No action is taken if no MED is found in the matching route.
dec	Decrement the MED in the matching route by the value specified in the ip bgp policy route-map med command. No action is taken if no MED is found in the matching route.
rep	Replace the MED in the matching route by the value specified in the ip bgp policy route-map med command even if no MED is found in the matching route.

Defaults

parameter	default
none inc dec rep	none

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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.
igp	Sets the origin attribute to remote internal BGP (IGP).
egp	Sets the origin attribute to local external BGP (EGP).
incomplete	Sets the origin attribute to incomplete, meaning the origin is unknown.
none	Sets the origin attribute to “none”.

Defaults

parameter	default
igp egp incomplete none	none

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

- | | |
|---|---|
| ip bgp policy prefix-list | Assigns a prefix matching list to the route map. |
| ip bgp policy prefix-list action | Configures action to be taken for a prefix list 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
 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, 9000, 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, 9000, 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, 9000, 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

Admin Status	Indicates whether the BGP protocol has been enabled or disabled through the ip bgp status command.
Operational Status	Indicates if the local BGP speaker is actively participating in BGP messages, update, routing advertisements.

output definitions (continued)

Autonomous system Number	The AS assigned to the local BGP speaker through the ip bgp autonomous-system command.
BGP Router Id	The IP address for the local BGP speaker.
Confederation Id	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 ip bgp confederation identifier command.
IGP Synchronization Status	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 ip bgp synchronization command.
Minimum AS origin interval	The frequency, in seconds, at which routes local to the autonomous system are advertised. This value is configured through the ip bgp as-origin-interval command.
Default Local Preference	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 ip bgp default local-preference command.
Route Reflection	Indicates whether the local BGP speaker is acting as a route reflector for its AS. This value is configured through the ip bgp client-to-client reflection command.
Cluster Id	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 ip bgp cluster-id command.
Missing MED Status	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 ip bgp bestpath med missing-as-worst command. By default, missing MED values are treated as best .
Aspath Comparison	Indicates whether the AS path will be in used in determining the best route. This value is configured through the ip bgp bestpath as-path ignore command.
Always Compare MED	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 ip bgp always-compare-med command.
Fast External Fail Over	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 ip bgp fast-external-failover command.
Log Neighbor Changes	Indicates whether logging of peer state changes is enabled or disabled. This value is configured through the ip bgp log-neighbor-changes command.
Multi path	Indicates whether support for multiple equal cost paths is enabled or disabled. This value is configured through the ip bgp maximum-paths command.
Graceful Restart	Indicates whether graceful restart is enabled or disabled.

output definitions (continued)

Graceful Restart Status	Indicates the graceful restart state. This feature is not supported in Multiprotocol BGP.
Configured Graceful Restart Interval	Indicates the timer for achieving a graceful restart.
IPv4 Unicast	Indicates whether IPv4 unicast is enabled or disabled.
IPv6 Unicast	Indicates whether IPv6 unicast is enabled or disabled.

Release History

Release 6.1; command was introduced.

Release 6.1.5; fields added.

Related Commands

ipv6 bgp unicast	Enables or disables unicast IPv4 updates for the BGP routing process.
ipv6 bgp unicast	Enables or disables unicast IPv6 updates for the BGP routing process.
show ip bgp statistics	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, 9000, 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

# of Active Prefixes Known	The number of prefixes, or route paths, currently known to the local BGP speaker, that are currently up and active.
# of EBGP Neighbors in Established State	The number of peers outside the AS of the local BGP speaker that the local BGP speaker can route to.
# of IBGP Neighbors in Established State	The number of peers in the same AS as the local BGP speaker that the local BGP speaker can route to.
# of Feasible Paths	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.
# of Dampened Paths	The number of route paths that are not active because they have violated dampening parameters.
# of Unsynchronized Paths	The number of route paths that are not active because they are waiting to be synchronized with the IGP routing protocol.

output definitions (continued)

# of Unfeasible Paths	The number of route paths that are not active because they are not permitted based on a configured BGP policy.
Total Number of Paths	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, 9000, 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

Admin Status	Indicates whether route dampening is enabled or disabled. This value is configured through the ip bgp dampening command.
Half life value	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 ip bgp dampening command.
Reuse value	The value that the route flapping metric must reach before this route is re-advertised. This value is configured through the ip bgp dampening command.
Suppress value	The number of route withdrawals necessary to begin re-advertising a previously suppressed route. This value is configured through the ip bgp dampening command.
Max Suppress time	The maximum time (in seconds) that a route will be suppressed. This value is configured through the ip bgp dampening 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, 9000, 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

Network	The IP address for the local BGP speaker that is responsible for route dampening in this router.
Mask	The mask for the local BGP speaker that is responsible for route dampening in this router.
From	The IP address for the route that is flapping.
Flaps	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)

Duration	The time since the first route flap occurred. In the above example, this route has flapped 8 times in a 35 second period.
FOM	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 ip bgp dampening), 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.
cidr-only	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".
best	Show only the best path.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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	i	100
>	192.40.6.0	255.255.255.248	192.40.4.29	192.40.4.29	i	100
>	192.40.6.8	255.255.255.248	192.40.4.29	192.40.4.29	i	100
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

Sta	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.
Network	The IP address for this route path. This is the destination of the route.
Mask	The mask for this route path.
Nbr address	The IP or IPv6 address of the BGP peer that is advertising this path.
Next Hop	The next hop along the route path.
(O)	The origin attribute of this route path. A question mark (?) indicates incomplete, and i indicates IGP, and an e indicates EGP.
degPref	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

Path address	The IP address for route path.
Path mask	The mask for this route path.
Path protocol	The protocol from which this route path was learned. Possible values for this field are as follows: local , static , directhost , rip , ospf , isis , ibgp , ebgp , and other .
Path peer	The IP address of the peer that is advertising this route path.
Path nextHop	The next hop along the route path.
Path origin	The BGP origin attribute. Possible values will be igp , egp , incomplete , and none . The origin attribute is considered during the route decision process.
Path local preference	The local preference value for this route as received in an UPDATE message. A negative value (for example, the -1 in the above display) indicates that the local preference value is missing for this route path.
Path state	Path state indicates the state of the path. The possible states are best , feasible , policy-wait , un-synchronized , dampened , or none . When path state is none , it indicates that there are no paths to this prefix and the route is being purged from the system.
Path weight	The path weight as assigned through inbound and outbound policies.
Path preference degree	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 ip bgp default local-preference).
Path autonomous systems	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.
Path MED	The multi-exit discriminator (MED) value for this route path. A negative value (for example, the -1 in the above display) indicates that the MED value is missing for this route path.

output definitions (continued)

Path atomic	Indicates whether the ATOMIC-AGGREGATE attribute has been set for this route. When set (this field would read yes), 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).
Path AS aggregator	Part of the AGGREGATOR attribute. This field indicates the AS for the BGP speaker that created the aggregate. A value of <none> indicates this is not an aggregate route.
Path IPaddr aggregator	Part of the AGGREGATOR attribute. This field indicates the IP address for the BGP speaker that created the aggregate. A value of <none> indicates that this is not an aggregate route.
Path community	Indicates the community to which this route path belongs, if applicable. A value of <none> indicates that this route does not belong to a community.
Path unknown attribute	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, 9000, 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

Address

The route destination network address.

Mask

The route destination network mask.

ECL

External BGP change list. When Yes, this route will be advertised as soon as the route advertisement timer expires.

ICC

Internal BGP client change list. When Yes, this route will be advertised to internal non-clients.

output definitions (continued)

ICL	Internal BGP change list. When Yes, this route has changes that need to be advertised.
LCL	Local change list. When Yes, this route is local.
AGG	Aggregation. When Yes, this route is an aggregate route.
AGC	Aggregation contribution. When Yes, this route is part of an aggregate route.
AGL	Aggregation list. When Yes, this route is placed on an aggregate list.
AGW	Aggregation waiting. When Yes, this route is waiting for an aggregate contributor.
AGH	Aggregation hidden. When Yes, this route is hidden as part of an aggregate route.
GDL	Deletion list. When Yes, this route will be deleted.
DMP	Dampening. Indicate whether this route has been dampened. If 'Yes', then this route has been dampened and a dampening history exists.
ACT	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, 9000, 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

Network or Aggregate address	The IP address for this aggregate route. This value is configured through the ip bgp aggregate-address command.
Mask or Aggregate mask	The mask for this aggregate route. This value is configured through the ip bgp aggregate-address command.
Summarize or Aggregate summarize	Indicates whether aggregate summarization is enabled or disabled for this aggregate route. This value is configured through the ip bgp aggregate-address summary-only command.

output definitions (continued)

As-Set or Aggregate as-set	Indicates whether AS path aggregate is enabled or disabled. This value is configured through the ip bgp aggregate-address as-set command.
Admin State or Aggregate admin state	Indicates whether this aggregate route is administratively enabled or disabled. This value is configured through the ip bgp aggregate-address status command.
Oper State or Aggregate oper state	Indicates whether this aggregate route is operational and participating in BGP message exchanges.
Aggregate metric	The multi-exit discriminator (MED) value configured for this aggregate route. This value is configured through the ip bgp aggregate-address metric command.
Aggregate local preference	The local preference value for this aggregate route. This value is configured through the ip bgp aggregate-address local-preference command.
Aggregate community string	The community string value for this aggregate route. This value is configured through the ip bgp aggregate-address community 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

<i>network_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

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

Network or Network address	The IP address configured for this local BGP network. This value is configured through the ip bgp network command.
Mask or Network mask	The mask configured for this local BGP network. This value is configured through the ip bgp network command.
Admin state or Network admin state	Indicates whether this local BGP network is administratively enabled or disabled. This value is configured through the ip bgp network status command.

output definitions (continued)

Oper state or Network oper state	Indicates whether this BGP local network is operationally active or inactive.
Network metric	The multi-exit discriminator (MED) value configured for this local BGP network. This value is configured through the ip bgp network metric command.
Network local preference	The local preference value for this local BGP network. This value is configured through the ip bgp network local-preference command.
Network community string	The community string value for this local BGP network. This value is configured through the ip bgp network community 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, 9000, 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

Nbr address	The IP address for this BGP peer. Assign this address through the ip bgp neighbor command.
As	The autonomous system to which this peer belongs. A peer's AS number is assigned through the ip bgp neighbor remote-as command.
Admin state	Indicates whether this peer has been enabled or disabled through the ip bgp neighbor status command.
Oper state	The current BGP state for this peer. Possible states are idle , connect , active , opensent , openconfirm , and established .
BgpId	The unique BGP identifier of the peer. This value is configured through the ip bgp neighbor update-source command.
Up/Down	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

Neighbor address	The IP address for this BGP peer. Assign this address through the ip bgp neighbor command.
Neighbor autonomous system	The autonomous system to which this peer belongs. A peer's AS number is assigned through the ip bgp neighbor remote-as command.
Neighbor Admin state	Indicates whether this peer has been enabled or disabled through the ip bgp neighbor status command.
Neighbor Oper state	The current BGP state for this peer. Possible states are idle , connect , active , opensent , openconfirm , and established .
Neighbor passive status	Indicates whether the local BGP speaker is "passive" (i.e., waiting for this peer to initiate a session). This value is configured through the ip bgp neighbor passive command.
Neighbor name	The name assigned to this peer through the ip bgp neighbor description command.
Neighbor local address	The interface assigned to this peer. This value is configured through the ip bgp neighbor update-source command.
Neighbor EBGp multihop	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 ip bgp neighbor ebgp-multihop command.

output definitions (continued)

Neighbor next hop self	Indicates whether this peer is using next hop processing. This value is configured through the ip bgp neighbor next-hop-self command.
Neighbor Route Refresh	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.
Neighbor Ipv4 unicast	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.
Neighbor Ipv4 multicast	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.
Neighbor type	Indicates whether this peer is internal or external to the router.
Neighbor auto-restart	Indicates whether peer auto-restart is enabled or disabled. This value is configured through the ip bgp neighbor auto-restart command.
Neighbor route-reflector-client	Indicates whether this peer is a client to the local route reflector, if configured. This value is configured through the ip bgp neighbor route-reflector-client command.
Neighbor confederation status	Indicates whether this peer is a member of a BGP confederation. This value is configured through the ip bgp confederation neighbor command.
Neighbor remove private AS	Indicates whether the stripping of private AS numbers (64512 to 65535) from AS paths is enabled or disabled. This value is configured through the ip bgp neighbor remove-private-as command.
Neighbor default originate	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 ip bgp neighbor default-originate command.
Neighbor maximum prefixes	The maximum number of prefixes the local router can receive in UPDATE from this peer. This value is configured through the ip bgp neighbor maximum-prefix command.
Neighbor max prefixes warning	Indicates whether a warning will be issued when this peer exceeds 80 percent of the maximum prefix value. This value is configured through the ip bgp neighbor update-source command.
# of prefixes received	Displays the total number of prefixes received by this neighbor.
Neighbor MD5 key [32- 47]	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 ip bgp neighbor md5 key command.
Neighbor local port	The TCP port used for the session with this peer.
Neighbor TCP window size	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.
Graceful Restart State	Indicates the graceful restart state. This feature is not supported in Multiprotocol BGP.
Advertised Restart Interval	Indicates the restart interval in seconds.

output definitions (continued)

Forwarding State during restart	Indicates whether the peer has preserved the forwarding state during the graceful restart.
Activate IPv6 unicast	Indicates if the IPv6 unicast updates are enabled or not. Options include enabled or disabled .
Configured IPv6 NextHop Address	Specifies the IPv6 nexthop address. This is specified using the ipv6 bgp neighbor ipv6-nexthop command.
Neighbor Ipv6 unicast	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, 9000, 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

Neighbor autonomous system	The AS to which the peer is assigned. This can be assigned by using the ip bgp neighbor remote-as command.
Neighbor output policy map name	The outbound route map policy for the peer. This can be assigned by using the ip bgp neighbor route-map command.
Neighbor input policy map name	The inbound route map policy for the peer. This can be assigned by using the ip bgp neighbor route-map command.
Neighbor output aspath-list name	The outbound AS path list policy for the peer. This can be assigned by using the ip bgp neighbor in-prefix6list command.
Neighbor input aspath-list name	The inbound AS path list policy for the peer. This can be assigned by using the ip bgp neighbor in-aspathlist command.
Neighbor output prefix-list name	The outbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor out-prefixlist command.
Neighbor input prefix-list name	The inbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor in-prefixlist command.
Neighbor output community-list name	The outbound community list policy for the peer. This can be assigned by using the ip bgp neighbor out-communitylist command.
Neighbor input community-list name	The inbound community list policy for the peer. This can be assigned by using the ip bgp neighbor in-communitylist command.
Neighbor soft reconfiguration	Lists whether soft reconfigurations are enabled or disabled for this peer. This is configured using the ip bgp neighbor soft-reconfiguration command.
Neighbor output prefix6-list name	The outbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor out-prefixlist command.
Neighbor input prefix6-list name	The inbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor out-prefixlist 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, 9000, 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

Nbr address	The IP address for this BGP peer. Assign this address through the ip bgp neighbor command.
As	The autonomous system to which this peer belongs. A peer's AS number is assigned through the ip bgp neighbor remote-as command.
Hold	The current count for the holdtime value.
Hold(C)	The holdtime value configured through the ip bgp neighbor timers command.
RtAdv	The route advertisement interval, in seconds, for updates between external BGP peers. This value is configured through the ip bgp neighbor advertisement-interval command.
Retry	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 ip bgp neighbor timers command.

output definitions (continued)

Kalive	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.
Ka(C)	The keepalive interval as configured through the ip bgp neighbor timers 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, 9000, 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

Nbr address	The IP address for this peer. This value is configured through the ip bgp neighbor command.
As	The autonomous system to which this peer belongs. This value is configured through the ip bgp neighbor remote-as command.
RMSGS	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
SMSGS	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent by this peer.

output definitions (continued)

RUPDS	The number of route UPDATE messages received by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
SUPDS	The number of route UPDATE messages sent by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
RNOFY	The number of NOTIFY messages received by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
SNOFY	The number of NOTIFY messages sent by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
RPFXS	The number of unique route prefixes received by this peer.
UPTNS	The number of times this peer has come up, operationally.
DNTNS	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

Neighbor address	The IP address for this peer. This value is configured through the ip bgp neighbor command.
# of UP transitions	The number of times this peer has come up, operationally.
Time of last UP transition	The duration that this peer has been up.
# of DOWN transitions	Number of times this peer has gone down, operationally.
Time of last DOWN transition	The duration since this peer last went down.

output definitions (continued)

Last DOWN reason	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
# of msgs rcvd	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received from this peer.
# of Update msgs rcvd	The number of route UPDATE messages received from this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
# of prefixes rcvd	The number of unique route prefixes received by this peer.
# of Route Refresh msgs rcvd	The number of route refresh requests this peer has received. Route refresh requests all routes learned by a peer.
# of Notification msgs rcvd	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)

Last rcvd Notification reason	<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>
Time last msg was rcvd	The duration since a message was received from this peer.
# of msgd sent	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent to this peer.
# of Update msgd sent	The number of route UPDATE messages sent to this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
# of Route Refresh msgd sent	The number of route refresh requests this peer has sent. Route refresh requests request all routes learned be a peer.
# of Notification msgd sent	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)

Last sent Notification reason	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 Peer last received notification reason field above.
Time last msg was sent	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, 9000, 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 44-97.
- 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

Aspath List name	The name of the AS path list. This is defined using the ip bgp policy aspath-list command.
Aspath regular expression	The regular expression that defines the AS path list. This is defined using the ip bgp policy aspath-list command.

output definitions (continued)

Admin state	The administration state of the AS path policy. It is either enable or disable.
Priority	The AS path list priority. This is defined using the ip bgp policy aspath-list priority command.
Action	The AS path list action, either permit or deny. This is defined using the ip bgp policy aspath-list action command.
Primary index	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, 9000, 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 com11
Community List name = com11
Community string    = 600:1
  Admin state       = disabled,
  Match type        = exact,
  Priority           = 1,
  Action            = deny,
  Primary index     = 0
```

output definitions

Community List name	The community list name. This is defined using the ip bgp policy community-list command.
Community string	The community list definition. This is defined using the ip bgp policy community-list command.
Admin state	The administration state of the community list policy, either enabled or disabled.
Match type	The match type of the community list. This is defined using the ip bgp policy community-list match-type command.

output definitions (continued)

Priority	The community list priority. This is defined using the ip bgp policy community-list priority command.
Action	The community list action. This is defined using the ip bgp policy community-list action command.
Primary index	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, 9000, 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

Prefix List name	The name of the prefix list. This is defined using the ip bgp policy prefix-list command.
Address	The IP address of the prefix list. This is defined using the ip bgp policy prefix-list command.
Mask	The mask of the prefix list. This is defined using the ip bgp policy prefix-list command.
Admin state	The administrative state of the prefix list, either enabled or disabled.

output definitions (continued)

Match Mask >= (GE)	The GE match mask of the prefix list. This is defined using the ip bgp policy prefix-list ge command.
Match Mask <= (LE)	The LE match mask of the prefix list. This is defined using the ip bgp policy prefix-list le command.
Action	The action of the prefix list. This is defined using the ip bgp policy prefix-list action 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, 9000, 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

Prefix6 List name	The name of the prefix6-list. This is defined using the ip bgp policy prefix6-list command.
Prefix6 Address	The IPv6 address of the prefix6-list. This is defined using the ip bgp policy prefix6-list command.
Prefix Length	The mask of the prefix6-list. This is defined using the ip bgp policy prefix6-list command.

output definitions (continued)

Admin state	The administrative state of the prefix list, either enabled or disabled.
Match Mask >= (GE)	The GE match mask of the prefix list. This is defined using the ip bgp policy prefix-list ge command.
Match Mask <= (LE)	The LE match mask of the prefix list. This is defined using the ip bgp policy prefix-list le command.
Action	The action of the prefix list. This is defined using the ip bgp policy prefix-list action 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, 9000, 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              = coml2,
  Community match primitive        = <none>,
  Community string [mode]          = [Additive]
```

output definitions

RouteMap name	The name of the route map policy. This is determined using the ip bgp policy prefix6-list command.
RouteMap instance	The instance of the route map policy. This is determined using the ip bgp policy prefix6-list command.
Admin state	The administrative state of the route map policy, either enabled or disabled.
Local pref (mode/value)	The local preference of the route map policy. This is determined using the ip bgp policy route-map lpref command.
Route map action	The action of the route map policy. This is determined using the ip bgp policy route-map action command.
Origin	The origin of the route map policy. This is determined using the ip bgp policy route-map origin command.
MED (mode/value)	The MED of the route map policy. This is determined using the ip bgp policy route-map med command.
Weight	The weight of the route map policy. This is determined using the ip bgp policy route-map weight command.
Aspath-List name	The name of the AS path list attached to this route map. This is set using the show ip bgp policy aspath-list command.
Aspath prepend	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).
Aspath match primitive	The regular expression used to match AS Path for this route map.
Prefix-List name	The name of the prefix list attached to this route map. This is set using the show ip bgp policy prefix-list command.
Prefix match primitive	The prefix to match for this route map.
Community-List name	The name of the community list attached to this route map. This is set using the show ip bgp policy community-list command.
Community match primitive	The community string to match for this route map.
Community string [mode]	The name of the community mode attached to this route map. This is set using the ip bgp policy route-map community-mode 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, 9000, 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
```

ip bgp graceful-restart restart-interval

Configures the grace period for achieving a graceful BGP restart.

ip bgp graceful-restart restart-interval [*seconds*]

Syntax Definitions

seconds The hitless restart timeout interval, in seconds. The valid range is 1–3600.

Defaults

parameter	default
<i>seconds</i>	90

Platforms Supported

OmniSwitch 6850, 6855,9000, 9000E

Usage Guidelines

- The minimum hardware configuration for this command is a redundant CMM configuration. This command is not supported on a chassis-based switch with a single CMM or on a standalone switch.
- On a stackable switch, 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 element in a stack.
- Note that graceful restart does not support IPv6 prefixes at this time.

Examples

```
-> ip bgp graceful-restart restart-interval 600
```

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, 9000, 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

ipv6 bgp unicast	Enables or disables unicast IPv4 updates for the BGP routing process.
show ip bgp	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, 9000, 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, 9000, 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, 9000, 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

Sta	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.
Prefix	The destination address of the IPv6 route in the hexadecimal format.
Nbr Address	The IP or IPv6 address of the BGP peer that advertises this path.
(0)	The origin attribute of this route path. A question mark (?) indicates incomplete, and i indicates IGP, and an e indicates EGP.
degPref	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

Path address	The IPv6 address for route path.
Path Length	The prefix length of the IPv6 path.

output definitions (continued)

Path protocol	The protocol from which this route path was learned. Possible values for this field are as follows: local , static , directhost , rip , ospf , isis , ibgp , ebgp , and other .
Path neighbor	The IPv6 address of the BGP peer.
Path nextHop	The next hop along the route path.
Path origin	The BGP origin attribute. Possible values will be igp , egp , incomplete , and none . The origin attribute is considered during the route decision process.
Path local preference	The local preference value for this route as received in an UPDATE message. A negative value (for example, the -1 in the above display) indicates that the local preference value is missing for this route path.
Path state	Indicates the state of the path. The possible states are best , feasible , policy-wait , un-synchronized , dampened , or none . When path state is none , it indicates that there are no paths to this prefix and the route is being purged from the system.
Path weight	The path weight as assigned through inbound and outbound policies.
Path preference degree	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 ip bgp default local-preference).
Path autonomous systems	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.
Path MED	The multi-exit discriminator (MED) value for this route path. A negative value (for example, the -1 in the above display) indicates that the MED value is missing for this route path.
Path atomic	Indicates whether the ATOMIC-AGGREGATE attribute has been set for this route. When set (this field would read yes), 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).
Path AS aggregator	Part of the AGGREGATOR attribute. This field indicates the AS for the BGP speaker that created the aggregate. A value of <none> indicates this is not an aggregate route.
Path IPaddr aggregator	Part of the AGGREGATOR attribute. This field indicates the IP address for the BGP speaker that created the aggregate. A value of <none> indicates that this is not an aggregate route.
Path community	Indicates the community to which this route path belongs, if applicable. A value of <none> indicates that this route does not belong to a community.
Path Originator Id	The Router Id of the BGP4 speaker that performed route reflection

output definitions (continued)

Path Cluster List	Sequence of Cluster Id values representing the reflection path that the route has passed, if this is a reflected route in the local AS.
Path unknown attribute	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, 9000, 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

Prefix	The destination address of the IPv6 route in the hexadecimal format.
ECL	External BGP change list. When Yes, this route will be advertised as soon as the route advertisement timer expires.
ICC	Internal BGP client change list. When Yes, this route will be advertised to internal non-clients.

output definitions (continued)

ICL	Internal BGP change list. When Yes, this route has changes that need to be advertised.
LCL	Local change list. When Yes, this route is local.
AGG	Aggregation. When Yes, this route is an aggregate route.
AGC	Aggregation contribution. When Yes, this route is part of an aggregate route.
AGL	Aggregation list. When Yes, this route is placed on an aggregate list.
AGW	Aggregation waiting. When Yes, this route is waiting for an aggregate contributor.
AGH	Aggregation hidden. When Yes, this route is hidden as part of an aggregate route.
GDL	Deletion list. When Yes, this route will be deleted.
DMP	Dampening. Indicate whether this route has been dampened. If 'Yes', then this route has been dampened and a dampening history exists.
ACT	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, 9000, 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

ipv6 bgp network status	Enables or disables a BGP network.
show ipv6 bgp network	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).
none	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, 9000, 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

ipv6 bgp network	Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers.
show ipv6 bgp network	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, 9000, 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

ipv6 bgp network	Advertises a locally reachable IPv6 address as an IPv6 BGP network to other BGP peers
show ipv6 bgp network	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, 9000, 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

ipv6 bgp network	Advertises a locally reachable IPv6 address as a IPv6 BGP network to other BGP peers.
show ipv6 bgp network	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).
enable	Enables the BGP network.
disable	Disables the BGP network.

Defaults

By default, the BGP network is disabled.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

Network or Network address	The IPv6 address configured for this local BGP network. This value is configured through the ipv6 bgp network command.
Admin state or Network admin state	Indicates whether this local BGP network is administratively enabled or disabled. This value is configured through the ipv6 bgp network status command.
Oper state or Network oper state	Indicates whether this BGP local network is operationally active or inactive.

output definitions (continued)

Network metric	The multi-exit discriminator (MED) value configured for this local BGP network. This value is configured through the ipv6 bgp network metric command.
Network local preference	The local preference value for this local BGP network. This value is configured through the ipv6 bgp network local-preference command.
Network community string	The community string value for this local BGP network. This value is configured through the ipv6 bgp network community 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, 9000, 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.
in	Restarts inbound policy evaluation of the peer.
out	Restarts outbound policy evaluation of the peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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

ip bgp policy prefix6-list	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, 9000, 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-nexthop

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-nexthop 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, 9000, 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-nexthop fe80::/24  
-> no ipv6 bgp neighbor 2001::1 ipv6-nexthop 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.
enable	Enables the BGP peer.
disable	Disables the BGP peer.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

<i>ipv6_address</i>	The 128-bit IPv6 address for the BGP peer.
<i>interface_name</i>	The name of the local IPv6 interface that provides the TCP connection for this BGP peer.

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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, 9000, 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

Nbr address or Neighbor address	The IPv6 address for this BGP peer. Assign this address through the ipv6 bgp neighbor command.
As or Neighbor autonomous system	The autonomous system to which this peer belongs. A peer's AS number is assigned through the ipv6 bgp neighbor remote-as command.
Admin state or Neighbor Admin state	Indicates whether this peer has been enabled or disabled through the ipv6 bgp neighbor status command.
Oper state or Neighbor Oper state	The current BGP state for this peer. Possible states are idle , connect , active , opensent , openconfirm , and established .
BGP Id	The unique BGP identifier of the peer.
Up/Down	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.
Neighbor passive status	Indicates whether the local BGP speaker is "passive" (i.e., waiting for this peer to initiate a session).
Neighbor name	The name assigned to this peer.
Neighbor local address	The interface assigned to this peer. This value is configured through the ipv6 bgp neighbor update-source command.
Neighbor EBGp multiHop	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.
Neighbor next hop self	Indicates whether this peer is using next hop processing. This value is configured through the ipv6 bgp neighbor next-hop-self command.
Neighbor Route Refresh	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.
Neighbor Ipv4 unicast	Indicates whether this peer is multiprotocol IPv4 unicast capable.
Neighbor Ipv4 multicast	Indicates whether this peer is multiprotocol IPv4 multicast capable.
Neighbor type	Indicates whether this peer is internal or external to the AS.
Neighbor auto-restart	Indicates whether peer auto-restart is enabled or disabled.

output definitions (continued)

Neighbor route-reflector-client	Indicates whether this peer is a client to the local route reflector, if configured.
Neighbor confederation status	Indicates whether this peer is a member of a BGP confederation.
Neighbor remove private AS	Indicates whether the stripping of private AS numbers (64512 to 65535) from AS paths is enabled or disabled.
Neighbor default originate	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 ipv6 bgp neighbor default-originate command.
Neighbor maximum prefixes	The maximum number of prefixes the local router can receive in UPDATE from this peer. This value is configured through the ipv6 bgp neighbor maximum-prefix command.
Neighbor max prefixes warning	Indicates whether a warning will be issued when this peer exceeds 80 percent of the maximum prefix value. This value is configured through the ipv6 bgp neighbor update-source command.
# of prefixes received	Displays the total number of prefixes received by this neighbor.
Neighbor MD5 key	When present, shows an encrypted version of the MD5 password. When not present, and MD5 password has not been configured.
Neighbor local port	The TCP port used for the session with this peer.
Neighbor TCP window size	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.
Graceful Restart State	Indicates the graceful restart state. This feature does not support IPv6 prefixes.
Advertised Restart Interval	Indicates the restart interval in seconds.
Forwarding State during restart	Indicates whether the peer has preserved the forwarding state during the graceful restart.
Activate IPv6 unicast	Indicates whether or not IPv6 unicast advertisements are enabled. Options include enabled or disabled .
Configured IPv4 NextHop Address	Specifies the IPv4 nexthop address. This is specified using the ipv6 bgp neighbor ipv4-nexthop command.
Configured IPv6 NextHop Address	Specifies the IPv6 nexthop address. This is specified using the ipv6 bgp neighbor ipv6-nexthop command.
Neighbor Ipv6 unicast	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

ipv6 bgp neighbor	Creates or deletes a BGP peer relationship using IPv6 addresses
ipv6 bgp neighbor status	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, 9000, 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

Nbr address	The IPv6 address for this peer. This value is configured using the ipv6 bgp neighbor command.
As	The autonomous system to which this peer belongs. This value is configured using the ipv6 bgp neighbor remote-as command.
RMSGS	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
SMSGS	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent by this peer.

output definitions (continued)

RUPDS	The number of route UPDATE messages received by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
SUPDS	The number of route UPDATE messages sent by this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
RNOFY	The number of NOTIFY messages received by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
SNOFY	The number of NOTIFY messages sent by this peer. NOTIFY messages contain error information, such as unsupported parameters, invalid attributes, and holdtime expirations.
RPFXS	Number of unique route prefixes received by this peer.
UPTNS	Number of times this peer has come up, operationally.
DNTNS	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

Neighbor address	The IPv6 address for this peer. This value is configured using the ipv6 bgp neighbor command.
# of UP transitions	Number of times this peer has come up, operationally.
Time of last UP transition	The duration that this peer has been up.
# of DOWN transitions	Number of times this peer has gone down, operationally.
Time of last DOWN transition	The duration since this peer last went down.

output definitions (continued)

Last DOWN reason	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
# of msgs rcvd	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) received by this peer.
# of Update msgs rcvd	The number of route UPDATE messages received from this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
# of prefixes rcvd	Number of unique route prefixes received by this peer.
# of Route Refresh msgs rcvd	Number of route refresh requests this peer has received. Route refresh requests all routes learned by a peer.
# of Notification msgs rcvd	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)

Last rcvd Notification reason	<p>NOTIFY messages include error 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"> 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
Time last msg was rcvd	The duration since a message was received from this peer.
# of msgsd sent	Total number of messages (UPDATE, NOTIFY, OPEN, KEEPALIVE) sent to this peer.
# of Update msgsd sent	Number of route UPDATE messages sent to this peer. UPDATE messages contain route reachability information, BGP attributes, and route feasibility information.
# of Route Refresh msgsd sent	Number of route refresh requests this peer has sent. Route refresh requests request all routes learned by a peer.
# of Notification msgsd sent	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)

Last sent Notification reason	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 Peer last received notification reason field above.
Time last msg was sent	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, 9000, 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

Nbr address	The IPv6 address for this BGP peer. Assign this address using the ipv6 bgp neighbor command.
As	The autonomous system to which this peer belongs. A peer's AS number is assigned using the ipv6 bgp neighbor remote-as command.
Hold	The actual negotiated hold time value.
Hold (C)	The hold time value. This value is configured using the ipv6 bgp neighbor timers command.
RtAdv	The route advertisement interval, in seconds, for updates between external BGP peers.
Retry	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 ipv6 bgp neighbor timers command.

output definitions (continued)

Kalive	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.
Ka (C)	The KEEPALIVE interval as configured using the ipv6 bgp neighbor timers 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, 9000, 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

Neighbor autonomous system	The AS to which the peer is assigned. This can be assigned by using the ip bgp neighbor remote-as command.
Neighbor output policy map name	The outbound route map policy for the peer. This can be assigned by using the ip bgp neighbor route-map command.
Neighbor input policy map name	The inbound route map policy for the peer. This can be assigned by using the ip bgp neighbor route-map command.
Neighbor output aspath-list name	The outbound AS path list policy for the peer. This can be assigned by using the ip bgp neighbor in-prefix6list command.
Neighbor input aspath-list name	The inbound AS path list policy for the peer. This can be assigned by using the ip bgp neighbor in-aspathlist command.

output definitions (continued)

Neighbor output prefix-list name	The outbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor out-prefixlist command.
Neighbor input prefix-list name	The inbound prefix list policy for the peer. This can be assigned by using the ip bgp neighbor in-prefixlist command.
Neighbor output community-list name	The outbound community list policy for the peer. This can be assigned by using the ip bgp neighbor out-communitylist command.
Neighbor input community-list name	The inbound community list policy for the peer. This can be assigned by using the ip bgp neighbor in-communitylist command.
Neighbor soft reconfiguration	Lists whether soft reconfigurations are enabled or disabled for this peer. This is configured using the ip bgp neighbor soft-reconfiguration command.
Neighbor output prefix6-list name	The outbound prefix6-list policy for the peer. This can be assigned by using the ipv6 bgp neighbor out-prefix6list command.
Neighbor input prefix6-list name	The inbound prefix6-list policy for the peer. This can be assigned by using the ipv6 bgp neighbor in-prefix6list 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
```

45 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:

ip load pim	show ip pim static-rp
ip pim sparse status	show ip pim cbsr
ip pim dense status	show ip pim bsr
ip pim ssm group	show ip pim notifications
ip pim dense group	show ip pim groute
ip pim cbsr	show ip pim sgroute
ip pim static-rp	ipv6 pim sparse status
ip pim candidate-rp	ipv6 pim dense status
ip pim rp-threshold	ipv6 pim ssm group
ip pim keepalive-period	ipv6 pim dense group
ip pim max-rps	ipv6 pim cbsr
ip pim probe-time	ipv6 pim static-rp
ip pim register checksum	ipv6 pim candidate-rp
ip pim register-suppress-timeout	ipv6 pim rp-switchover
ip pim spt status	ipv6 pim spt status
ip pim state-refresh-interval	ipv6 pim interface
ip pim state-refresh-limit	show ipv6 pim sparse
ip pim state-refresh-ttl	show ipv6 pim dense
ip pim interface	show ipv6 pim ssm group
ip pim neighbor-loss-notification-period	show ipv6 pim dense group
ip pim invalid-register-notification-period	show ipv6 pim interface
ip pim invalid-joinprune-notification-period	show ipv6 pim neighbor
ip pim rp-mapping-notification-period	show ipv6 pim static-rp
ip pim interface-election-notification-period	show ipv6 pim group-map
show ip pim sparse	show ipv6 pim candidate-rp
show ip pim dense	show ipv6 pim cbsr
show ip pim ssm group	show ipv6 pim bsr
show ip pim dense group	show ipv6 pim groute
show ip pim neighbor	show ipv6 pim sgroute
show ip pim candidate-rp	
show ip pim group-map	
show ip pim interface	

ip load pim

Dynamically loads PIM to memory.

ip load pim

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

ip pim sparse status	Globally enables or disables the PIM-SM protocol on the switch.
show ip pim sparse	Displays the status of the various global parameters for the PIM sparse mode.
ip pim dense status	Globally enables or disables PIM-DM protocol on the switch.
show ip pim dense	Displays the status of the various global parameters for the PIM Dense mode.
ipv6 pim sparse status	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
show ipv6 pim sparse	Displays the status of the various global parameters for the IPv6 PIM sparse mode.
ipv6 pim dense status	Enables or disables the IPv6 PIM-DM (dense mode) globally for IPv6.
show ipv6 pim dense	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

enable	Globally enables PIM-SM on the switch.
disable	Globally disables PIM-SM on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-3](#) 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

ip pim interface	Enables or disables the PIM protocol on a specific interface.
ip load pim	Dynamically loads PIM to memory.
show ip pim sparse	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

enable	Globally enables PIM-DM on the switch.
disable	Globally disables PIM-DM on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-3](#) 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

ip pim interface	Enables or disables the PIM protocol on a specific interface.
ip load pim	Dynamically loads PIM to memory.
show ip pim dense	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.
override	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, 9000, 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

- | | |
|------------------------------|---|
| show ip pim sparse | Displays the status of the various global parameters for the PIM sparse mode. |
| show ip pim ssm group | Displays the static configuration of multicast group mappings for the PIM-Source Specific Multicast (SSM) mode. |
| show ip pim group-map | 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.
override	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, 9000, 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

- | | |
|--------------------------------|--|
| show ip pim dense | Displays the status of the various global parameters for the PIM dense mode. |
| show ip pim dense group | Displays the static configuration of multicast group mappings for PIM-Dense Mode (DM). |
| show ip pim group-map | 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, 9000, 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.
override	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, 9000, 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

- | | |
|------------------------------|---|
| show ip pim sparse | Displays the status of the various global parameters for the PIM sparse mode. |
| show ip pim static-rp | 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). |
| show ip pim group-map | 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, 9000, 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, 9000, 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, 9000, 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

show ip pim sparse	Displays the status of the various global parameters for the PIM sparse mode.
show ip pim dense	Displays the status of the various global parameters for the PIM dense mode.
show ipv6 pim sparse	Displays the status of the various global parameters for the IPv6 PIM sparse mode.
show ipv6 pim dense	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, 9000, 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 45-5](#).

Examples

```
-> ip pim max-rps 32
```

Release History

Release 6.1.1; command was introduced.

Related Commands

ip pim sparse status	Globally enables or disables the PIM-SM protocol on the switch.
ipv6 pim sparse status	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
show ip pim sparse	Displays the status of the various global parameters for the PIM sparse mode.
show ipv6 pim sparse	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

header	Specifies that the checksum for registers is done only on the PIM header.
full	Specifies that the checksum is done over the entire PIM register message.

Defaults

parameter	default
header full	header

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 register-suppress-timeout

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.

ip pim register-suppress-timeout *seconds*

Syntax Definitions

seconds The timeout value, in seconds (0–65535).

Defaults

parameter	default
<i>seconds</i>	60

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- This command is supported in both IPv4 and IPv6 PIM.
- This command is supported only in the sparse mode.

Examples

```
-> ip pim register-suppress-timeout 10
```

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.
show ipv6 pim sparse	Displays the status of the various global parameters for the IPv6 PIM sparse mode.

MIB Objects

alaPim
 alaPimRegisterSuppressionTime

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

enable	Enables last hop DR switching to the SPT.
disable	Disables last hop DR switching to the SPT.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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, 9000, 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

ip pim interface	Enables or disables the PIM protocol on a specific interface.
ipv6 pim interface	Enables IPv6 PIM and configures the statistics.
show ip pim dense	Displays the status of the various global parameters for the PIM dense mode.
show ipv6 pim dense	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, 9000, 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

ip pim interface	Enables or disables the PIM protocol on a specific interface.
ipv6 pim interface	Enables IPv6 PIM and configures the statistics.
show ip pim dense	Displays the status of the various global parameters for the PIM dense mode.
show ipv6 pim dense	Displays the status of the various global parameters for the IPv6 PIM dense mode.

MIB Objects

```
alaPimdmGlobalConfig  
  alaPimdmStateRefreshLimitInterval
```

ip pim state-refresh-ttl

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.

ip pim state-refresh-ttl *num*

Syntax Definitions

num The Time to Live to be used. Values may range from 0 to 255.

Defaults

parameter	default
<i>num</i>	16

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

- This command is supported only in the dense mode.
- This value is used with both IPv4 and IPv6 PIM-DM.

Examples

```
-> ip pim state-refresh-ttl 122
```

Release History

Release 6.1.1; command was introduced.

Related Commands

ip pim interface	Enables or disables the PIM protocol on a specific interface.
ipv6 pim interface	Enables IPv6 PIM and configures the statistics.
show ip pim dense	Displays the status of the various global parameters for the PIM dense mode.
show ipv6 pim dense	Displays the status of the various global parameters for the IPv6 PIM dense mode.

MIB Objects

```
alaPimdmGlobalConfig  
  alaPimdmStateRefreshTimeToLive
```

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.
hello-interval <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.
triggered-hello <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.
joinprune-interval <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.
hello-holdtime <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.
joinprune-holdtime <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.
prune-delay <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.
override-interval <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.
dr-priority <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.
prune-limit-interval <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.
graft-retry-interval <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.
stub	Specifies the interface not to send any PIM packets via this interface, and to ignore received PIM packets.

Defaults

parameter	default
hello-interval <i>seconds</i>	30
triggered-hello <i>seconds</i>	5
joinprune-interval <i>seconds</i>	60
hello-holdtime <i>seconds</i>	105
joinprune-holdtime <i>seconds</i>	210
prune-delay <i>milliseconds</i>	500
override-interval <i>milliseconds</i>	2500
dr-priority <i>priority</i>	1
prune-limit-interval <i>seconds</i>	60
graft-retry-interval <i>seconds</i>	3
stub	Disabled.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-5](#). To enable or disable PIM-DM on the switch, refer to the [ip pim dense status command on page 45-6](#).
- 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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

Status	The current global (i.e., switch-wide) status of PIM-SM. Options include enabled and disabled .
Keepalive Period	The duration of the Keepalive timer. The default value is 210.
Max RPs	The maximum number of Rendezvous Points (RPs) allowed in the PIM-SM domain (1–100). The default value is 32.
Probe Time	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.
Register Checksum	The current application of the checksum function on register messages in the domain. Options include header and full . The default setting is header .
Register Suppress Timeout	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.
RP Threshold	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.
SPT Status	The current status of last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). Options include enabled and disabled . The default setting is enabled .

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

ip pim sparse status	Globally enables or disables PIM-SM protocol on the switch.
ip pim interface	Enables or disables the PIM protocol on a specific interface.
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 max-rps	Configures the maximum number of C-RP routers allowed in the PIM-SM domain.
ip pim probe-time	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.
ip pim register checksum	Configures the application of the checksum function on sent and received register messages in the domain.
ip pim register-suppress-timeout	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.
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 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.

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, 9000, 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

Status	The current global (i.e., switch-wide) status of PIM-DM. Options include enabled and disabled .
Source Lifetime	The duration of the Keepalive or Source Lifetime timer. The default value is 210.
State Refresh Interval	The time-interval, in seconds, between successive State Refresh messages originated by the router. The default value is 60.
State Refresh Limit Interval	Displays the limit at which a router will not forward the State Refresh messages, if they are received at less than the interval.
State Refresh TTL	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

ip pim dense status	Globally enables or disables PIM-DM protocol on the switch.
ip pim interface	Enables or disables the PIM protocol on a specific interface.
ip pim state-refresh-interval	Sets the interval between successive State Refresh messages originated by a router.
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-ttl	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.
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.

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, 9000, 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

Group Address/Pref Length	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 (/).
Mode	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
Override	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
Precedence	Specifies the precedence value to be used for this static RP configuration.
Status	Displays whether this entry is currently enabled or disabled. Options include enabled and disabled .

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, 9000, 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

Group Address/Pref Length	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 (/).
Mode	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
Override	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
Precedence	Specifies the precedence value to be used for this static RP configuration.
Status	Displays whether this entry is currently enabled or disabled. Options include enabled and disabled .

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
```

show ip pim neighbor

Displays a list of active PIM neighbors.

show ip pim neighbor [*ip_address*]

Syntax Definitions

ip_address The 32-bit IP address for the PIM neighbor.

Defaults

If a neighbor's IP address is not specified, the entire PIM neighbor table is displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 9000E

Usage Guidelines

To view more detailed information about a particular neighbor, specify the neighbor's IP address 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 ip pim neighbor
Neighbor Address      Interface Name      Uptime      Expires      DR Priority
-----+-----+-----+-----+-----
212.61.20.250        vlan-2              01h:07m:07s 00h:01m:38s 100
212.61.60.200        vlan-6              01h:07m:07s 00h:01m:38s 100
214.28.4.254         vlan-26             01h:07m:07s 00h:01m:38s 100
```

If a specific neighbor IP address is specified in the command line, *detailed information for the corresponding neighbor only* displays:

```
-> show ip pim neighbor 212.61.30.7
Neighbor IP Address      = 212.61.30.7,
Interface Name           = vlan-30,
Uptime                   = 00h:04m:14s,
Expires                  = 00h:01m:31s,
Lan Prune Delay Present  = true,
Propagation Delay        = 500,
Override Interval        = 2500,
TBit field                = false,
Gen ID Present           = true,
Gen ID Value              = 0x79ca868e,
BiDir Capable            = false,
DR Priority Present       = true,
DR Priority                = 1,
State Refresh Capable    = true
```


output definitions

Neighbor (IP) Address	The 32-bit IP address of the active PIM neighbor.
Interface Name	The name of the interface used to reach this PIM neighbor.
Uptime	The amount of time since this PIM neighbor last became a neighbor of the local router, displayed in hours, minutes, and seconds.
Expiry time	The minimum amount of time remaining before the PIM neighbor will be aged out, displayed in hours, minutes, and seconds.
Lan Prune Delay Present	Evaluates to TRUE if this neighbor is using the Lan Prune Delay option.
Propagation Delay	The expected propagation delay between PIM routers on this network.
DR Priority Present	Evaluates to TRUE if the neighbor is using the DR Priority option.
DR Priority	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.
TBit field	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.
Generation ID Present	Evaluates to TRUE if this neighbor is using the Generation ID option.
Generation ID Value	The value of the Generation ID from the last PIM Hello message received from the neighbor.
BiDir Capable	Evaluates to TRUE if this neighbor is using the Bidirectional-PIM Capable option.
State Refresh Capable	Displays whether the neighbor is capable of receiving State Refresh messages. Options include true or false .
Override Interval	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, 9000, 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

RP Address	A 32-bit IP address that is advertised as the Candidate-Rendezvous Point (RP).
Group Address	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.
Priority	The C-RP router's priority. The lower the value, the higher the priority.
Interval	The time interval at which the C-RP advertisements are sent to the BSR.
Status	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, 9000, 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

Origin	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.
Group Address/Prefix Length	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 (/).
RP Address	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.
Mode	The PIM mode to be used for groups in this prefix.
Mapping Precedence	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

ip pim ssm group	Creates and manages the static configuration of a Source Specific Multicast mode group mappings.
ip pim dense group	Creates and manages the static configuration of dense mode (DM) group mappings.
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

```

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, 9000, 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

Interface Name	The name of the interface on which PIM is enabled.
IP address	Specifies the IP address of the specified interface.
Designated Router	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.
Hello Interval	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.
Join/Prune Interval	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.
Triggered Hello Interval	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.
Hello Holdtime	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.
Join/Prune Holdtime	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.
Propagation Delay	The expected propagation delay between PIM routers on this network.
Override Interval	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.
Generation ID Option	The value of the Generation ID this router inserted in the last PIM Hello message it sent on this interface.
DR Priority	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.
Lan Delay Enabled	Options include true and false . The value will be true if all neighbors on the interface are using the LAN Prune Delay option. Otherwise, the setting will be false.
Effective Propagation Delay	The Effective Propagation Delay on this interface.

output definitions (continued)

Effective Override Interval	The Effective Override Interval on this interface.
Suppression Enabled	Specifies whether the Join suppression is enabled on this interface.
DR Priority Enabled	Evaluates to TRUE if all routers on this interface are using the DR Priority option.
Stub Interface	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.
Prune Limit Interval	The minimum interval that must transpire between two successive Prunes sent by a router. This is used only with PIM-DM.
Graft Retry Interval	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.
SR Priority Enabled	Evaluates to TRUE if all routers on this interface are using the State Refresh option. This is used only by PIM-DM.
Operational Status	The current operational status of the corresponding interface. Options include enabled and disabled . 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 disabled . To globally enable or disable PIM on the switch, refer to the ip pim sparse status command on page 45-5 and ip pim dense status command on page 45-6.

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, 9000, 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

Group Address/Pref Length	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 ip pim static-rp command on page 45-13 .
RP Address	A 32-bit IP address of the Rendezvous Point (RP). To change the current RP address, refer to the ip pim static-rp command on page 45-13 .
Mode	The PIM mode to be used for groups in this prefix. The possible values include asm, ssm, or dm.
Override	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
Precedence	Specifies the precedence value to be used for this static RP configuration.
Status	Displays whether static RP configuration is currently enabled or disabled. Options include enabled and disabled . To change the current status, refer to the ip pim static-rp command on page 45-13 .

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, 9000, 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

CBSR Address	The 32-bit address that the local router uses to advertise itself as a Candidate-BSR.
Status	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.
CBSR Priority	The value for the local router as a Candidate-BSR. The higher the value, the higher the priority.
Hash Mask Length	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.
Elected BSR	Specifies whether the local router is the elected BSR.
Timer	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, 9000, 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

BSR Address	The 32-bit address of the elected BSR.
BSR Priority	The priority value of the elected BSR. The higher the value, the higher the priority.
Hash Mask Length	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).
Expiry Time	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, 9000, 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

Neighbor Loss Notification	<p>Period: Minimum time interval that must elapse between the PIM neighbor loss notification originated by the device.</p> <p>Count: The number of neighbor loss events that have occurred. This counter is incremented whenever a neighbor loss notification is generated.</p>
Invalid Register Notification	<p>Period: Minimum time interval that must elapse between the PIM invalid register notifications originated by the device.</p> <p>Msgs Rcvd: The number of invalid PIM register notification messages that have been received by the device.</p> <p>Group: The multicast group address to which the last unexpected Register message received by the device was addressed.</p> <p>RP: The RP address to which the last unexpected Register message received by the device was delivered.</p> <p>Origin: The source address of the last unexpected Register message received by the device.</p>
Invalid Join/Prune Notification	<p>Period: Minimum time that must elapse between PIM invalid join-prune notifications originated by the device.</p> <p>Msgs Rcvd: The number of invalid PIM join/prune messages that have been received by the device.</p> <p>Origin: The source address of the last unexpected join/prune message received by the device.</p> <p>Group: The multicast group address carried in the last unexpected join-prune message received by the device.</p> <p>RP: The RP address carried in the last unexpected join/prune message received by the device.</p>
RP Mapping Notifications	<p>Period: Minimum time that must elapse between PIM RP mapping change notifications originated by the device.</p> <p>Count: The number of changes to active RP mappings on this device.</p>
Interface Election Notifications	<p>Period: Minimum time that must elapse between PIM Interface Election traps originated by the router.</p> <p>Count: 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, 9000, 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

Group-address	The IPv4 Multicast Group Address.
RP Address	The address of the Rendezvous Point (RP) for the group.
RPF Interface	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
Upstream Neighbor	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (*,G) join messages to.
UpTime	The time since this entry was created.
Pim Mode Origin	The mechanism by which the PIM mode and RP for the group were learned.
Upstream Join State	Whether the local router should join the RP tree for the group.
Upstream Join Timer	The time remaining before the local router next sends a periodic (*,G) Join message on the RPF IfIndex.
RPF Next Hop	The address of the RPF next hop towards the RP.

output definitions (continued)

RPF Route Protocol	The routing mechanism via which the route used to find the RPF interface towards the RP was learned.
RPF Route Address/Prefix Length	The IPv6 address combined with the prefix length identifies the route used to find the RPF interface towards the RP.
Route Metric Pref	The metric preference of the route used to find the RPF interface towards the RP.
Route Metric	The routing metric of the route used to find the RPF interface towards the RP.
Interface Name	The interface name that corresponds to the ifIndex.
Local Membership	Whether the local router has (*,G) local membership on this interface.
Join Prune State	The state resulting from (*,G) Join/Prune messages received on this interface.
Prune Pending Timer	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.
Join Expiry Timer	The time remaining before (*,G) Join state for this interface expires.
Assert State	The (*,G) Assert state for this interface. The possible values are No Info, Winner or Loser.
Assert Timer	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.
Assert Winner Address	If the Assert State is 'Loser', this is the address of the assert winner.
Assert Winner Metric Pref	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.
Assert Winner Metric	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, 9000, 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

Source-address	The IPv4 Source address.
Group-address	The IPv4 Multicast Group Address.
RPF Interface	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.

output definitions (continued)

Upstream Neighbor	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (S,G) join messages to.
UpTime	The time since this entry was created.
Flags	Flags indicating SPTBit, Prune State, Join State, etc.
Pim Mode	Whether the Group Address is SSM, ASM or DM.
Upstream Join State	Whether the local router should join the SPT for the source and group represented by this entry.
Upstream Join Timer	The time remaining before the local router next sends a periodic (S,G) Join message.
RPF Next Hop	The address of the RPF next hop towards the source.
RPF Route Protocol	The routing mechanism via which the route used to find the RPF Interface towards the source was learned.
RPF Route Address/Prefix Length	The IP address which when combined with the Route Prefix length identifies the route used to find the RPF interface towards the source.
RPF Route Metric Pref	The metric preference of the route used to find the RPF interface towards the source.
RPF Route Metric	The metric preference of the route used to find the RPF interface towards the source.
DR Register State	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.
DR Register Stop Timer	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.
Upstream Prune State	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.
Upstream Prune Limit Timer	The time remaining before the local router may send a (S,G) prune message on alaPimSGRPFifIndex. This is only used by PIM-DM.
Originator State	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.
Source Active Timer	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.
State Refresh Timer	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.
Interface Name	The interface name corresponding to the ifIndex that corresponds to this entry.
Uptime	The time since this entry was created.
Local Membership	Whether the local router has (S,G) local membership on this interface.

output definitions (continued)

Join Prune State	The state resulting from (S,G) Join/Prune messages received on this interface. The possible values include No Info, Join, or Prune Pending.
Prune Pending Timer	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.
Join Expiry Timer	The time remaining before (S,G) Join state for this interface expires.
Assert State	The (S,G) Assert state for this interface. The possible values include No Info, Winner, or Loser.
Assert Timer	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.
Assert Winner	If the Assert State is Loser, this is the address of the assert winner.
Assert Winner Metric Pref	If the Assert State is Loser, this is the metric preference of the route to the source advertised by the assert winner.
Assert Winner Metric Metric	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

enable	Enables PIM-SM globally for IPv6.
disable	Disables PIM-SM globally for IPv6.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-3](#) 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

ipv6 pim interface	Enables or disables the PIM protocol on a specific interface.
ip load pim	Dynamically loads PIM to memory.
show ipv6 pim sparse	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

enable	Enables PIM-DM globally for IPv6.
disable	Disables PIM-DM globally for IPv6.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-3](#) 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

ipv6 pim interface	Enables or disables the PIM protocol on a specific interface.
ip load pim	Dynamically loads PIM to memory.
show ipv6 pim dense	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.
override	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, 9000, 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

alaPimStaticRPRowStatus

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.
override	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, 9000, 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, 9000, 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.
override	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, 9000, 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, 9000, 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

enable	Enables the RP to switch to native forwarding.
disable	Disables the RP from switching to native forwarding.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

enable	Enables last hop DR switching to the SPT.
disable	Disables last hop DR switching to the SPT.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

```
alaPismGlobalConfig  
  alaPismV6SPTConfig
```

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.
hello-interval <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.
triggered-hello <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.
joinprune-interval <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.
hello-holdtime <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.
joinprune-holdtime <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.
prune-delay <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.
override-interval <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.
dr-priority <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.
prune-limit-interval <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.
graft-retry-interval <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
hello-interval <i>seconds</i>	30
triggered-hello <i>seconds</i>	5
joinprune-interval <i>seconds</i>	60
hello-holdtime <i>seconds</i>	105
joinprune-holdtime <i>seconds</i>	210
prune-delay <i>milliseconds</i>	500
override-interval <i>milliseconds</i>	2500
dr-priority <i>priority</i>	1
prune-limit-interval <i>seconds</i>	60
graft-retry-interval <i>seconds</i>	3
stub	Disabled

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 45-75](#). To enable or disable IPv6 PIM-DM on the switch, refer to the [ipv6 pim dense status command on page 45-76](#).
- 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, 9000, 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

Status	The current global (i.e., switch-wide) status of the IPv6 PIM sparse mode. Options include enabled and disabled .
Keepalive Period	The duration of the Keepalive timer. The default value is 210.
Max RPs	The maximum number of Rendezvous Points (RPs) allowed in the IPv6 PIM-SM domain (1–100). The default value is 32.
Probe Time	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.
Register Suppress Timeout	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

RP switchover	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 enabled and disabled . The default setting is enabled .
SPT Status	The current status of last hop Designated Router (DR) switching to the Shortest Path Tree (SPT). Options include enabled and disabled . The default setting is enabled .

Release History

Release 6.3.1; command was introduced.

Related Commands

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 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 multicast data packet is received.
ipv6 pim sparse status	Enables or disables the IPv6 PIM-SM (sparse mode) globally for IPv6.
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.
ip pim max-rps	Configures the maximum number of C-RP routers allowed in the PIM-SM domain.
ip pim probe-time	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.
ip pim register-suppress-timeout	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, 9000, 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

Status	The current global (i.e., switch-wide) status of the IPv6 PIM dense mode. Options include enabled and disabled .
Source Lifetime	The duration of the Keepalive or Source Lifetime timer. The default value is 210.
State Refresh Interval	The time-interval, in seconds, between successive State Refresh messages originated by the router. The default value is 60.
State Refresh Limit Interval	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.
State Refresh TTL	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

ip v6 pim dense status	Enables or disables IPv6 PIM-DM (dense mode) globally on the switch.
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 state-refresh-interval	Sets the interval between successive State Refresh messages originated by a router.
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-ttl	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, 9000, 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

Group Address/Pref Length	The IPv6 multicast group address along with the prefix length.
Mode	The IPv6 PIM mode that is used for the groups in this prefix.
Override	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
Precedence	The precedence value that can be used for this static RP configuration.
Status	Displays whether this entry is currently enabled or disabled. Options include enabled and disabled .

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, 9000, 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

Group Address/Pref Length	The IPv6 multicast group address along with the prefix length.
Mode	The IPv6 PIM mode that is used for the groups in this prefix.
Override	Specifies this static RP configuration to override the dynamically learned RP information for the specified group(s).
Precedence	The precedence value that can be used for this static RP configuration.
Status	Displays whether this entry is currently enabled or disabled. Options include enabled and disabled .

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, 9000, 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

Interface Name	The name of the IPv6 PIM interface.
IPv6 address	Specifies the IPv6 address of the specified interface.
Designated Router	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.
Hello Interval	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.
Join/Prune Interval	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.
Triggered Hello Interval	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.
Hello Holdtime	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.
Join/Prune Holdtime	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.
Propagation Delay	The expected propagation delay between PIM routers on the network. Values may range from 0 to 32767. The default value is 500.
Override Interval	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.
Generation ID Option	The value of the Generation ID this router inserted in the last PIM Hello message it sent on this interface.
DR Priority	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.
Lan Delay Enabled	Options include true and false . The value will be true if all neighbors on the interface are using the LAN Prune Delay option. Otherwise, the setting will be false.
Effective Propagation Delay	The Effective Propagation Delay on this interface.

output definitions (continued)

Effective Override Interval	The Effective Override Interval on this interface.
Suppression Enabled	Specifies whether the Join suppression is enabled on this interface.
DR Priority Enabled	Evaluates to TRUE if all routers on this interface are using the DR Priority option.
Stub Interface	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.
Prune Limit Interval	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.
Graft Retry Interval	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.
SR Priority Enabled	Evaluates to TRUE if all routers on this interface are using the State Refresh option. This is used only by PIM-DM.
Operational Status	The current operational status of the corresponding interface. Options include enabled and disabled . 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 disabled . To enable or disable PIM on an interface, refer to the ipv6 pim interface command on page 45-89 . To globally enable or disable PIM on the switch, refer to the ipv6 pim sparse status command on page 45-75 and ipv6 pim dense status command on page 45-76 .

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, 9000, 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

Neighbor IPv6 Address	The IPv6 address of the active PIM neighbor.
Interface Name	The name of the IPv6 PIM interface that is used to reach the neighbor.
Uptime	The amount of time since this PIM neighbor last became a neighbor of the local router, displayed in hours, minutes, and seconds.
Expires	The minimum amount of time remaining before the PIM neighbor will be aged out, displayed in hours, minutes, and seconds.
LAN Prune Delay present	Specifies whether this neighbor is using the LAN Prune Delay option. Options include true or false .
Propagation Delay	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)

Override Interval	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.
TBit field	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.
Gen ID present	Specifies whether this neighbor is using Generation ID option. Options include true or false .
Gen ID Value	The value of the Generation ID in the last PIM Hello message received from this neighbor.
BiDir Capable	Specifies whether this neighbor is using the Bidirectional-PIM Capable option.
DR Priority Present	Displays whether the neighbor is using the Designated Router option. Options include true or false .
DR priority	The value of the Designated Router Priority in the last PIM Hello message received from this neighbor.
State Refresh Capable	Displays whether the neighbor is capable of receiving State Refresh messages. Options include true or false .
Secondary Addresses	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, 9000, 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

Group Address/Pref Length	The IPv6 multicast group address along with the prefix length.
RP Address	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.
Mode	The IPv6 PIM mode that is used for the groups in this prefix. The possible values include ASM, SSM, or DM.
Override	Specifies that this static RP configuration can override the dynamically learned RP information for the specified group(s).
Precedence	The precedence value that is used for this static RP configuration.
Status	Displays whether the static RP configuration is currently enabled or disabled. Options include enabled and disabled .

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, 9000, 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

Origin	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.
Group Address/Prefix Length	The IPv6 multicast group address along with the prefix length.
RP Address	The IPv6 address of the Rendezvous Point to be used for groups within the group prefix.
Mode	The IPv6 PIM mode to be used for groups in this prefix.
Mapping Precedence	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

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 ssm group	Statically maps the specified IPv6 multicast group(s) to the PIM Source Specific Multicast mode (SSM).
ipv6 pim dense group	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, 9000, 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

RP Address	An IPv6 unicast address that is advertised as the Candidate-Rendezvous Point (RP).
Group Address	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.
Priority	The C-RP router's priority. The lower the value, the higher the priority.
Interval	The time interval at which the C-RP advertisements are sent to the BSR.
Status	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, 9000, 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

Scope	IPv6 scope value that ranges from 3-15. It is used to define Candidate BSR information associated with a particular scope zone.
CBSR Address	An IPv6 unicast address that the local router uses to advertise itself as a Candidate-BSR for PIM IPv6.
Status	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.
CBSR Priority	The priority value for the local router as a Candidate-BSR. The higher the value, the higher the priority.
Hash Mask Length	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).
Elected BSR	Specifies whether the local router is the elected BSR for PIM IPv6.
Timer	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, 9000, 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

Scope	IPv6 scope value that ranges from 3-15. It is used to define BSR information associated with a particular scope zone.
BSR Address	The IPv6 unicast address of the elected BSR.
BSR Priority	The priority value of the elected BSR. The higher the value, the higher the priority.
Hash Mask Length	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.
Expiry Time	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, 9000, 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

Group-address	The IPv6 Multicast Group Address.
RP Address	The address of the Rendezvous Point (RP) for the group.
RPF Interface	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
Upstream Neighbor	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (*,G) join messages to.
UpTime	The time since this entry was created.
Pim Mode Origin	The mechanism by which the PIM mode and RP for the group were learned.
Upstream Join State	Whether the local router should join the RP tree for the group.
Upstream Join Timer	The time remaining before the local router next sends a periodic (*,G) Join message on the RPF IfIndex.
RPF Next Hop	The address of the RPF next hop towards the RP.
RPF Route Protocol	The routing mechanism via which the route used to find the RPF interface towards the RP was learned.
RPF Route Address/Prefix Length	The IPv6 address combined with the prefix length identifies the route used to find the RPF interface towards the RP.
Route Metric Pref	The metric preference of the route used to find the RPF interface towards the RP.
Route Metric	The routing metric of the route used to find the RPF interface towards the RP.
Interface Name	The interface name that corresponds to the ifIndex.
Local Membership	Whether the local router has (*,G) local membership on this interface.
Join Prune State	The state resulting from (*,G) Join/Prune messages received on this interface.

output definitions (continued)

Prune Pending Timer	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.
Join Expiry Timer	The time remaining before (*,G) Join state for this interface expires.
Assert State	The (*,G) Assert state for this interface. The possible values are No Info, Winner or Loser.
Assert Timer	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.
Assert Winner Address	If the Assert State is 'Loser', this is the address of the assert winner.
Assert Winner Metric Pref	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.
Assert Winner Metric	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
alaPimStarGRPFNextHop
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, 9000, 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

Source-address	The IPv6 Source address.
Group-address	The IPv6 Multicast Group Address.
RPF Interface	The RPF interface towards the RP. The ifIndex is converted to the if-name for the display.
Upstream Neighbor	The primary address of the neighbor on the RPF Interface that the local router is sending periodic (S,G) join messages to.
UpTime	The time since this entry was created.
Flags	Flags indicating SPTBit, Prune State, Join State, etc.
Pim Mode	Whether the Group Address is SSM, ASM or DM.
Upstream Join State	Whether the local router should join the SPT for the source and group represented by this entry.
Upstream Join Timer	The time remaining before the local router next sends a periodic (S,G) Join message.
RPF Next Hop	The address of the RPF next hop towards the source.
RPF Route Protocol	The routing mechanism via which the route used to find the RPF Interface towards the source was learned.
RPF Route Address/Prefix Length	The IP address which when combined with the Route Prefix length identifies the route used to find the RPF interface towards the source.
RPF Route Metric Pref	The metric preference of the route used to find the RPF interface towards the source.

output definitions (continued)

RPF Route Metric	The metric preference of the route used to find the RPF interface towards the source.
DR Register State	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.
DR Register Stop Timer	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.
Upstream Prune State	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.
Upstream Prune Limit Timer	The time remaining before the local router may send a (S,G) prune message on alaPimSGRPFIfIndex. This is only used by PIM-DM.
Originator State	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.
Source Active Timer	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.
State Refresh Timer	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.
Interface Name	The interface name corresponding to the ifIndex that corresponds to this entry.
Uptime	The time since this entry was created.
Local Membership	Whether the local router has (S,G) local membership on this interface.
Join Prune State	The state resulting from (S,G) Join/Prune messages received on this interface. The possible values include No Info, Join, or Prune Pending.
Prune Pending Timer	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.
Join Expiry Timer	The time remaining before (S,G) Join state for this interface expires.
Assert State	The (S,G) Assert state for this interface. The possible values include No Info, Winner, or Loser.
Assert Timer	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.
Assert Winner	If the Assert State is Loser, this is the address of the assert winner.
Assert Winner Metric Pref	If the Assert State is Loser, this is the metric preference of the route to the source advertised by the assert winner.
Assert Winner Metric Metric	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

46 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, 9000, 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 46-3](#).
- 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

enable	Administratively enables DVMRP on the switch.
disable	Administratively disables DVMRP on the switch.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 46-2](#).
- 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 46-7](#).

Examples

```
-> ip dvmrp status enable  
-> ip dvmrp status disable
```

Release History

Release 6.1; command was introduced.

Related Commands

ip dvmrp interface	Enables or disables the DVMRP protocol on a specified interface.
ip load dvmrp	Dynamically loads DVMRP to memory.
show ip dvmrp	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, 9000, 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, 9000, 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, 9000, 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

- | | |
|---|---|
| ip dvmrp status | Globally enables or disables the DVMRP protocol on the switch. |
| ip dvmrp interface metric | Configures the distance metric for an interface, which is used to calculate distance vectors. |
| show ip dvmrp interface | 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

interface_name The name of the interface.

value Specifies the metric value (1–31).

Defaults

parameter	default
<i>value</i>	1

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

[ip dvmrp interface](#) Enables or disables the DVMRP protocol on a specified interface.

[show ip dvmrp interface](#) 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, 9000, 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, 9000, 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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip dvmrp prune-lifetime 7200
```

Release History

Release 6.1; command was introduced.

Related Commands

- | | |
|--|--|
| ip dvmrp prune-timeout | Configures the prune packet retransmission value. |
| show ip dvmrp prune | Displays DVMRP prune entries, including the router's upstream prune state. |
| show ip dvmrp | 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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip dvmrp prune-timeout 30
```

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.
show ip dvmrp prune	Displays DVMRP prune entries, including the router's upstream prune state.
show ip dvmrp	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, 9000, 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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip dvmrp route-holddown 120
```

Release History

Release 6.1; command was introduced.

Related Commands

ip dvmrp route-timeout	Configures the route expiration timeout value.
show ip dvmrp	Displays the global DVMRP parameters.
show ip dvmrp route	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, 9000, 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

true	DVMRP neighbors are assumed subordinate; traffic is automatically forwarded to the neighbor on initial discovery.
false	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, 9000, 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 46-25](#).

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, 9000, 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

ip dvmrp tunnel ttl	Configures the TTL value for the tunnel defined for the specified local address and remote address.
show ip dvmrp interface	Displays the DVMRP interface table.
show ip dvmrp tunnel	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, 9000, 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

ip dvmrp tunnel	Adds or deletes a DVMRP tunnel for the specified local and remote addresses.
show ip dvmrp tunnel	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, 9000, 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 46-22](#).

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
all	Enables or disables DVMRP debugging for all items listed below. The syntax all can be used to easily turn debugging for all message types on or off.
error	Enables or disables debugging for DVMRP Error messages.
flash	Enables or disables debugging for DVMRP Flash processing.
graft	Enables or disables debugging for DVMRP Graft processing.
igmp	Enables or disables debugging for DVMRP Internet Group Management Protocol (IGMP) packet processing.
ipmrm	Enables or disables debugging for DVMRP IP Multicast Routing Manager (IPMRM) interaction.
init	Enables or disables debugging related to DVMRP initialization code.
mip	Enables or disables debugging for MIP (Management Internal Protocol) processing. Includes CLI and SNMP.
misc	Enables or disables miscellaneous debugging of DVMRP.
nbr	Enables or disables debugging for DVMRP Neighbor processing.
probes	Enables or disables debugging for DVMRP Probe processing.
prunes	Enables or disables debugging for DVMRP Prune processing.
routes	Enables or disables debugging for DVMRP Route processing.
time	Enables or disables debugging for DVMRP Timer processing.
tm	Enables or disables debugging for DVMRP Task Manager interaction.

Defaults

parameter	default
<i>message_type</i>	error

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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 46-22](#).
- 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, 9000, 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 46-3](#).

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)

Graft Timeout	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.
Neighbor Interval	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.
Neighbor Timeout	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.
Prune Lifetime	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.
Prune Timeout	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.
Report Interval	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.
Route Holddown	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.
Route Timeout	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.
Subord Default	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 ip dvmrp subord-default command on page 46-16 . Options include true and false. The default value is true.

output definitions (continued)

Number of Routes	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.
Number of Reachable Routes	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

ip dvmrp status	Globally enables or disables DVMRP protocol on the switch.
ip dvmrp flash-interval	Configures the minimum flash update interval value.
ip dvmrp graft-timeout	Configures the graft message retransmission value.
ip dvmrp neighbor-timeout	Configures the neighbor timeout.
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.
ip dvmrp report-interval	Configures the route report interval.
ip dvmrp route-holddown	Configures the time during which DVMRP routes are kept in a hold down state.
ip dvmrp route-timeout	Configures the route expiration timeout value.
ip dvmrp subord-default	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. This option is not supported on OmniSwitch 6800 Series switches.
enabled	Displays a list of all interfaces (i.e., VLAN router ports) on which DVMRP is currently <i>enabled</i> .
disabled	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, 9000, 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

Interface Name	The name of the interface.
Vlan	The associated VLAN ID.
Tunnel	Indicates whether there is a DVMRP tunnel currently configured on the interface. This field is not relevant for Release 5.3.1 and later.
Metric	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.
Admin-Status	The current administrative status of the corresponding interface. Options include Enabled or Disabled . An interface can be configured for DVMRP without being operational. To change the DVMRP Admin-status for an individual interface, refer to the ip dvmrp interface command on page 46-7 .
Oper-Status	The current operational status of the corresponding multicast-capable interface. Options include Enabled or Disabled . 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 ip dvmrp status command on page 46-3 .

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, 9000, 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

Neighbor Address	The 32-bit IP address of the DVMRP neighbor's router interface.
Intf Name	The interface name of the neighbor's router.
Uptime	The amount of time the neighbor has been running, displayed in hours, minutes, and seconds.
Expires	The amount of time remaining before the neighbor expires, displayed in hours, minutes, and seconds.
GenID	The generation ID for the DVMRP neighbor. This value is used by neighboring routers to detect whether the DVMRP routing table should be resent.
Version	The DVMRP version number for the neighbor.
State	The current state of the DVMRP neighbor. Options include active and down .

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, 9000, 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

Src Address/Mask	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 (/).
Interface Name	The name of the interface.
Vlan	The associated VLAN ID.
Hop Type	The hop type of the associated entry. Options include leaf or branch . If the next hop VLAN has a DVMRP neighbor attached to it, the hop type will be displayed as branch .

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, 9000, 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

Group Address	The 32-bit multicast group address.
Source Address/Mask	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 (/).
Expires	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, 9000, 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

Address/Mask	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.
Gateway	The corresponding 32-bit gateway address. Because it is not applicable, no gateway address is displayed for local routes.
Metric	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.
Age	The current age of the DVMRP route, displayed in hours, minutes, and seconds.

output definitions (continued)

Expires	The expiration time for the corresponding route. Because it is not applicable, no expiration time is displayed for local routes.
Flags	The flag type of a particular DVMRP route. Options include L (Local), R (Remote), F (Flash), H (Holddown), and I (Invalid).

Release History

Release 6.1; command was introduced.

Related Commands

ip dvmrp report-interval	Configures the route report interval.
ip dvmrp route-holddown	Configures the time during which DVMRP routes are kept in a hold down state.
ip dvmrp route-timeout	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, 9000, 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

Interface Name	The interface name. This field is only displayed on OmniSwitch 9000 switch.
Local Address	The 32-bit local IP address for the DVMRP tunnel.
Remote Address	The 32-bit remote IP address for the DVMRP tunnel.

output definitions (continued)

TTL	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.
Status	The corresponding interface status. Options include Enabled or Disabled . If the interface specified by the local address has been configured and is operationally enabled, the status is Enabled . If the interface is down, the value displayed is Disabled .

Release History

Release 6.1; command was introduced.

Related Commands

ip dvmrp tunnel	Adds or deletes a DVMRP tunnel.
ip dvmrp tunnel ttl	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, 9000, 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 46-23](#).
- To configure debug levels, refer to the [ip dvmrp debug-level command on page 46-22](#).

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

Debug Level	The current debug level value. For information on setting this parameter, see the ip dvmrp debug-level command on page 46-22 .
error	The current debugging status for DVMRP Error messages. Options include on or off .
Flash	The current debugging status for DVMRP Flash processing. Options include on or off .

output definitions (continued)

Grafts	The current debugging status for DVMRP Graft processing. Options include on or off .
IGMP	The current debugging status for DVMRP Internet Group Management Protocol (IGMP) packet processing. Options include on or off .
IPMRM	The current debugging status for DVMRP IP Multicast Routing Manager (IPMRM) interaction. Options include on or off .
Init	The current debugging status for DVMRP Initialization. Options include on or off .
MIP	The current debugging status for DVMRP MIP (Management Internal Protocol) processing. Includes CLI and SNMP. Options include on or off .
Misc	The current status of miscellaneous DVMRP debugging. Options include on or off .
Nbr	The current debugging status for DVMRP Neighbor processing. Options include on or off .
Probes	The current debugging status for DVMRP Probe processing. Options include on or off .
Prunes	The current debugging status for DVMRP Prune processing. Options include on or off .
Routes	The current debugging status for DVMRP Route processing. Options include on or off .
Time	The current debugging status for DVMRP Timer processing. Options include on or off .
TM	The current debugging status for DVMRP Task Manager interaction. Options include on or off .

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

47 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

Interface Name	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.
Interface Address	The IP address of this interface where the boundary is assigned.
Boundary Address	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, 6855, 9000, 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

Interface Name	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.
Boundary Address	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, 6855, 9000, 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

Group Address	The IP multicast group address for this entry.
Src Address	The network address which identifies the source for this entry.
Upstream Nbr	The address of the upstream neighbor from which IP datagrams from these sources to this multicast address are received.
Route Address	The address portion of the route used to find the upstream or parent interface for this multicast forwarding entry.
Proto	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, 6855, 9000, 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

Group Address	The IPv6 multicast group address for this entry.
Source Address	The IPv6 multicast address, which identifies the source for this entry.
Interface	The name of the IPv6 interface on which the datagrams sent by these sources to this IPv6 multicast address are received.
Upstream Neighbor	The IPv6 address of the upstream neighbor from which the datagrams from these sources to this multicast address are received.
Route Addr/Prefix len	The IPv6 address portion of the route used to find the upstream or parent interface for this IPv6 multicast forwarding entry.
Proto	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, 6855, 9000, 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

Interface Name	The name configured for the interface.
IP Address	The IP address of this interface entry.
TTL	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.
Multicast Protocol	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, 6855, 9000, 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

Interface Name	The name configured for the IPv6 interface.
IP Address	The IPv6 address of this interface entry.
TTL	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.
Multicast Protocol	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, 6855, 9000, 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

Group Address	The IP multicast group address for this entry.
Src Address	The network address, which identifies the source for this entry.
Interface Name	Generally, this is the name configured for the interface.
Next Hop Address	The address of the next-hop that is specific to this entry.
Protocol	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, 6855, 9000, 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

Group Address	The IPv6 multicast group address for this entry.
Src Address	The IPv6 multicast address, which identifies the source for this entry.
Interface Name	The name of the IPv6 interface on which the datagrams sent by these sources to this IPv6 multicast address are received.
Next Hop Address	The IPv6 address of the next-hop that is specific to this entry.
Protocol	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
```

48 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:

Port Mirroring Commands	port mirroring source destination port mirroring show port mirroring status
Port Monitoring Commands	port monitoring source port monitoring show port monitoring status show port monitoring file

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.
source	Adds the alphabet “a” to a port mirroring session.
no source	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.
rpmir-vlan <i>vlan_id</i>	Reserved VLAN (1–4094) to carry the mirroring traffic.
bidirectional	Specifies bidirectional port mirroring.
inport	Specifies incoming unidirectional port mirroring.
outport	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.
enable	Enables port mirroring status.
disable	Disables port mirroring status.

Defaults

parameter	default
bidirectional inport outport	bidirectional
enable disable	disable on OmniSwitch 9000; enable on other platforms

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The maximum number of mirroring sessions is limited to two on OmniSwitch 6850, 6855, and 9000.
- You cannot configure a port mirroring and a port monitoring session on the same NI module in an OmniSwitch 9000.
- 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/OS9000). 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 and OS9000 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 and OS9000 switches 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.
enable	Enables port mirroring.
disable	Disables port mirroring.
no	Optional syntax. Deletes a previously-configured port mirroring session.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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).
file filename	Specifies a file name for the monitoring session (e.g., /flash/port2).
<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).
no file	Specifies that no file will be created for the monitoring session.
on	Specifies that any existing port monitoring file in flash memory will be overwritten if the total data exceeds the specified file size.
off	Specifies that any existing port monitoring file in flash memory will not be overwritten if the total data exceeds the specified file size.
inport	Specifies incoming unidirectional port monitoring.
outport	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.
enable	Enables the port monitoring status.
disable	Disables the port monitoring status.

Defaults

parameter	default
<i>filesize</i>	1
on off	on
bidirectional inport outport	bidirectional
<i>seconds</i>	0
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6800, 6850, 6855, 9000

Usage Guidelines

- The maximum number of monitoring sessions is limited to one per chassis and/or stack.
- You cannot configure a port mirroring and a port monitoring session on the same NI module in an OmniSwitch 9000.
- 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.
- You cannot configure port mirroring and monitoring on the same switching ASIC on OmniSwitch 6800 Series switches. Each switching ASIC controls 12 ports (e.g., ports 1–12, 13–24, etc.). For example, if a port mirroring session is configured for ports 1/6 and 1/10, then configuring a port monitoring session for any of the ports between 1 and 12 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

port monitoring	Disables, pauses, resumes, or deletes a port monitoring session.
show port monitoring status	Displays the port monitoring status.
show port monitoring file	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.
disable	Disables the port monitoring session.
pause	Pauses the port monitoring session.
resumes	Resumes the port monitoring session.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

port monitoring	Configures a port monitoring session.
show port monitoring status	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, 6855, 9000, 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

Session	The port mirroring session identifier.
Mirror Destination	The location of the mirrored port.
Mirror Direction	The direction of the mirroring or mirrored port, which can be bidirectional (the default), inport , or outport .
Unblocked VLAN	The mirroring VLAN ID number.

output definitions (continued)

Config Status	The configuration status of the session.
Oper Status	The current status of the mirroring or mirrored port.
Mirror Source	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

Session	The port mirroring session identifier.
Mirror Destination	The location of the mirrored port.
Mirror Direction	The direction of the mirroring or mirrored port, which can be bidirectional (the default), inport , or outport .
Unblocked VLAN	The mirroring VLAN ID number.
Config Status	The configuration status of the session.
Oper Status	The current status of the mirroring or mirrored port.
Mirror Source	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, 6855, 9000, 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

Session	The port monitoring session identifier.
Monitor slot/port	The location of the monitored port.
Monitor Direction	The direction of the monitoring session, which can be bidirectional (the default), inport , or outport .
Overwrite	Whether files created by a port monitoring session can be overwritten. The default is ON.
Operating Status	The current operating status of the port monitoring session (on/off).
Admin Status	The current administrative status of the port monitoring session (on/off).

Release History

Release 6.1; command was introduced.

Related Commands

port monitoring source	Configures a port monitoring session.
port monitoring	Disables, pauses, resumes, or deletes a port monitoring session.
show port monitoring file	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, 6855, 9000, 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

Destination	The destination MAC address of the packet.
Source	The source MAC address of the packet.
Type	The type of packet.
Data	The packet displayed in hexadecimal format.

Release History

Release 6.1; command was introduced.

Related Commands

port monitoring source	Configures a port monitoring session.
port monitoring	Disables, pauses, resumes, or deletes a port monitoring session.
show port monitoring status	Displays the port monitoring status.

MIB Objects

```
monitorTable  
  monitorSessionNumber  
  monitorIfindex  
  monitorTrafficType
```

49 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

stats	Ethernet Statistics Table probe entries.
history	History Control Table probe entries.
alarm	Alarm Table probe entries.
<i>entry-number</i>	The entry number in the list of probes (<i>optional</i>).
enable	Enables the RMON probe.
disable	Disables the RMON probe.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

stats	Ethernet Statistics Table probe entries.
history	History Control Table probe entries.
alarm	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, 6855, 9000, 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

Probe's Owner	Description and interface (location) of the probe.
Slot/Port	The Slot/Port number (interface) that this probe is monitoring.
Entry	The Entry number in the list of probes.
Flavor	Whether the probe type is Ethernet, History, or Alarm.
Status	The status of the probe— Creating (the probe is under creation), Active (the probe is Active), or Inactive (the probe is inactive).
Duration	Elapsed time (hours/minutes/seconds) since the last change in status.
System Resources	Amount of memory that has been allocated to this probe.

Release History

Release 6.1; command was introduced.

Related Commands

rmon probes	Enables or disables types of RMON probes.
show rmon events	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, 6855, 9000, 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

Entry	The entry number in the list of probes.
Time	Time (hours, minutes, and seconds) since the last change in status.
Description	Description of the Alarm condition detected by the probe.

Release History

Release 6.1; command was introduced.

Related Commands

rmon probes	Enables or disables types of RMON probes.
show rmon probes	Displays RMON probes or a single RMON probe.

MIB Objects

EVENTTABLE
eventIndex

50 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

rx	Specifies the maximum input (RX) traffic threshold.
txrx	Specifies the maximum output/input (TX/RX) traffic threshold.
memory	Specifies the maximum RAM memory usage threshold.
cpu	Specifies the maximum CPU usage threshold.
<i>percent</i>	The new threshold value, in percent, for the corresponding resource—i.e., rx , txrx , memory , cpu —(0–100).
temperature	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, 6855, 9000, 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 50-6](#), 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, 6855, 9000, 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, 6855, 9000, 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

rx	Displays the current input (RX) traffic threshold.
txrx	Displays the current output/input (TX/RX) traffic threshold.
memory	Displays the current RAM memory usage threshold.
cpu	Displays the current CPU usage threshold.
temperature	Displays the current chassis temperature threshold.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Rx Threshold	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 health threshold command.
TxRx Threshold	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 health threshold command.
Memory Threshold	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 health threshold command.
CPU Threshold	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 health threshold command.
Temperature Threshold	Displays the current chassis temperature threshold, in Celsius. The default value is 50 degrees Celsius and can be changed via the health threshold 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, 6855, 9000, 9000E

Usage Guidelines

Use the [health interval](#) command to set the sampling interval.

Examples

```
-> show health interval  
Sampling Interval = 5
```

output definitions

Sampling Interval	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, 6855, 9000, 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
Temperature Cmm	50	33	33	33	33
Temperature Cmm Cpu	50	32	32	32	32

```
-> 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

Receive	Traffic received by the switch.
Transmit/Receive	Traffic transmitted and received by the switch.
Memory	Switch memory.
CPU	Switch CPU.
Temperature Cmm	CMM Chassis Temperature.
Temperature Cmm Cpu	CMM CPU Temperature.
Limit	Currently configured device threshold levels (percentage of total available bandwidth or temperature measured in degrees Celsius).
Curr	Current device bandwidth usage or temperature (measured in degrees Celsius).
1 Min Avg	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-minute period.
1 Hr Avg	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-hour period.
1 Hr Max	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

[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

memory	Displays the RAM memory health statistics for all active NI modules in the switch.
cpu	Displays the CPU health statistics for all active NI modules.
rx	Displays the health statistics for traffic <i>received</i> on all active NI modules.
txrx	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, 6855, 9000, 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

Memory (Cpu, TXX, RX)	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 show health all cpu is entered, Cpu is used as the column header.
Limit	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 health threshold command.
Curr	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).
1 Min Avg	Average usage of the resource on the corresponding slot over a one minute period.
1 Hr Avg	Average usage of the resource on the corresponding slot over a one hour period.
1 Hr Max	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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show health slice 13
Slot 13      slice
Resources    1
-----+-----
Memory      40
Cpu         21
```

output definitions

Slot	The physical slot number for the corresponding slice.
slice	The on-board slice number (1–64).
Memory	The slice-level RAM memory utilization over the latest sample period, in percent (0–100).
Cpu	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, 9000, 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

Slot	The physical slot number for the corresponding fabric.
Limit	Currently configured device threshold levels (percentage of total available bandwidth or temperature measured in degrees Celsius).
Curr	Current device bandwidth usage or temperature (measured in degrees Celsius).
1 Min Avg	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-minute period.

output definitions (continued)

1 Hr Avg	Average device bandwidth usage or temperature (measured in degrees Celsius) over a 1-hour period.
1 Hr Max	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
```

51 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, 6855, 9000, 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.

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> / forever	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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

Agent Version	Identifies the version which includes the MIB version, organization name, and the specific software build of the agent.
Agent address	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, 6855, 9000, 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

Name	Name of the entry to claim.
Address	IP address of the sFlow collector.
UDP Port	Destination port for sFlow datagrams.
Timeout	Time remaining before the sampler is released and stops sampling.
Packet size	Maximum number of data bytes that can be sent in a single sample datagram.
Datagram ver	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, 6855, 9000, 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

Instance	Instance for the flow sampler.
Interface	Interface used for the flow sampler.
Receiver	Receiver associated with the flow sampler.
Sample-rate	Statistical sampling rate for packet sampling from the source.
Sample-hdr-size	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, 6855, 9000, 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

Instance	Instance for the counter poller.
Interface	Interface used for the counter poller.
Receiver	Receiver associated with the counter poller.
Interval	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

52 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 53, "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:

Global commands

qos
qos trust ports
qos default servicing mode
qos forward log
qos log console
qos log lines
qos log level
qos default bridged disposition
qos default routed disposition
qos default multicast disposition
qos stats interval
qos nms priority
qos phones
qos user-port
qos quarantine mac-group
qos quarantine path
qos quarantine page
debug qos
debug qos internal
qos clear log
qos apply
qos revert
qos flush
qos reset
qos stats reset
show qos queue
show qos slice
show qos log
show qos config
show qos statistics

Port and Slice commands

qos port
qos port reset
qos port trusted
qos port servicing mode
qos port q minbw maxbw
qos port maximum egress-bandwidth
qos port maximum ingress-bandwidth
qos port default 802.1p
qos port default dscp
qos port default classification
show qos port

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]  
    [default bridged disposition {accept | deny | drop}]  
    [default routed disposition {accept | deny | drop}]  
    [default multicast disposition {accept | deny | drop}]  
    [stats interval seconds]  
    [user-port {filter | shutdown} {spoof | bgp | bpdu | rip | ospf}
```

Syntax Definitions

enable	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 enable setting may be used alone or in conjunction with optional command keywords.
disable	Disables QoS. Flows coming into the switch are not matched to policies. The disable setting cannot be used with any other command keyword.

Defaults

parameter	default
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy rule	Configures a policy rule on the switch.
show policy rule	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 52-42](#) 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, 6855, 9000, 9000E

Usage Guidelines

- Use the **qos ports 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

qos port	Configures a physical port for QoS.
qos port trusted	Configures whether or not a particular port is trusted or untrusted.
show qos port	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

strict-priority	Selects the strict priority queuing scheme as the default servicing mode. All eight available queues on a port are serviced strictly by priority.
wrr	Selects the weighted round robin (WRR) queuing scheme as the default servicing mode. Traffic is serviced based on the weight of each queue.
priority-wrr	Parameter not supported.
drr	Selects the deficit round robin (DRR) queuing scheme as the default servicing mode. Traffic is serviced based on the weight of each queue. <i>This parameter is not supported on the OmniSwitch 6800.</i>
<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
strict-priority wrr drr	strict-priority
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	1 (best effort)

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- When configuring the default queuing scheme on an OmniSwitch 6800, it is necessary to enter eight weight values, even though only six queues per port are available. The last two values entered are ignored.
- 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 **drr** parameters added.

Release 6.3.1; **priority-wrr** parameter deprecated.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
qos port servicing mode	Configures the servicing mode (SPQ or priority WRR) for a port.
show qos queue	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, 6855, 9000, 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

qos log lines	Configures the number of lines in the QoS log.
show qos log	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, 6855, 9000, 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 remote command-log	Enables or disables switch logging output to the console, file, or data socket (remote session).
show log swlog	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, 6855, 9000, 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, 6855, 9000, 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

accept	Specifies that the switch should accept the flow.
drop	Specifies that the switch should silently drop the flow.
deny	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 drop ; 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, 6855, 9000, 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

accept	Specifies that the switch should accept the flow.
drop	Specifies that the switch should silently drop the flow.
deny	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 drop ; 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, 6855, 9000, 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

accept	Specifies that the switch should accept the flow.
drop	Specifies that the switch should silently drop the flow.
deny	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 drop ; 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, 6855, 9000, 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.

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 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, 6855, 9000, 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, 6855, 9000, 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> trusted	trusted

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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

filter	Filters the specified type of traffic when it is received on UserPort ports.
shutdown	Administratively disables UserPort ports that receive the specified type of traffic.
spoof	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.
bgp	Filters only BGP protocol packets from a TCP session that was not originated by the same switch that has this filter configured.
bpdu	Filters conventional Spanning Tree BPDU (destination MAC address 0x0180c2:000000) packets and GVRP (destination MAC address 0x0180c2:000021) packets.
rip	Filters RIP protocol packets.
ospf	Filters OSPF protocol packets.
vrrp	Filters VRRP protocol packets.
dvmrp	Filters IGMP packets with a type of 0x13. This applies only to IP packets with no options.
pim	Filters PIMv1, PIM-DM, and PIM-SM packets. The PIMv1 filter applies only to IP packets with no options.
isis	Filters IS-IS protocol packets.
dhcp-server	Filters response packets originating from a DHCP or BOOTP server that is configured on the known UDP port 67.
dns-reply	Filters all packets (both TCP and UDP) that originate from the known DNS port 53.

Defaults

parameter	default
filter	spooof
shutdown	none

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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, 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

qos quarantine path	Specifies the URL for a remediation server.
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.
show policy mac group	Displays information about policy MAC groups.
show qos config	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, 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

qos quarantine mac-group	Configures the name of the Quarantine MAC address group.
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.
policy network group	Configures a network group name and its associated IP addresses.
show qos config	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, 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

qos quarantine mac-group	Configures the name of the Quarantine MAC address group.
qos quarantine path	Specifies the URL for a remediation server.
show qos config	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] [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]
```

Syntax Definitions

flows	Logs events for flows on the switch.
queue	Logs events for queues created and destroyed on the switch.
rule	Logs events for rules configured on the switch.
l2	Logs Layer 2 QoS events on the switch.
l3	Logs Layer 3 QoS events on the switch.
nat	Logs events for Network Address Translation policies. <i>Not supported for the OmniSwitch 6624/6648.</i>
port	Logs events related to QoS ports.
msg	Logs QoS messages.
classifier	Logs information whenever the switch classifies a flow; more details are provided if the log level is higher.
info	Logs basic information about the switch
config	Logs information about the global configuration.
main	Logs information about basic program interfaces.
route	Logs information about routing.
hre	Logs information about hardware route programming.
sl	Logs information about source learning.
mem	Logs information about memory.
cam	Logs information about CAM operations.
mapper	Logs information about mapping queues.
slot	Logs events related to slots.
sem	Logs information about semaphore, process locking.
pm	Logs events related to the Policy Manager.
ingress	Logs information about packets arriving on the switch.

egress	Logs information about packets leaving the switch.
rsvp	Logs information about RSVP flows. <i>Currently not supported.</i>
balance	Logs information about flows that are part of a load balancing cluster. <i>Not supported for the OmniSwitch 6624/6648.</i>
nimsg	Logs information about QoS interfaces.

Defaults

By default basic information messages are logged (**info**). Error messages are always logged.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos forward log	Enables the switch to send events to the PolicyView application in real time.
qos log lines	Configures the number of lines in the QoS log.
show qos log	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.
flow	Displays information about QoS flows.
queue	Displays information about QoS queues.
port	Displays information about QoS ports.
l2tree	Displays information about Layer 2 flows.
l3tree	Displays information about Layer 3 flows.
vector	Displays information about vectors.
pending	Displays information about pending QoS objects.
verbose	Sets the output to verbose mode for more detailed information.
mapper	Displays information about QoS mapping flows to queues.
pool	Displays information about the buffer pool.
log	Displays information about QoS information that is logged.
pingonly	Specifies that any policies configured with an ICMP protocol condition apply only to ICMP echo-requests and echo-replies.
nopingonly	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
pingonly nopingonly	nopingonly

Platforms Supported

OmniSwitch 6400, 6800, 6850, 6855, 9000

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

debug qos	Configures the type of QoS events that will be displayed in the QoS log.
policy condition ip protocol	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, 6855, 9000, 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

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  
  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, 6855, 9000, 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

qos revert	Removes any policies configured through policy rule but not applied to the current configuration through the qos apply command.
qos reset	Resets the QoS configuration to its default values.
qos flush	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, 6855, 9000, 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

policy rule	Configures a policy rule and saves it to the current configuration but does not make it active on the switch.
qos apply	Applies all QoS settings configured on the switch to the current configuration.
qos reset	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, 6855, 9000, 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

policy rule	policy mac group
policy network group	policy port group
policy service	policy condition
policy service group	policy action

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, 6855, 9000, 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

qos apply	Applies all QoS settings configured on the switch to the current configuration.
qos revert	Deletes any QoS configuration that has not been applied to the configuration through the qos apply command.

MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigReset
```

qos stats reset

Resets QoS statistic counters to zero.

```
qos stats reset
```

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Use this command to reset global QoS statistics to zero. Statistics may be displayed with the **show qos statistics** command.

Examples

```
-> qos stats reset
```

Release History

Release 6.1; command was introduced.

Related Commands

[show qos statistics](#) Displays statistics about the QoS configuration.

MIB Objects

```
alaQoSConfigTable  
  alaQoSConfigStatsReset
```

qos port reset

Resets all QoS port configuration to the default values.

qos port *slot/port* reset

Syntax Definitions

slot/port The physical slot and port number. For example: 3/1.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

The QoS port configuration parameters that are reset include:

parameter	default
default queues	8 (6 on an OmniSwitch 6800)
trusted	not trusted

Examples

```
-> qos port 3/1 reset
```

Release History

Release 6.1; command was introduced.

MIB Objects

```
alaQoSPortTable  
  alaQoSPortSlot  
  alaQoSPortPort  
  alaQoSPortReset
```

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*

[**servicing mode**]

[**trusted**]

[**maximum bandwidth**]

[**default 802.1p** *value*]

[**default dscp** *value*]

[**default classification** {**802.1p** | **tos** | **dscp**}]

[**q0-minbw** | **q0-maxbw** | **q1-minbw** | **q1-maxbw** | **q2-minbw** | **q2-maxbw** | **q3-minbw** | **q3-maxbw** | **q4-minbw** | **q4-maxbw** | **q5-minbw** | **q5-maxbw** | **q6-minbw** | **q6-maxbw** | **q7-minbw** | **q7-maxbw**]
kbps]

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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
qos port	Configures whether the default mode for QoS ports is trusted or untrusted.
show qos port	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
```

qos port trusted

Configures whether an individual port is trusted or untrusted. Trusted ports can accept the 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.

qos port *slot/port* trusted

qos port *slot/port* no trusted

Syntax Definitions

slot/port The slot number and port number of the physical port.

Defaults

By default, QoS ports are not trusted.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **qos trust ports** command to set the default trust mode for all QoS ports. The **qos port trusted** command may be used to override the default.
- The setting applies only to ports with incoming traffic.
- 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 802.1p or ToS/DSCP value for such packets.
- Mobile ports and ports configured for 802.1Q are always trusted.

Examples

```
-> qos port 3/1 trusted
-> qos port 4/2 no trusted
```

Release History

Release 6.1; command was introduced.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
qos port	Configures a physical port for QoS.
qos trust ports	Configures the global trust mode for QoS ports.
show qos port	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.
strict-priority	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.
wrr	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.
priority-wrr	Parameter not supported.
drr	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>This parameter is not supported on the OmniSwitch 6800.</i>
<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.
default	Selects the switch default servicing mode for the port. The default mode is configured using the qos default servicing mode command.

Defaults

parameter	default
strict-priority wrr drr	strict-priority
<i>w0 w1 w2 w3 w4 w5 w6 w7</i>	1 (best effort)

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- When configuring the default queuing scheme on an OmniSwitch 6800, it is necessary to enter eight weight values, even though only six queues per port are available. The last two values entered are ignored.
- 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

qos apply	Applies configured QoS and policy settings to the current configuration.
qos default servicing mode	Configures the default servicing mode for all switch ports.
show qos queue	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, 10000) or with abbreviated units (for example, 10k , 10m , 10g , or 10t). 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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
qos default servicing mode	Configures the default servicing mode for all switch ports.
show qos queue	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, 6855, 9000, 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

qos port maximum ingress-bandwidth	Configures the rate at which traffic is received on a QoS port.
qos apply	Applies configured QoS and policy settings to the current configuration.
qos port	Configures a physical port for QoS.
show qos port	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, 6855, 9000, 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.
- Note that ingress bandwidth rate limiting is not supported on the OmniSwitch 6800.

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

qos port maximum egress-bandwidth	Configures the rate at which traffic is sent on a QoS port.
qos apply	Applies configured QoS and policy settings to the current configuration.
qos port	Configures a physical port for QoS.
show qos port	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
qos port	Configures a physical port for QoS.
show qos port	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, 6855, 9000, 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 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.
802.1p	Specifies that the 802.1p value of the flow will be used to prioritize flows coming in on the port.
dscp	Specifies that DSCP of the flow will be used to prioritize flows coming in on the port.

Defaults

parameter	default
802.1p dscp	dscp

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 using this command.
- 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

<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`
`alaQoSPortDefaultClassification`

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. On an OmniSwitch 6800, displays policy

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 qos port trusted command; the port setting takes precedence over the global trust setting configured through the qos trust ports command.
*	Indicates that the port is automatically trusted regardless of the global setting set through the qos trust ports command. (Applies to mobile ports and ports configured for 802.1Q.)

Examples

```
-> show qos port
```

Slot/ Port	QoS		Trust	Deflt		Queues		Bandwidth			Clsfy	Type
Act	Enabled		P/DSCP	Deflt	Tot	Physical	Max	Reserved				
4/1	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/2	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/3	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/4	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/5	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/6	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/7	Yes	Yes	No	0/ 0	8	0	100M	-	-/<phy>	-	ethernet-100	
4/8	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/9	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	
4/10	No	Yes	No	0/ 0	8	0	0K	-	-/<phy>	-	ethernet	

```
-> show qos port 4/7
Slot/   QoS           Deflt   Queues           Bandwidth
Port  Act Enabled  Trust P/DSCP Deflt  Tot Physical  Max Reserved  Clsfy Type
4/7  Yes  Yes      No 0/  0    8    0  100M    -    -/<phy> - ethernet-100
```

output definitions

Slot/Port	The slot and physical port number.
QoS	Whether or not the interface supports QoS.
Act	Whether or not the port is sending/receiving QoS traffic.
Enabled	Whether or not the port is enabled for QoS.
Trust	Whether the port is trusted or not trusted.
Default P	The default 802.1p setting for the port.
Default DSCP	The default ToS/DSCP setting for the port.
Default Queues	The number of default queues.
Tot Queues	The total number of queues.
Physical Bandwidth	The amount of physical bandwidth available on the port.
Max Reserved Bandwidth	Displays the amount of bandwidth reserved and whether it is physical (< phy >) or maximum virtual port bandwidth (< max >).
Clsfy	The default classification setting on a high-density gigabit port (p for 802.1p; t for ToS; d for DSCP). The field displays a hyphen (-) if the port is not located on a high-density gigabit interface.
Type	The interface type, ethernet or wan .

Release History

Release 6.1; command was introduced.

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 queue

Displays information for all QoS queues.

show qos queue

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

All queue information is displayed.

Examples

```
-> show qos queue
Slot/      Q
Port  VPN No Pri Wt  Min  Max  Bufs  Depth  Xmit/Drop  Type Action
4/7   102 0  0  -  *   *   *    *    */*       PRI (Default)
4/7   102 1  1  -  *   *   *    *    */*       PRI (Default)
4/7   102 2  2  -  *   *   *    *    */*       PRI (Default)
4/7   102 3  3  -  *   *   *    *    */*       PRI (Default)
4/7   102 4  4  -  *   *   *    *    */*       PRI (Default)
4/7   102 5  5  -  *   *   *    *    */*       PRI (Default)
4/7   102 6  6  -  *   *   *    *    */*       PRI (Default)
4/7   102 7  7  -  *   *   *    *    */*       PRI (Default)
```

output definitions

Slot/Port	The physical slot/port numbers associated with the queue.
VPN	The virtual port number associated with the queue.
Q No	The queue number (0 through 7).
Pri	The priority associated with the queue (0 through 7), configured through the policy action priority command.
Wt	The weight value assigned to each queue. Configured through the qos default servicing mode and qos port servicing mode commands.
Bandwidth Min	The minimum bandwidth requirement for the queue.
Bandwidth Max	The maximum bandwidth requirement for the queue (the bandwidth allowed by the maximum configured for all actions associated with the queue). Configured through the policy action maximum bandwidth command.

output definitions (continued)

Max Bufs	The number of buffers associated with the queue.
Max Depth	The maximum queue depth, in bytes. Configured through the policy action maximum depth command.
Packets Xmit/Drop	The number of packets transmitted/dropped from this queue.
Type	The type of queuing performed on this queue (pri , wrr , drp).
Action	The action that created the queue. A second line displays parameters specified by the action. The actions are as follows: <ul style="list-style-type: none">• Default—Set up for traffic that does not match a condition on the port.• Flood—Set up for flooded or broadcast traffic.• Best Effort—Set up for traffic that does not match a condition on the VPN.• QOS—Created by the switch because the traffic matched a condition. When traffic matches a condition and queue is set up, another line displays to show the parameters specified by the action corresponding to the condition. <i>An asterisk displays in fields where the parameter was not specified by the action.</i> In other words, the first line shows what is actually happening in the queue; the second line shows what the action specified.

Release History

Release 6.1; command was introduced.

Release 6.1.1; **Q No** field was 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

alaQoSQueueTable
 alaQoSQueueId
 alaQoSQueueSlot
 alaQoSQueuePort
 alaQoSQueuePortId
 alaQoSQueueType
 alaQoSQueuePriority
 alaQoSQueueMinimumBandwidth
 alaQoSQueueMaximumBandwidth
 alaQoSQueueAverageBandwidth
 alaQoSQueueMaximumDepth
 alaQoSQueueMaximumBuffers
 alaQoSQueue8021p
 alaQoSQueuePacketsSent
 alaQoSQueuePacketsDropped
 alaQoSQueueMaxLength
 alaQoSQueueAverageLength
 alaQoSQueueCurrentLength
 alaQoSQueueAction

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 [*slot/slice*]

Syntax Definitions

slot/slice 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

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Information for all slots/slices is displayed unless a particular slot/slice is requested.
- This command is useful for monitoring switch resources required for policy rules.

Examples

```
-> show qos slice
Slot/      Ranges      Rules      Counters      Meters
Slice     Type  Total/Free  CAM  Total/Free  Total/Free  Total/Free
 3/0  Firebolt  16/16      0   128/101     128/101     64/64
      1      128/125     1   128/125     128/125     64/64
      2      128/0       2   128/0       128/0       64/64
      3      128/0       3   128/0       128/0       64/64
      4      128/0       4   128/0       128/0       64/64
      5      128/0       5   128/0       128/0       64/64
      6      128/0       6   128/0       128/0       64/64
      7      128/0       7   128/0       128/0       64/64
      8      128/0       8   128/0       128/0       64/64
      9      128/0       9   128/0       128/0       64/64
     10     128/0      10   128/0       128/0       64/64
     11     128/0      11   128/0       128/0       64/64
     12     128/0      12   128/0       128/0       64/64
     13     128/0      13   128/0       128/24      64/64
     14     128/0      14   128/0       128/62      64/64
     15     128/124    15   128/124     128/123     64/63
```

output definitions

Slot/Slice	The slot and slice number.
Type	The type of slice.
Ranges Total	The total number of TCP/UDP port ranges supported per slot/slice.

output definitions (continued)

Ranges Free	The number of TCP/UDP port ranges that are still available for use.
CAM	The CAM number.
Rules Total	The total number of rules supported per CAM.
Rules Free	The number of rules that are still available for use. On startup, the switch uses 27 rules.
Counters Total	The total number of counters supported per CAM.
Counter Free	The number of counters that are still available for use.
Meters Total	The total number of meters supported per CAM.
Meters Free	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.

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, 6855, 9000, 9000E

Usage Guidelines

Use this command to display the current QoS log. To clear the log, use the **qos clear log** command.

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, 6855, 9000, 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
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

QoS Configuration	Whether or not QoS is enabled or disabled. Configured through the qos command.
Default queues	The number of default queues for QoS ports. There are eight queues for each QoS port; this value is not configurable.
Default queue service	The default servicing mode for the switch (strict-priority , WRR , or DRR). Configured through the qos default servicing mode command.
Trusted Ports	The default trusted mode for switch ports. Configured through the qos trust ports command.
NMS Priority	Whether or not the automatic prioritization of NMS traffic is enabled or disabled. Configured through the qos nms priority command.
Phones	Whether or not IP Phone traffic is automatically trusted or assigned a priority value. Configured through the qos phones command.
Default bridged disposition	Whether or not bridged traffic that does not match any policy will be accepted or denied on the switch. Configured through the qos default bridged disposition command.
Default routed disposition	Whether or not routed traffic that does not match any policy will be accepted or denied on the switch. Configured through the qos default routed disposition command.
Default IGMP/MLD disposition	Whether or not multicast flows that do not match any policy will be accepted or denied on the switch. Configured through the qos default multicast disposition command.
Log lines	The number of lines included in the QoS log. Configured through the qos log lines command.
Log level	The level of log detail. Configured through the qos log level command.
Log to console	Whether or not log messages are sent to the console. Configured through the qos log console command.
Forward log	Whether or not logged events are sent to the policy server software in the switch in real time. Configured through the qos forward log command.
Stats interval	How often the switch polls network interfaces for statistics about QoS events. Configured through the qos stats interval command.
Filter	The type of traffic that is filtered on ports that are members of the UserPorts group. Configured through the qos user-port command.
Shutdown	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 qos user-port command.
Quarantine MAC Group	The name of the Quarantine Manager and Remediation (QMR) MAC address group. Configured through the qos quarantine mac-group command. Note that this field only displays on an OmniSwitch 6850 and 6855.
Quarantined Page	Indicates whether or not QMR sends a Quarantined page to a client. Configured through the qos quarantine page command. Note that this field only displays on an OmniSwitch 6850 and 6855.

output definitions (continued)

Remediation URL	The URL for the QMR remediation server. Configured through the qos quarantine path command. Note that this field only displays on an OmniSwitch 6850 and 6855.
Debug	The type of information that will be displayed in the QoS log. Configured through the debug qos command. A value of info 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.

Related Commands

qos	Enables or disables QoS. This base command may be used with key-word options to configure QoS globally on the switch.
show qos statistics	Displays statistics about the QoS configuration.

MIB Objects

```
alaQoSConfigTable
  alaQoSConfigEnable
  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, 6855, 9000, 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		

output definitions

Events	The number of Layer 2 or Layer 3 flows transmitted on the switch.
Matches	The number of Layer 2 or Layer 3 flows that match policies.

output definitions (continued)

Drops	The number of Layer 2 or Layer 3 flows that were dropped.
L2	The number of Layer 2 events, matches, and drops.
L3 Ingress	The number of Layer 3 ingress events, matches, and drops.
L3 Egress	The number of Layer 3 egress events, matches, and drops.
IGMP join	The number of multicast events, matches, and drops.
Fragments	The number of fragments dropped.
Bad Fragments	The number of fragments received with an offset of 1.
Unknown Fragments	The number of out-of-order fragments received.
Sent NI messages	The number of messages sent to network interfaces.
Received NI messages	The number of messages received by network interfaces.
Failed NI messages	The number of failed message attempts to network interfaces.
Load balanced flows	The number of Server Load Balance flow entries.
Reflexive flows	The number of reflexive flows.
Reflexive correction	The number of reflexive flow corrections.
Flow lookups	The number of flow table lookups.
Flow hits	The number of flow table lookup hits.
Max PTree nodes	The highest number of nodes in the classifier tree.
Max Ptree depth	The length of the longest path in the classifier tree.
Spoofed Events	The number of spoofed events.
Nonspoofed Events	The number of nonspoofed events.
DropServices	The number of TCP/UDP flows dropped.

Release History

Release 6.1; command was introduced.

Release 6.1.1; **Spoofed Events**, **Nonspoofed Events**, and **DropServices** fields added.

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

53 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:

Policy commands	policy rule policy validity period policy condition policy action policy list show policy action show policy condition show active policy rule show policy rule show policy validity period show active policy list show policy list
------------------------	---

Group commands	policy network group policy service policy service group policy mac group policy port group policy map group show policy network group show policy mac group show policy port group show policy map group show policy service show policy service group
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 destination mac policy condition source mac group policy condition destination mac group policy condition source vlan policy condition inner source vlan 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 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.

Access Control Lists	policy condition policy action disposition policy rule
ACLMAN interactive shell	aclman
Traffic prioritization/shaping	policy action shared policy action priority policy action maximum bandwidth policy rule
802.1p/ToS/DSCP tagging or mapping	policy condition tos policy condition dscp policy condition 802.1p policy action tos policy action 802.1p policy action dscp policy action map policy rule
Policy based port mirroring	policy action mirror
VLAN Stacking	policy condition inner source vlan policy condition inner 802.1p

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, 6855, 9000, 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.
enable	Enables the policy rule.
disable	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 policy condition command.
<i>action</i>	The name of the action that is associated with this rule. Actions are configured through the policy action command.
<i>name</i>	The name of a user-defined validity period that is associated with this rule. Validity periods are configured through the policy validity period command.
save	Marks the policy rule so that it may be captured as part of the switch configuration.
log	Configures the switch to log messages about specific flows coming into the switch that match this policy rule. <i>Logging rules is not supported on the OmniSwitch 6800.</i>
<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.
packets	Counts the number of packets that match the rule.
bytes	Counts the number of bytes that match the rule. <i>Note that counting bytes is not supported on the OmniSwitch 6800.</i>
trap	Enables or disables traps for the rule.
default-list	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
enable disable	enable
<i>precedence</i>	0
log	no
log-interval	30 seconds
packets bytes	packets
trap	enable
default-list	add to default list

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E
OmniSwitch 9000; **default-list** parameter not supported.

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 **copy running-config working** 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.
- 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

policy validity period	Configures a validity period that specifies days, times, and/or months during which an associated policy rule is in effect.
policy condition	Configures condition parameters.
policy action	Configures action parameters.
policy list	Adds or removes a policy rule from a policy list.
qos apply	Applies configured QoS and policy settings to the current configuration.
show active policy rule	Displays only those policy rules that are currently being enforced on the switch.
show policy rule	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.).
<i>months</i>	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, 6855, 9000, 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

- | | |
|---|--|
| policy rule | Configures a policy rule on the switch and optionally associates that rule with a validity period. |
| show policy validity period | 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. This list is used by the Access Guardian User Network Profile (UNP) feature to classify user devices.

policy list *list_name* **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.
<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.
enable	Enables the policy list.
disable	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
enable disable	enabled

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

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.
- A policy rule may belong to multiple policy lists. 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 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 list unpl rules r1 r2 r3
-> policy list unpl disable
-> policy list unpl no rules r2
-> policy list unpl enable
-> no policy list unpl
```

Release History

Release 6.3.4; command was introduced.

Related Commands

policy rule	Configures a policy rule on the switch and optionally associates that rule with a validity period.
show policy rule	Displays information for policy rules configured on the switch.
show active policy list	Displays only those policy lists that are currently being enforced on the switch.
show policy list	Displays information for policy lists configured on the switch.

MIB Objects

```
alaQoSRuleGroupsTable
  alaQoSRuleDefaultList
  alaQoSRuleGroupsName
  alaQoSRuleGroupServiceName
  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, 6855, 9000, 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

policy condition	Configures a policy condition. A network group may be configured as part of a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy network group	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 policy service 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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy service	Configures a service that may be used as part of a policy service group.
policy condition	Configures a policy condition. A network group may be configured as part of a policy condition.
show policy service group	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, 6855, 9000, 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

policy condition	Configures a policy condition. A MAC group may be configured as part of a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy mac group	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, 6855, 9000, 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

policy condition	Configures a policy condition. A port group may be configured as part of a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
policy action maximum bandwidth	Configures a maximum bandwidth value for a policy action.
show policy port group	Displays information about policy port groups.

MIB Objects

```
alaQoSPortGroupsTable
  alaQoSPortGroupsName
  alaQoSPortGroupsSource
alaQoSAppliedPortGroupsTable
  alaQoSAppliedPortGroupsName
  alaQoSAppliedPortGroupsSource
alaPortGroupTable
  alaQoSPortGroupSlot
  alaQoSPortGroupPort
  alaQoSPortGroupPortEnd
alaAppliedPortGroupTable
  alaQoSAppliedPortGroupSlot
  alaQoSAppliedPortGroupPort
  alaQoSAppliedPortGroupPortEnd
```

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, 1-2).
<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, 6855, 9000, 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 source ip port or destination ip port ; it cannot be specified for source tcp port , destination tcp port , source udp port , or destination udp port .
<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, 22-23).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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	protocol source ip port destination ip port	<i>The protocol must be specified with at least one source or destination port.</i>
TCP ports for a service	source tcp port destination tcp port	<i>Keywords may be used in combination.</i>
UDP ports for a service	source udp port destination udp port	<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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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, 22-23).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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, 22-23).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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, 22-23).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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, 22-23).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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, 137-138).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a policy service group, which is made up of policy services.
policy condition	Creates a policy condition.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy service	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]
[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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Configures a policy action.
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).
show policy condition	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
  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
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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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.
any	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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.
any	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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.

Examples

```
-> policy condition cond4 multicast ip 224.1.1.1
```

Release History

Release 6.1; command was introduced.

Related Commands

policy condition	Creates a policy condition.
qos apply	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

<i>condition_name</i>	The name of the condition.
<i>network_group</i>	The name of the source network group. Network groups are configured through the policy network group command. See page 53-15 for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
policy network group	Configures a network group name and its associated IP addresses.
show policy condition	Shows information about policy conditions configured on the switch.
show policy network group	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 53-15](#) for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy condition	Creates a policy condition.
policy network group	Configures a network group name and its associated IP addresses.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy condition	Shows information about policy conditions configured on the switch.
show policy network group	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, 6855, 9000, 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

policy condition	Creates a policy condition.
policy network group	Configures a network group name and its associated IP addresses.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy condition	Shows information about policy conditions configured on the switch.
show policy network group	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

condition_name The name of the condition.

port 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, 6855, 9000, 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

- | | |
|--|--|
| qos apply | Applies configured QoS and policy settings to the current configuration. |
| policy condition ip protocol | Configures an IP protocol for a policy condition. |
| show policy condition | 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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition ip protocol	Configures an IP protocol for a policy condition.
show policy condition	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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

<i>condition_name</i>	The name of the condition.
<i>port</i>	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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

<i>condition_name</i>	The name of the condition.
<i>port</i>	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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

condition_name The name of the condition.

port 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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

- | | |
|---------------------------------------|--|
| qos apply | Applies configured QoS and policy settings to the current configuration. |
| policy condition | Creates a policy condition. |
| show policy condition | 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.
any	Match on any of the specified TCP flags.
all	Match all specified TCP flags.
F S R P A U E W	TCP flag value to match (F =fin, S =syn, R =rst, P =psh, A =ack, U =urg, E =ecn, and W =cwr). <i>The E and W flags are currently not supported.</i>

Defaults

parameter	default
any all	all

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

policy service	Configures a service that may be used as part of a policy service group.
qos apply	Applies configured global QoS and policy settings to the current configuration (changes will be active and stored in flash).
show policy service	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 53-17](#) for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy service group	Configures a service group and its associated services.
policy condition	Creates 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

 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, 6855, 9000, 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 icmptype 100
```

Release History

Release 6.1; command was introduced.

Related Commands

policy condition	Creates a policy condition.
policy condition icmpcode	Configures an ICMP code 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
  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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

[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

 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, 6855, 9000, 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, 6855, 9000, 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

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
  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, 6855, 9000, 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

policy condition	Creates 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

 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>Specifying a range is not supported on the OmniSwitch 6800.</i>
<i>dscp_mask</i>	The mask for the DiffServ Code Point, in the range 0–63. <i>This parameter is not supported on the OmniSwitch 6800, 6850, and 9000.</i>

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- On the OmniSwitch 6800, 6850, and 9000 the **mask** parameter is not specified with this command. When a DSCP policy condition is configured on one of these switches, QoS automatically calculates the appropriate mask value.

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 and OS9000.

Related Commands

policy condition	Creates 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
  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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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 policy mac group command. See page 53-23 for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy mac group	Configures a MAC group and its associated MAC addresses.
policy condition	Creates a policy condition.
show policy condition	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**

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 policy mac group command. See page 53-23 for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy mac group	Configures a MAC group and its associated MAC addresses.
policy condition	Creates a policy condition.
show policy condition	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

condition_name The name of the condition. May be an existing condition name or a new condition.

vlan_id The source VLAN ID for the flow.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.

Examples

```
-> policy condition cond5 source vlan 3
```

Release History

Release 6.1; command was introduced.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
policy condition inner source vlan	Configures an inner (customer) source VLAN ID as a policy condition.
show policy condition	Shows information about policy conditions configured on the switch.

MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionSourceVlan
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionSourceVlan
```

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, 6855, 9000, 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.

Examples

```
-> policy condition cond5 inner source vlan 3
-> policy condition cond5 no inner source vlan
```

Release History

Release 6.3.1; command was introduced.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
policy condition source vlan	Configures a source VLAN ID as a policy condition.
show policy condition	Shows information about policy conditions configured on the switch.

MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionInnerSourceVlan
  alaQoSConditionInnerSourceVlanStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionInnerSourceVlan
  alaQoSAppliedConditionInnerSourceVlanStatus
```

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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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*

policy condition *condition_name* **no 802.1p**

Syntax Definitions

condition_name The name of the condition. May be an existing condition name or a new condition.

802.1p_value The 802.1p value in the 802.1Q VLAN tag for the flow. Values range from 0 (lowest priority) to 7 (highest priority).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of the command to remove an 802.1p value for a condition; however, at least one classification parameter must be associated with a condition.
- 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 cond3 802.1p 7
```

Release History

Release 6.1; command was introduced.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
policy condition inner 802.1p	Configures an inner (customer) source 802.1p value for a policy condition.
show policy condition	Shows information about policy conditions configured on the switch.

MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSCondition8021p
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedCondition8021p
```

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*

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>	The inner 802.1p value of the inner 802.1Q VLAN tag (customer VLAN) to match on double-tagged packets. Values range from 0 (lowest priority) to 7 (highest priority).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of the command to remove an 802.1p value for a condition; however, at least one classification parameter must be associated with a condition.
- 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 cond3 inner 802.1p 7
-> policy condition cond3 no inner 802.1p
```

Release History

Release 6.3.1; command was introduced.

Related Commands

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
policy condition 802.1p	Configures the 802.1p value for a policy condition.
show policy condition	Shows information about policy conditions configured on the switch.

MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionInner8021p
  alaQoSConditionInner8021pStatus
alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionInner8021p
  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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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 policy port group command. See page 53-21 for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

policy port group	Configures a port group and its associated slot and port numbers.
qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	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 policy port group command. See page 53-21 for more information about this command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy port group	Configures a port group and its associated slot and port numbers.
policy condition	Creates a policy condition.
show policy condition	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.
default	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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy condition	Creates a policy condition.
show policy condition	Shows information about policy conditions configured on the switch.

MIB Objects

```
alaQoSConditionTable
  alaQoSConditionName
  alaQoSConditionVrfName
  alaQoSConditionVrfNameStatus

alaQoSAppliedConditionTable
  alaQoSAppliedConditionName
  alaQoSAppliedConditionVrfName
  alaQoSAppliedConditionVrfNameStatus
```

policy action

Configures or deletes a QoS action. A QoS action describes how traffic that matches a particular QoS condition should be treated. It may specify a particular set of bandwidth and queue parameters, or it may simply specify whether the flow is allowed or denied on the switch.

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 the parameter from the action.

Note that some action parameters may not be supported depending on the platform you are using. Also some action parameters may not be supported with some conditions. See the condition table in the *OmniSwitch AOS Release 6 Network Configuration Guide*.

policy action *action_name*

[**disposition** {**accept** | **drop** | **deny**}]
 [**shared**]
 [**priority** *priority_value*]
 [**maximum bandwidth** *bps*]
 [**maximum depth** *bytes*]
 [**tos** *tos_value*]
 [**802.1p** *802.1p_value*]
 [**dcsp** *dcsp_value*]
 [**map** {**802.1p** | **tos** | **dscp**} **to** {**802.1p** | **tos** | **dscp**} **using** *map_group*]
 [**permanent gateway ip** *ip_address*]
 [**port-disable**]
 [**redirect port** *slot/port*]
 [**redirect linkagg** *link_agg*]
 [**no-cache**]
 [{**ingress** | **egress** | **ingress egress** | **no**} **mirror** *slot/port*]

policy no action *action_name*

Syntax Definitions

action_name A name for the action, any alphanumeric string.

Defaults

By default, no drop algorithm is configured for the action, and any queues created by the action are not shared.

parameter	default
accept drop deny	accept

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

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

policy condition	Configures a condition associated with the action.
qos apply	Applies configured QoS and policy settings to the current configuration.
show policy action	Displays information about policy actions.

MIB Objects

```
alaQoSActionTable  
  alaQoSActionName  
  alaQoSActionSource  
  alaQoSActionDisposition  
  alaQoSActionMinimumBandwidth  
  alaQoSActionMaximumBandwidth  
  alaQoSActionPeakBandwidth  
  alaQoSActionPriority  
  alaQoSActionShared  
  alaQoSActionMaximumBuffers  
  alaQoSActionMaximumDepth  
  alaQoSAction8021p  
  alaQoSActionTos  
  alaQoSActionTosRewriteMask  
  alaQoSActionDscp  
  alaQoSActionMapFrom  
  alaQoSActionMapTo  
  alaQoSActionMapGroup
```

```
alaQoSActionSourceRewriteIpAddr
alaQoSActionSourceRewriteIpMask
alaQoSActionSourceRewriteIpGroup
alaQoSActionDestinationRewriteIpAddr
alaQoSActionDestinationRewriteIpMask
alaQoSActionDestinationRewriteIpGroup
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionSource
  alaQoSAppliedActionDisposition
  alaQoSAppliedActionMinimumBandwidth
  alaQoSAppliedActionMaximumBandwidth
  alaQoSAppliedActionPeakBandwidth
  alaQoSAppliedActionPriority
  alaQoSAppliedActionShared
  alaQoSAppliedActionMaximumDepth
  alaQoSAppliedActionMaximumBuffers
  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.
accept	Specifies that the switch should accept the flow.
drop	Specifies that the switch should silently drop the flow.
deny	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 drop ; that is, the flow is silently dropped.

Defaults

parameter	default
accept drop deny	accept

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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, 6855, 9000, 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

qos apply

Applies configured QoS and policy settings to the current configuration.

policy action

Creates a policy action.

show policy action

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

<i>action_name</i>	The name of the action.
<i>bps</i>	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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, 10000) or with abbreviated units (for example, 10k). 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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	Displays information about policy actions.

MIB Objects

```
alaQoSActionTable
  alaQoSActionName
  alaQoSActionMaximumDepth
alaQoSAppliedActionTable
  alaQoSAppliedActionName
  alaQoSAppliedActionMaximumDepth
```

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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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

action_name The name of the action.

dscp_value The DSCP value to be set, in the range 0–63.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	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

802.1p	Indicates that an 802.1p value should be mapped.
tos	Indicates that a ToS value should be mapped.
dscp	Indicates that a DSCP value should be mapped.
<i>map_group</i>	The name of the map group, configured through the policy map group command.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

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.
qos apply	Applies configured QoS and policy settings to the current configuration.
policy action	Creates a policy action.
show policy action	Displays information about policy actions.
show policy map group	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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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 12, “Link Aggregation Commands.”](#)

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Disables logging of rule entries to the hardware cache.

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, 6855, 9000, 9000E

Usage Guidelines

- Use the **no** form of this command to remove **no cache** from the policy action.
- Recommended for use when applied to traffic going to the switch.

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.
ingress	Mirrors ingress packets.
egress	Mirrors egress packets.
ingress egress	Mirrors ingress and egress packets.
<i>slot/port</i>	The slot and port number that will receive the mirrored traffic.

Defaults

parameter	default
ingress egress ingress egress	ingress

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

l2	Uses the Layer 2 classifier for the hypothetical packet. Typically specified for port, MAC address, VLAN, interface type, or 802.1p.
l3	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.
multicast	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).
applied	Indicates that only applied policies should be examined.

Defaults

By default, only pending policies are examined.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

L2/L3/L4	Indicates the type of traffic (Layer 2 or Layer 3/4).
Port	The physical slot/port of the theoretical traffic.
IfType	Displays for hypothetical Layer 2 packets only. The interface type of the packet.
MAC	The MAC address of the hypothetical packet.
VLAN	The VLAN ID of the hypothetical packet.
802.1p	The 802.1p value of the hypothetical packet.
Mcast	Displays for hypothetical multicast packets only. The multicast address of the hypothetical packet.
IP	The IP address of the hypothetical packet.
TCP	The TCP/UDP port of the hypothetical packet.
TOS/DSCP	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 {**I2** | **I3** | **multicast**} [**applied**] **source port** *slot/port*

Syntax Definitions

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 port 3/1
```

See the output example given on [page 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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  
  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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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

l2	Uses the Layer 2 classifier for the hypothetical packet.
l3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	Indicates that only applied policies should be examined.
ethernet	Indicates that the flow's source port is an Ethernet interface.
wan	Indicates that the flow's source port is a WAN interface. <i>Not supported currently.</i>
ethernet-10	Indicates that the flow's source port is 10 Mb Ethernet.
ethernet-100	Indicates that the flow's source port is 100 Mb Ethernet.
ethernet-1G	Indicates that the flow's source port is 1 gigabit Ethernet.
ethernet-10G	Indicates that the flow's source port is 10 gigabit Ethernet.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 53-156](#) 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

l2	Uses the Layer 2 classifier for the hypothetical packet.
l3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	Indicates that only applied policies should be examined.
ethernet	Indicates that the flow's destination port is an Ethernet interface.
wan	Indicates that the flow's destination port is a WAN interface. <i>Not supported currently.</i>
ethernet-10	Indicates that the flow's destination port is 10 Mb Ethernet.
ethernet-100	Indicates that the flow's destination port is 100 Mb Ethernet.
ethernet-1G	Indicates that the flow's destination port is 1 gigabit Ethernet.
ethernet-10G	Indicates that the flow's destination port is 10 gigabit Ethernet.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 53-156](#) 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 {**I2** | **I3** | **multicast**} [**applied**] **802.1p** *value*

Syntax Definitions

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 802.1p 4
```

See the output example given on [page 53-156](#) 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  
  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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	Indicates that only applied policies should be examined.
<i>ip_address</i>	The source IP address.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	Indicates that only applied policies should be examined.
<i>ip_address</i>	The destination IP address.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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 {l2 | l3 | multicast} [applied] tos tos_value
```

Syntax Definitions

l2	Uses the Layer 2 classifier for the hypothetical packet.
l3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 l3 tos 7
```

See the output example given on [page 53-156](#) 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 {l2 | l3 | multicast} [applied] dscp dscp_value
```

Syntax Definitions

l2	Uses the Layer 2 classifier for the hypothetical packet.
l3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 l3 dscp 63
```

See the output example given on [page 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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

I2	Uses the Layer 2 classifier for the hypothetical packet.
I3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 53-156](#) 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 {l2 | l3 | multicast} [applied] destination ip port port
```

Syntax Definitions

l2	Uses the Layer 2 classifier for the hypothetical packet.
l3	Uses the Layer 3 classifier for the hypothetical packet.
multicast	Uses the multicast IGMP classifier for the hypothetical packet.
applied	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, 6855, 9000, 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 l3 destination ip port 80
```

See the output example given on [page 53-156](#) 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

applied	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, 6855, 9000, 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

Group Name	The name of the port group, configured through the policy network group command.
From	The way the group was configured: blt indicates a built-in entry; cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView
Entries	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.
<i>service_name</i>	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, 6855, 9000, 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

Service Name	The name of the port group, configured through the policy service command.
From	The way the service was configured: blt indicates a built-in entry; cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView.
IPProto	The IP protocol associated with the service.
SrcPort	A source port associated with the service.
DstPort	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.
<i>service_group</i>	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, 6855, 9000, 9000E

Usage Guidelines

- Information for all policy service groups displays unless *service_group* is specified.
- The display may include any of the following characters:

character	definition
+	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
                   cli   ftp

serv_group2         cli   telnet
```

output definitions

Group Name	The name of the port group, configured through the policy service group command.
From	The origin of the service group: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView.
Entries	The services associated with the group. Services are configured through the policy service 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.
<i>mac_group</i>	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, 6855, 9000, 9000E

Usage Guidelines

- Information for all policy MAC groups displays unless *mac_group* is specified.
- The display may include any of the following characters:

character	definition
+	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:
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

Group Name	The name of the port group, configured through the policy mac group command.
From	The origin of the MAC group: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView.
Entries	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

```
alaQoSACGroupsTable
  alaQoSACGroupsName
  alaQoSACGroupsSource
alaQoSAppliedMACGroupsTable
  alaQoSAppliedMACGroupsName
  alaQoSAppliedMACGroupsSource
alaQoSACGroupTable
  alaQoSACGroupMacAddr
  alaQoSACGroupMacMask
alaQoSAppliedMACGroupTable
  alaQoSAppliedMACGroupMacAddr
  alaQoSAppliedMACGroupMacMask
```

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, 6855, 9000, 9000E

Usage Guidelines

- Information for all policy port 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 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

Group Name	The name of the port group, configured through the policy port group command or built-in port groups automatically set up by the switch (Slot01, Slot02, Slot03 , etc.).
From	The origin of the port group: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through Policy-View; blt indicates the entry was set up automatically by the switch based on the current hardware.
Entries	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 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.
<i>group_name</i>	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, 6855, 9000, 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

Group Name	The name of the map group, configured through the policy map group command.
From	The origin of the port group: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through Policy-View.
Entries	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

applied	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, 6855, 9000, 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  Max
          Action Name      From  Disp  Pri  Share  Min  Max    Depth Bufs
action1      cli  accept          No
+action2     cli  accept          No
test_action  cli  accept          Yes

```

```
-> show policy action action2
```

```

          Action Name      From  Disp  Pri  Share  Bandwidth  Max
          Action Name      From  Disp  Pri  Share  Min  Max    Depth Bufs
action2     cli  accept          No

```

```
-> show applied policy action
```

Action Name	From	Disp	Pri	Share	Bandwidth		Max	
					Min	Max	Depth	Bufs
action1	cli	accept		No				
action2	cli	accept		No				

```
-> show policy action action*
```

Action Name	From	Disp	Pri	Share	Bandwidth		Max	
					Min	Max	Depth	Bufs
action1	cli	accept		No				
action2	cli	accept		No				

output definitions

Action Name	The name of the action, configured through the policy action command.
From	Where the policy rule originated: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView.
Disp	The disposition of the rule, either accept or deny .
Pri	The priority configured for the rule.
Share	Whether or not the rule specifies that the queue should be shared.
Min Bandwidth	The minimum bandwidth required by the rule.
Max Bandwidth	The maximum bandwidth required by the rule.
Max Depth Bufs	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

applied	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, 6855, 9000, 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
*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

Condition Name	The name of the condition, configured through the policy condition command.
From	The origin of the condition: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through Policy-View.
Scr	The source address associated with the condition.
Dest	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 pending and applied policy rules that are active (enabled) on the switch.

show active [**bridged** | **routed** | **multicast**] **policy rule** [*rule_name*]

Syntax Definitions

bridged	Displays active rules that apply to bridged traffic.
routed	Displays active rules that apply to routed traffic.
multicast	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, 6855, 9000, 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:

character	definition
+	Indicates that the policy rule has been modified or has been created since the last qos apply .
-	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
      From  Prec  Enab  Act  Refl  Log  Trap  Save  Def  Matches
R1      cli    0    Yes  Yes   No   No   Yes  Yes  Yes   2
(L2/3):      C1 -> QoS_Action1

R2      cli    0    Yes  Yes   No   No   Yes  Yes  Yes   0
(L2/3):      C2 -> QoS_Action1

R3      cli    0    Yes  Yes   No   No   Yes  Yes  Yes   0
(L2/3):      C3 -> QoS_Action1

```

output definitions

Policy	The name of the policy rule, configured through the policy rule command. A plus sign (+) preceding a policy rule name indicates that the policy rule has been modified or has been created since the last qos apply .
From	Where the rule originated.
Prec	The precedence of the rule. Precedence determines the order in which the switch will apply rules.
Enab	Whether or not the rule is administratively enabled. (By default, rules are enabled.)
Act	Whether or not the rule is enforceable by the switch (e.g., qos is enabled, rule is valid and enabled, validity period is active).
Refl	Whether the rule is reflexive or not.
Log	Whether or not the switch will log messages about specific flows coming into the switch that match this policy rule. Configured through the policy rule command.
Trap	Whether or not traps are enabled for the rule. Configured through the policy rule command. A trap is sent when a port is administratively disabled through a port disable action or a UserPort shutdown function.
Save	Whether 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 copy running-config working command is entered, or saved after a reboot. Configured through the policy rule command.
Def	Whether or not the rule is a member of the default policy list. Configured through the policy rule command.
Matches	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.
{L2/3}	The condition and the action associated with the rule; configured through the policy condition and policy action 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 policy rule

Displays information about pending and applied policy rules.

```
show [applied] [bridged | routed | multicast] policy rule [rule_name]
```

Syntax Definitions

applied	Indicates that only policy rules that have been applied should be displayed.
bridged	Displays rules that apply to bridged traffic.
routed	Displays rules that apply to routed traffic.
multicast	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, 6855, 9000, 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:

character	definition
+	Indicates that the policy rule has been modified or has been created since the last qos apply .
-	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

r2      cli    0  Yes   Yes  No  No  Yes  Yes  Yes
(L2/3): cli    0  Yes   Yes  No  No  Yes  Yes  Yes

+r3     cli    0  Yes   Yes  No  No  Yes  Yes  No
(L2/3): cli    0  Yes   Yes  No  No  Yes  Yes  No

+r4     cli    0  Yes   Yes  No  No  Yes  Yes  No
(L2/3): cli    0  Yes   Yes  No  No  Yes  Yes  No

-> 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): cli    0  Yes   Yes  No  No  Yes  Yes  Yes

```

output definitions

Policy	The name of the policy rule, configured through the policy rule command. A plus sign (+) preceding a policy rule name indicates that the policy rule has been modified or has been created since the last qos apply .
From	Where the rule originated.
Prec	The precedence of the rule. Precedence determines the order in which the switch will apply rules. Configured through the
Enab	Whether or not the rule is enabled.
Act	Whether or not the rule is enforceable by the switch (e.g., qos is enabled, rule is valid and enabled, validity period is active).
Refl	Whether the rule is reflexive or not.
Log	Whether or not the switch will log messages about specific flows coming into the switch that match this policy rule. Configured through the policy rule command.
Trap	Whether or not traps are enabled for the rule. Configured through the policy rule command. A trap is sent when a port is administratively disabled through a port disable action or a UserPort shutdown function.
Save	Whether 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 copy running-config working command is entered, or saved after a reboot. Configured through the policy rule command.

output definitions

Def	Whether or not the rule is a member of the default policy list. Configured through the policy rule command.
{L2/3}	The condition and the action associated with the rule; configured through the policy condition and policy action 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
```

show policy validity period

Displays information about policy validity periods.

show policy validity period [*name*]

Syntax Definitions

name The name of the validity period.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Information for all validity periods is displayed unless *name* is specified.
- Use the [show policy rule](#) command to display the validity period that is associated with a policy rule.

Examples

```
-> show policy validity period
      ValidityPeriod          From
vp01                               cli
*Days   : tuesday thursday
*Months : january february
*Hours  : 13:00 - 14:00

vp02                               cli
*Days   : monday wednesday
*Hours  : 9:00 - 10:00

-> show policy validity period vp01
      ValidityPeriod          From
vp01                               cli
*Days   : tuesday thursday
*Months : january february
*Hours  : 13:00 - 14:00
```

output definitions

ValidityPeriod	The name of the policy validity period, configured through the policy validity period command. A plus sign (+) preceding a policy rule name indicates that the policy rule has been modified or has been created since the last qos apply .
From	Where the validity period originated: cli indicates that the entry was configured on the switch; ldap indicates the entry was configured through PolicyView.

output definitions

Days	The days of the week the validity period is active, configured through the policy validity period command. If this field does not appear, then the validity period is not restricted to specific days.
Months	The months during which the validity period is active, configured through the policy validity period command. If this field does not appear, then the validity period is not restricted to specific months.
Hours	The time of day the validity period begins and ends, configured through the policy validity period command. If this field does not appear, then the validity period is not restricted to a specific time.
Interval	The date and time a validity period interval begins and ends, configured through the policy validity period 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 pending and 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, 6855, 9000, 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 qos apply .
-	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
+list3         cli   unp   No       r1
               r2
               r3
```

```
-> show active policy list
```

Group Name	From	Type	Enabled	Entries
list1	cli	unp	Yes	r1 r2
list2	cli	unp	Yes	r3

output definitions

Group Name	The name of the policy list. Configured through the policy list command. A plus sign (+) preceding a policy list name indicates that the list was modified or created since the last qos apply .
From	Where the list originated.
Type	The type of rule. Note that only default and User Network Profile (UNP) lists are supported at this time. The default list is not shown. Use the show policy rule command to display rules that are members of the default policy list.
Enabled	Whether or not the rule is enabled. Configured through the policy list command.
Entries	The QoS policy rules that are grouped together in this policy list. Configured through the policy list command.

Release History

Release 6.3.4; command was introduced.

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

- alaQoSRuleGroupsName
- alaQoSRuleGroupsSource
- alaQoSRuleGroupsType
- alaQoSRuleGroupsEnabled

alaQoSRuleGroupTable

- alaQoSRuleGroupName
- alaQoSRuleGroupRuleName

alaQoSAppliedRuleGroupsTable

- alaQoSAppliedRuleGroupsName
- alaQoSAppliedRuleGroupsSource
- alaQoSAppliedRuleGroupsType
- alaQoSAppliedRuleGroupsEnabled

alaQoSRuleGroupTable

- alaQoSAppliedRuleGroupName
- alaQoSAppliedRuleGroupRuleName

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, 6855, 9000, 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 qos apply .
-	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
+list3         cli   unp   No       r1
               r2
               r3
```

```

-> show applied policy list
Group Name          From  Type  Enabled  Entries
list1               cli   unp   Yes      r1
                   r2

list2               cli   unp   Yes      r3

```

output definitions

Group Name	The name of the policy list. Configured through the policy list command. A plus sign (+) preceding a policy list name indicates that the list was modified or created since the last qos apply .
From	Where the list originated.
Type	The type of rule. Note that only default and User Network Profile (UNP) lists are supported at this time. The default list is not shown. Use the show policy rule command to display rules that are members of the default policy list.
Enabled	Whether or not the rule is enabled. Configured through the policy list command.
Entries	The QoS policy rules that are grouped together in this policy list. Configured through the policy list command.

Release History

Release 6.3.4; command was introduced.

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
  alaQoSRuleGroupsName
  alaQoSRuleGroupsSource
  alaQoSRuleGroupsType
  alaQoSRuleGroupsEnabled
alaQoSRuleGroupTable
  alaQoSRuleGroupName
  alaQoSRuleGroupRuleName
alaQoSAppliedRuleGroupsTable
  alaQoSAppliedRuleGroupsName
  alaQoSAppliedRuleGroupsSource
  alaQoSAppliedRuleGroupsType
  alaQoSAppliedRuleGroupsEnabled
alaQoSRuleGroupTable
  alaQoSAppliedRuleGroupName
  alaQoSAppliedRuleGroupRuleName

```

54 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 52, “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, 6855, 9000, 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, 6855, 9000, 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.
up	Enables the specified policy server to download rules to the switch (servers are up by default.)
down	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: “ Directory Manager ” 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 o=organization and c=country . For example, o=company and c=country .
ssl	Enables a Secure Socket Layer between the switch and the policy server.
no ssl	Disables a Secure Socket Layer between the switch and the policy server.

Defaults

parameter	default
admin	up
<i>port_number</i>	389 (SSL disabled) 636 (SSL enabled)
<i>preference</i>	0
ssl no ssl	no ssl

Platforms Supported

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

Server	The index number corresponding to the LDAP server.
IP Address	The IP address of the LDAP server.
port	The TCP/IP port number used by the switch to connect to the policy server.
enabled	Whether or not the policy server is enabled.
status	The state of the policy server, Unkn , Up or Down .
primary	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, 6855, 9000, 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

IP address	The IP address of the policy server.
TCP port	The TCP/IP port number used by the switch to connect to the policy server.

output definitions (continued)

Enabled	Whether or not the policy server is enabled via the PolicyView application.
Operational status	The state of the policy server, Up or Down .
Preference	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.
Authentication	Displays password if a user name and password was specified for the server through the policy server command. Displays anonymous if a user name and password are not configured.
login DN	The directory user name.
searchbase	The searchbase name, which is the root of the directory that will be searched for policy download information.
Last load time	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, 6855, 9000, 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

Server	The index number corresponding to the server.
IP Address	The IP address of the LDAP server.
port	The TCP/IP port number used by the switch to connect to the policy server.
accesses	The number of times the server was polled by the switch to download policies.
delta	The change in the number of accesses since the last time the policy server was accessed.
successes	The number of times the server was polled by the switch to download policies and the policies were successfully downloaded.
delta	The change in the number of successful policy downloads since the last time the policy server was accessed.
errors	The number of errors returned by the server.
delta	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, 6855, 9000, 9000E

Usage Guidelines

This command displays information about policies created on directory servers only. [Chapter 52, “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

Num	An index number corresponding to the policy rule.
name	The name of the policy rule; only rules configured through PolicyView are displayed in this table.
prio	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.
scope	The type of rule. Provisioned is the only type valid currently.
status	The status of the rule: Active indicates that the rule has been pushed to the QoS software in the switch and is available to apply to traffic; notInService 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); notReady 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, 6855, 9000, 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

Event Time	The date and time the policy event occurred.
event description	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
```

55 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.
enable	Enable IP Multicast Switching and Routing.
disable	Disable IP Multicast Switching and Routing.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enable the flooding of multicast packets until membership table updated.
disable	Disable the flooding of multicast packets.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable IGMP querier forwarding.
disable	Disable IGMP querier forwarding.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
none	Disables the maximum group limit configuration
drop	Drops the incoming membership request.
replace	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, 9000, 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.
none	Disables the maximum group limit configuration.
drop	Drops the incoming membership request.
replace	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, 9000, 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.
none	Disables the maximum group limit configuration.
drop	Drops the incoming membership request.
replace	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
enable	Enable IGMP querying.
disable	Disable IGMP querying.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
enable	Enable IGMP spoofing.
disable	Disable IGMP spoofing.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable IGMP zapping.
disable	Disable IGMP zapping.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable IGMP proxying.
disable	Disable IGMP proxying.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
enable	Enable IPv6 Multicast Switching and Routing.
disable	Disable IPv6 Multicast Switching and Routing.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable MLD querier forwarding.
disable	Disable MLD querier forwarding.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
none	Disables the maximum group limit configuration
drop	Drops the incoming membership request.
replace	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, 9000, 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.
none	Disables the maximum group limit configuration.
drop	Drops the incoming membership request.
replace	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, 9000, 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.
none	Disables the maximum group limit configuration.
drop	Drops the incoming membership request.
replace	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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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, 9000, 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.
enable	Enable MLD querying.
disable	Disable MLD querying.

Defaults

parameter	default
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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.
enable	Enable MLD spoofing.
disable	Disable MLD spoofing.

Defaults

parameter	defaults
enable / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable MLD zapping.
disable	Disable MLD zapping.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
enable	Enable MLD proxying.
disable	Disable MLD proxying.

Defaults

parameter	default
enable disable	disable

Platforms Supported

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

Status	Whether the IP Multicast Switching and Routing is Enabled or Disabled (the default status). You can enable or disable IP Multicast Switching and Routing with the ip multicast status command, which is described on page 55-3 .
Querying	The current state of IGMP querying, which can be Enabled or Disabled (the default status). You can enable or disable IGMP querying with the ip multicast querying command, which is described on page 55-35 .
Proxying	The current state of IGMP proxying on the system, which can be Enabled or Disabled (the default status). You can enable or disable IGMP spoofing with the ip multicast proxying command, which is described on page 55-43 .
Spoofing	The current state of IGMP spoofing on the system, which can be Enabled or Disabled (the default status). You can enable or disable IGMP spoofing with the ip multicast spoofing command, which is described on page 55-39 .
Zapping	The current state of IGMP zapping on the system, which can be Enabled or Disabled (the default status). You can enable or disable IGMP zapping with the ip multicast zapping command, which is described on page 55-41 .
Querier Forwarding	The current state of IGMP querier forwarding on the system, which can be Enabled or Disabled (the default status). You can enable or disable IGMP Querier forwarding with the ip multicast querier-forwarding command, which is described on page 55-7 .
Version	Displays the default IGMP version, which can be 1 , 2 or 3 . Use the ip multicast version command to modify this parameter.
Robustness	Displays the IGMP robustness value, ranging from 1 to 7 . (The default value is 2). Use the ip multicast robustness command to modify this parameter.

output definitions

Query Interval (seconds)	Displays the time (in seconds) between IGMP queries. (The default value is 125 seconds). You can modify this parameter with the ip multicast query-interval command, which is described on page 55-23 .
Query Response Interval (tenths of seconds)	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 ip multicast query-response-interval command, which is described on page 55-27 .
Last Member Query Interval (tenths of seconds)	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 ip multicast last-member-query-interval command, which is described on page 55-25 .
Unsolicited Report Interval (seconds)	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 ip multicast unsolicited-report-interval command, which is described on page 55-29 .
Router Timeout (seconds)	Displays the IGMP router timeout in seconds. (The default value is 90 seconds.) You can modify this parameter with the ip multicast router-timeout command, which is described on page 55-31 .
Source Timeout (seconds)	Displays the IGMP source timeout in seconds. (The default value is 30 seconds.) You can modify this parameter with the ip multicast source-timeout command, which is described on page 55-33 .
Max-group	The global or VLAN specific maximum group count allowed.
Max-group action	The action to be taken when the group membership limit is exceeded.
Helper-address	Displays the configured helper address. Use the ip multicast helper-address command to modify this parameter, which is described on page 55-45 .

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

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 helper-address	Sets the ip address of relay host on the system.
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 querying	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
ip multicast robustness	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
ip multicast spoofing	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
ip multicast zapping	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
ip multicast proxying	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
ip multicast query-interval	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
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 query-response-interval	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
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 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 source-timeout	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, 9000, 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

Port	The slot and port number of the IP multicast port.
VLAN	The VLAN associated with the IP multicast port.
Current Groups	The current group associated with the IP Current groups.

output definitions

IGMP	The IGMP associated with the IP multicast port.
Max-group	The maximum group count allowed on the port.
Action	The action to be taken when the group membership limit is exceeded.

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.
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 querying	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
ip multicast robustness	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
ip multicast spoofing	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
ip multicast zapping	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
ip multicast proxying	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
ip multicast query-interval	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
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 query-response-interval	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
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 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 source-timeout	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, 9000, 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

Group Address	IP group address of the IP multicast forward.
Host Address	IP host address of the IP multicast forward.
Tunnel Address	IP source tunnel address of the IP multicast forward.
VLAN	VLAN associated with the IP multicast forward.
Port	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, 9000, 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

Host Address	The IP address of the IP multicast neighbor.
VLAN	The VLAN associated with the IP multicast neighbor.
Port	The slot and port number of the IP multicast neighbor.
Static	Whether it is a static IP multicast neighbor or not.
Count	Displays the count of IP multicast neighbor.
Life	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, 9000, 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

Host Address	The IP address of the IP multicast querier.
VLAN	The VLAN associated with the IP multicast querier.
Port	The slot and port number of the IP multicast querier.
Static	Whether it is a static multicast neighbor or not.
Count	Displays the count of the IP multicast querier.
Life	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, 9000, 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

Group Address	IP address of the IP multicast group.
Source Address	IP address of the IP multicast source.
VLAN	The VLAN associated with the IP multicast group.
Port	The slot and port number of the IP multicast group.
Mode	IGMP source filter mode.
Static	Whether it is a static multicast group or not.
Count	Number of IGMP membership requests made.
Life	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, 9000, 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

Group Address	IP group address of the IP multicast source.
Host Address	IP host address of the IP multicast source.
Tunnel Address	IP destination tunnel address of the IP multicast source.
VLAN	VLAN associated with the IP multicast source.
Port	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, 9000, 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

Group Address	IP group address of the IP multicast tunnel.
Host Address	IP host address of the IP multicast tunnel.
Tunnel Address	IP source tunnel address of the IP multicast tunnel.
VLAN	VLAN associated with the IP multicast tunnel.
Port	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, 9000, 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

Status	Whether the IPv6 Multicast Switching and Routing is Enabled or Disabled (the default status). You can enable or disable IPv6 Multicast Switching and Routing with the ip multicast helper-address command, which is described on page 55-45
Querying	The current state of MLD querying, which can be Enabled or Disabled (the default status). You can enable or disable MLD querying with the ipv6 multicast querying command, which is described on page 55-76
Proxying	The current state of MLD proxying on the system, which can be Enabled or Disabled (the default status). You can enable or disable MLD spoofing with the ipv6 multicast proxying command, which is described on page 55-84
Spoofing	The current state of MLD spoofing on the system, which can be Enabled or Disabled (the default status). You can enable or disable MLD spoofing with the ipv6 multicast spoofing command, which is described on page 55-39
Zapping	The current state of MLD zapping on the system, which can be Enabled or Disabled (the default status). You can enable or disable MLD zapping with the ipv6 multicast zapping command, which is described on page 55-82
Querier Forwarding	The current state of MLD querier forwarding on the system, which can be Enabled or Disabled (the default status). You can enable or disable MLD Querier forwarding with the ipv6 multicast querier-forwarding command, which is described on page 55-48 .
Version	Displays the default MLD version, which can be 1 , 2 or 3 . Use the ipv6 multicast version command to modify this parameter.
Robustness	Displays the MLD robustness value, ranging from 1 to 7 . Use the ipv6 multicast robustness command to modify this parameter.
Query Interval (seconds)	Displays the time (in seconds) between MLD queries. (The default value is 125 seconds). You can modify this parameter with the ipv6 multicast query-interval command, which is described on page 55-64 .

output definitions

Query Response Interval (milliseconds)	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 ipv6 multicast query-response-interval command, which is described on page 55-68 .
Last Member Query Interval (milliseconds)	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 ipv6 multicast last-member-query-interval command, which is described on page 55-66 .
Unsolicited Report Interval (seconds)	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 ipv6 multicast unsolicited-report-interval command, which is described on page 55-70 .
Router Timeout (seconds)	Displays the MLD router timeout in seconds (The default value is 90 seconds.) You can modify this parameter with the ipv6 multicast router-timeout command, which is described on page 55-72
Source Timeout (seconds)	Displays the IGMP source timeout in seconds (The default is 30 seconds.) You can modify this parameter with the ipv6 multicast source-timeout command, which is described on page 55-74
Max-group	The global or VLAN specific maximum group count allowed.
Max-group action	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

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 version	Sets the default version of the MLD protocol on the specified VLAN or on the system if no VLAN is specified.
ipv6 multicast query-interval	Sets the MLD query interval on the specified VLAN or on the system if no VLAN is specified.
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 query-response-interval	Sets the MLD query response interval on the specified VLAN or on the system if no VLAN is specified.
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 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 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 querying	Enables or disables MLD querying on the specified VLAN or on the system if no VLAN is specified.
ipv6 multicast robustness	Sets the MLD robustness variable on the specified VLAN or on the system if no VLAN is specified.
ipv6 multicast spoofing	Enables or disables MLD spoofing on the specified VLAN or on the system if no VLAN is specified.
ipv6 multicast zapping	Enables or disables MLD zapping on the specified VLAN or on the system if no VLAN is specified.
ipv6 multicast proxying	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, 9000, 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

Port	The slot and port number of the IP multicast port.
VLAN	The VLAN associated with the IP multicast port.
Current Groups	The current group associated with the IP Current groups.
IGMP	The IGMP associated with the IP multicast port.
Max-group	The maximum group count allowed on the port.
Action	The action to be taken when the group membership limit is exceeded.

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.
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 querying	Enables or disables IGMP querying on the specified VLAN or on the system if no VLAN is specified.
ip multicast robustness	Sets the IGMP robustness variable on the specified VLAN or on the system if no VLAN is specified.
ip multicast spoofing	Enables or disables IGMP spoofing on the specified VLAN or on the system if no VLAN is specified.
ip multicast zapping	Enables or disables IGMP zapping on the specified VLAN or on the system if no VLAN is specified.
ip multicast proxying	Enables or disables IGMP proxying on the specified VLAN or on the system if no VLAN is specified.
ip multicast query-interval	Sets the IGMP query interval on the specified VLAN or on the system if no VLAN is specified.
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 query-response-interval	Sets the IGMP query response interval on the specified VLAN or on the system if no VLAN is specified.
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 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 source-timeout	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, 9000, 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

Group Address	IPv6 group address of the IPv6 multicast forward.
Host Address	IPv6 host address of the IPv6 multicast forward.
Tunnel Address	IPv6 source tunnel address of the IPv6 multicast forward.
VLAN	VLAN associated with the IPv6 multicast forward.
Port	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, 9000, 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

Host Address	The IPv6 address of the IPv6 multicast neighbor.
VLAN	The VLAN associated with the IPv6 multicast neighbor.
Port	The slot and port number of the IPv6 multicast neighbor.
Static	Whether it is a static MLD neighbor or not.
Count	Displays the count of the IPv6 multicast neighbor.
Life	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, 9000, 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

Host Address	The IPv6 address of the IPv6 multicast querier.
VLAN	The VLAN associated with the IPv6 multicast querier.
Port	The slot and port number of the IPv6 multicast querier.
Static	Whether it is a static MLD neighbor or not.
Count	Displays the count of the IPv6 multicast querier.
Life	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, 9000, 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

Group Address	IPv6 address of the IPv6 multicast group.
Source Address	IPv6 address of the IPv6 multicast source.
VLAN	The VLAN associated with the IPv6 multicast group.
Port	The slot and port number of the IPv6 multicast group.
Mode	MLD source filter mode.
Static	Whether it is a static MLD group or not.
Count	Number of MLD membership requests made.
Life	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, 9000, 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

Group Address	IPv6 group address of the IPv6 multicast source.
Host Address	IPv6 host address of the IPv6 multicast source.
Tunnel Address	IPv6 source tunnel address of the IPv6 multicast source.
VLAN	VLAN associated with the IPv6 multicast source.
Port	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, 9000, 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

Group Address	IPv6 group address of the IPv6 multicast tunnel.
Host Address	IPv6 host address of the IPv6 multicast tunnel.
Tunnel Address	IPv6 source tunnel address of the IPv6 multicast tunnel.
VLAN	VLAN associated with the IPv6 multicast tunnel.
Port	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
```

56 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.

Note. IP Multicast VLAN is not supported on the OmniSwitch 6800 Series.

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:

VLAN Manager Commands	vlan ipmvlan
VLAN Stacking Commands	vlan ipmvlan ctag vlan ipmvlan address vlan ipmvlan sender-port vlan ipmvlan receiver-port show vlan ipmvlan c-tag show vlan ipmvlan address show vlan ipmvlan port-config show ipmvlan port-config

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.
enable	Enables IPMVLAN.
disable	Disables IPMVLAN.
1x1	Specifies that the switch is running in the 1x1 Spanning Tree mode.
flat	Specifies that the switch is running in the Flat Spanning Tree mode.
stp enable	Enables Spanning Tree for the specified IPMVLAN.
stp disable	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
enable disable	enable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 9000, 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, 9000, 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 on OS9000 or 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, 9000, 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, 9000, 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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> show vlan ipmvlan c-tag
```

```

ipmvlan      ctag
+-----+-----+
  100         10
  100         20
  200         30

```

output definitions

ipmvlan	The numerical IPMVLAN ID.
ctag	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, 9000, 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

ipmvlan	The numerical IPMVLAN ID.
ipAddress	The IPv4 or IPv6 address.
ipAddressType	The IP address type (IPv4 or IPv6).

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, 9000, 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

ipmvlan	The numerical IPMVLAN ID.
port	Displays the slot number of the module and the physical port number on that module for which the IPMVLAN is configured.
type	The type (sender or receiver) 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

```

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, 9000, 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

ipmvlan	The numerical IPMVLAN ID.
type	The type (sender or receiver) 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

57 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 AlcatelIND1Slb.mib
Module: ALCATEL-IND1-SLB-MIB

A summary of available commands is listed here:

Global SLB Commands	<code>ip slb admin</code> <code>ip slb reset statistics</code> <code>show ip slb</code>
SLB Cluster Commands	<code>ip slb cluster</code> <code>ip slb cluster admin status</code> <code>ip slb cluster ping period</code> <code>ip slb cluster ping timeout</code> <code>ip slb cluster ping retries</code> <code>ip slb cluster probe</code> <code>show ip slb clusters</code> <code>show ip slb cluster</code>
SLB Server Commands	<code>ip slb server ip cluster</code> <code>ip slb server ip cluster probe</code> <code>show ip slb cluster server</code> <code>show ip slb servers</code>
SLB Probe Commands	<code>ip slb probe</code> <code>ip slb probe timeout</code> <code>ip slb probe period</code> <code>ip slb probe port</code> <code>ip slb probe retries</code> <code>ip slb probe username</code> <code>ip slb probe password</code> <code>ip slb probe url</code> <code>ip slb probe status</code> <code>ip slb probe send</code> <code>ip slb probe expect</code> <code>show ip slb probes</code>

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, 9000, 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

show ip slb	Displays the status of Server Load Balancing on a switch.
ip slb cluster	Configures a Server Load Balancing cluster on a switch.
ip slb server ip cluster	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, 9000, 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

- | | |
|--------------------------------------|--|
| show ip slb clusters | Displays the status and configuration of 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 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.
I3	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.
I2	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 condition parameter.

Defaults

parameter	default
I3 I2	I3

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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 6850/9000 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb admin	Enables or disables Server Load Balancing on a switch.
ip slb server ip cluster	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.
enable	Administratively enables a Server Load Balancing cluster on a switch.
disable	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, 9000, 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb cluster	Configures Server Load Balancing clusters.
ip slb server ip cluster	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, 9000, 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb cluster ping timeout	Modifies the ping timeout value.
ip slb cluster ping retries	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

parameter	default
<i>milliseconds</i>	3000

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb cluster ping period	Modifies the ping period value.
ip slb cluster ping retries	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, 9000, 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb cluster ping period	Modifies the ping period value.
ip slb cluster ping timeout	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, 9000, 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

show ip slb clusters	Displays the status and configuration of all Server Load Balancing clusters on a switch.
ip slb probe	Configures and deletes SLB probes.
show ip slb cluster	Displays detailed status and configuration information for a single Server Load Balancing cluster on a switch.
ip slb server ip cluster	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.
enable	Enables a server.
disable	Disables a server.
<i>weight</i>	Specifies the weight of the server. The valid range of weight value is 0 - 32

Defaults

parameter	default
enable disable	enable
weight	1

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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

ip slb admin	Enables or disables Server Load Balancing on a switch.
ip slb cluster	Configures Server Load Balancing clusters.
show ip slb clusters	Displays the status and configuration of 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 on a switch.
show ip slb cluster server	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, 9000, 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

show ip slb clusters	Displays the status and configuration of 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 on a switch.
ip slb probe	Configures and deletes SLB probes.
ip slb admin	Enables or disables Server Load Balancing on a switch.
ip slb cluster	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.
ftp	Specifies an FTP probe.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
imap	Specifies an IMAP probe.
imaps	Specifies an IMAPS probe.
nntp	Specifies an NNTP probe.
ping	Specifies a ping probe.
pop	Specifies a POP probe.
pops	Specifies a POPS probe.
smtp	Specifies an SMTP probe.
tcp	Specifies a TCP probe.
udp	Specifies a UDP probe.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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.
ftp	Specifies an FTP probe.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
imap	Specifies an IMAP probe.
imaps	Specifies an IMAPS probe.
nntp	Specifies an NNTP probe.
ping	Specifies a ping probe.
pop	Specifies a POP probe.
pops	Specifies a POPS probe.
smtp	Specifies an SMTP probe.
tcp	Specifies a TCP probe.
udp	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, 9000, 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.
ftp	Specifies an FTP probe.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
imap	Specifies an IMAP probe.
imaps	Specifies an IMAPS probe.
nntp	Specifies an NNTP probe.
ping	Specifies a ping probe.
pop	Specifies a POP probe.
pops	Specifies a POPS probe.
smtp	Specifies an SMTP probe.
tcp	Specifies a TCP probe.
udp	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, 9000, 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.
ftp	Specifies an FTP probe.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
imap	Specifies an IMAP probe.
imaps	Specifies an IMAPS probe.
nntp	Specifies an NNTP probe.
ping	Specifies a ping probe.
pop	Specifies a POP probe.
pops	Specifies a POPS probe.
smtp	Specifies an SMTP probe.
tcp	Specifies a TCP probe.
udp	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, 9000, 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.
ftp	Specifies an FTP probe.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
imap	Specifies an IMAP probe.
imaps	Specifies an IMAPS probe.
nntp	Specifies an NNTP probe.
ping	Specifies a ping probe.
pop	Specifies a POP probe.
pops	Specifies a POPS probe.
smtp	Specifies an SMTP probe.
tcp	Specifies a TCP probe.
udp	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, 9000, 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.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
<i>user_name</i>	Specifies user name.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip slb probe web_server http username subnet1
```

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  
  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.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
<i>password</i>	Specifies the password.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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

ip slb probe	Configures and deletes SLB probes.
show ip slb probes	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.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
<i>url</i>	Specifies the URL of the server.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 9000, 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

ip slb probe	Configures and deletes SLB probes.
show ip slb probes	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.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
<i>status_value</i>	Specifies the expected status returned, which can be 0–4294967295.

Defaults

parameter	default
<i>status_value</i>	200

Platforms Supported

OmniSwitch 6400, 6850, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip slb probe web_server http status 404
```

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  
  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.
tcp	Specifies a TCP probe.
udp	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, 9000, 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

ip slb probe	Configures and deletes SLB probes.
show ip slb probes	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.
http	Specifies an HTTP probe.
https	Specifies an HTTPS probe.
tcp	Specifies a TCP probe.
udp	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, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> ip slb probe web_server http expect test
```

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  
  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, 9000, 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

Admin status	The current administrative status of Server Load Balancing (SLB) on this switch (Enabled or Disabled).
Operational status	The current operational status of Server Load Balancing (SLB) on this switch, which is either In service (at least one SLB cluster is in service) or Out of service (all SLB clusters are out of service).
Number of clusters	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

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 the status and configuration of 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 on a switch.
show ip slb cluster server	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

Displays the status and basic configuration for all Server Load Balancing (SLB) clusters on a switch. This command also displays traffic statistics for QoS policy condition clusters.

show ip slb clusters [statistics]

Syntax Definitions

statistics Displays SLB statistics for QoS policy condition clusters.

Defaults

By default, the status and basic configuration for all clusters is displayed; statistics are not shown.

Platforms Supported

OmniSwitch 6400, 6850, 9000, 9000E

Usage Guidelines

Use the **statistics** parameter to display the total number of packets that were passed to clusters 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 clusters
```

Cluster Name	VIP/COND	Admin Status	Operational Status	# Srv	% Avail
WorldWideWeb	128.241.130.204	Enabled	In Service	3	95
Intranet	128.241.130.205	Enabled	In Service	2	100
FileTransfer	128.241.130.206	Enabled	Out of Service	2	50

Output fields are described here:

output definitions

Cluster Name	The name of the SLB cluster.
VIP/COND	The virtual IP (VIP) address or the policy condition name for the SLB cluster.
Admin Status	The administrative status of the SLB cluster (Enabled or Disabled).
Operational Status	The operational status of the SLB cluster; In Service (i.e., at least one physical server is operational in the cluster) or Out of Service .
# Srv	The total number of physical servers that belong to the SLB cluster. It is possible to configure up to 16 servers per cluster and up to 16 clusters per switch. This allows a maximum of 256 physical servers per switch.
% Avail	The percentage of flows successfully routed to the SLB cluster.

```
-> 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

Cluster Name	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.
Count	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

ip slb reset statistics	Resets SLB statistics for all clusters.
show ip slb cluster	Displays detailed status and configuration information for a single SLB cluster.
show ip slb servers	Displays the status of all physical servers belonging to each SLB cluster on a switch.
show ip slb cluster server	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, 9000, 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

Cluster	The name of this Server Load Balancing (SLB) cluster.
VIP	The virtual IP (VIP) address for this Server Load Balancing (SLB) cluster.
Type	The classifier for the hypothetical packet, which can be L2 or L3 .

output definitions (continued)

Admin status	The current administrative status of this Server Load Balancing (SLB) cluster (Enabled or Disabled).
Operational status	The current operational status of this Server Load Balancing (SLB) cluster, which is In Service (i.e., at least one physical server is operational in the cluster) or Out of Service .
Ping period (seconds)	The ping period (in seconds) used by this Server Load Balancing (SLB) cluster to check the health of physical servers.
Ping timeout (milliseconds)	The timeout (in milliseconds) used by this Server Load Balancing (SLB) cluster to wait for ping answers from physical servers.
Ping retries	The number of ping retries that this Server Load Balancing (SLB) cluster will execute before switching the status to No answer .
Probe	The probe configured for this cluster.
Number of packets	The number of packets balanced for this Server Load Balancing (SLB) cluster.
Number of servers	The total number of physical servers that belong to this Server Load Balancing (SLB) cluster.
Server	The IP address for this physical server.
Admin Status	The administrative state of this physical server (Enabled or Disabled).
Operational Status	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none"> • Disabled (this server is administratively disabled). • No Answer (this server has not responded to ping requests). • Link Down (there is a bad connection to this server). • In Service (this server is used for SLB cluster client connections). • Discovery (the SLB cluster is pinging this physical server). • Retrying (the SLB cluster is making another attempt to bring up this server).
Availability (%)	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time (In Service plus Retrying) versus down time (No Answer plus Link Down). Please note that the Disabled and the initial Discovery 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

Cluster Name	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.
Count	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

ip slb reset statistics	Resets SLB statistics for all clusters.
show ip slb clusters	Displays detailed status and configuration information for all Server Load Balancing clusters on a switch.
show ip slb servers	Displays the status of all physical servers belonging to Server Load Balancing clusters on a switch.
show ip slb cluster server	Displays detailed status and configuration information for a single physical server in a Server Load Balancing cluster.
ip slb cluster probe	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, 9000, 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

Cluster	The name of the Server Load Balancing (SLB) cluster.
VIP	The virtual IP (VIP) address for this Server Load Balancing (SLB) cluster.
Server	The IP address for this physical server.

output definitions (continued)

Admin weight	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.
MAC addr	The MAC address of this physical server.
Slot number	The slot number of the network interface (NI) module to which this physical server is attached.
Port number	The port number to which this physical server is attached.
Admin status	The current administrative status of this physical server (Enabled or Disabled).
Oper status	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none"> • Disabled (this server is administratively disabled). • No Answer (this server has not responded to ping requests). • Link Down (there is a bad connection to this server). • In Service (this server is used for SLB cluster client connections). • Discovery (the SLB cluster is pinging this physical server). • Retrying (the SLB cluster is making another attempt to bring up this server).
Probe	The name of the probe configured for this server.
Availability time (%)	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time (In Service plus Retrying) versus down time (No Answer plus Link Down). Please note that the Disabled and the initial Discovery states are not counted as down time.
Ping failures	The total number of pings that have failed on this physical server.
Last ping round trip time (milliseconds)	The total amount of time (in milliseconds) measured for the last valid ping to this physical server to make a round trip.
Probe status	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, 9000, 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

IP addr	The IP address for this physical server.
Cluster Name	The name of the Server Load Balancing (SLB) cluster to which this physical server belongs.
Admin Status	The current administrative status of this physical server (Enabled or Disabled).

output definitions (continued)

Operational Status	The operational state of this server. The possible states are described as follows: <ul style="list-style-type: none">• Disabled (this server is administratively disabled).• No Answer (this server has not responded to ping requests).• Link Down (there is a bad connection to this server).• In Service (this server is used for SLB cluster client connections).• Discovery (the SLB cluster is pinging this physical server).• Retrying (the SLB cluster is making another attempt to bring up this server).
% Avail	The percentage of time that this physical server has been available for processing client requests. In other words, the actual ratio of up time (In Service plus Retrying) versus down time (No Answer plus Link Down). Please note that the Disabled and the initial Discovery states are not counted as down time.

Release History

Release 6.1; command was introduced.

Related Commands

show ip slb cluster server	Displays the detailed status and configuration of a single physical server in a Server Load Balancing cluster.
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

```
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, 9000, 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

Probe Name	The user-specified name of the probe.
Period	The period (in seconds) to check the health of servers.
Retries	The number of probe retries before deciding that a server is out of service.
Timeout	The timeout (in seconds) used to wait for probe answers.
Method	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

Probe	The user-specified name of the probe.
Type	The type of probe.
Period	The period (in seconds) to check the health of servers.
Timeout	The timeout (in seconds) used to wait for probe answers.
Retries	The number of probe retries before deciding that a server is out of service.
Port	The TCP/UDP port on which the probe is sent.
Username	The configured user name sent to a server as credentials for an HTTP GET operation for the probe.
Password	The configured password for the probe.
Expect	The configured ASCII string used to compare a response from a server to verify the health of the server.
Status	The expected status returned from an HTTP GET to verify the health of a server.
URL	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

ip slb probe	Configures and deletes SLB probes.
ip slb probe period	Configures the probe period to check the health of servers.
ip slb probe timeout	Configures the timeout used to wait for probe answers.
ip slb probe retries	Configures the number of probe retries before deciding that a server is out of service.
ip slb probe port	Configures the TCP/UDP port that the probe should be sent on.
ip slb probe username	Configures a user name sent to a server as credentials for an HTTP GET operation
ip slb probe password	Configures a password sent to a server as credentials for an HTTP GET to verify the health of the server
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 status	Configures the expected status returned from an HTTP GET to verify the health of a server.
ip slb probe url	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
```

58 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:

Authentication servers	aaa radius-server aaa radius agent preferred aaa tacacs+-server aaa ldap-server aaa ace-server clear show aaa server
Authenticated VLANs	aaa authentication vlan single-mode aaa authentication vlan multiple-mode aaa vlan no aaa accounting vlan aaa avlan dns aaa avlan default dhcp aaa accounting command avlan port-bound avlan auth-ip aaa avlan http language show aaa authentication vlan show aaa accounting vlan show avlan user show aaa avlan config show aaa avlan auth-ip

Authenticated Switch Access	aaa authentication aaa authentication default aaa accounting session aaa accounting command show aaa authentication show aaa accounting
802.1X Port-Based Network Access Control	aaa authentication 802.1x aaa authentication mac aaa accounting 802.1x show aaa authentication mac show aaa accounting 802.1x
Local User Database and Partitioned Management	user password user password-size min user password-expiration show user show aaa hic server
Password Policy	user password-size min user password-expiration user password-policy cannot-contain-username user password-policy min-uppercase user password-policy min-lowercase user password-policy min-digit user password-policy min-nonalpha user password-history user password-size min user password-min-age user password-expiration show user show user password-size show user password-expiration show user password-policy
User Lockout Settings	user lockout-window user lockout-threshold user lockout-duration user lockout unlock show user show user lockout-setting
Administrative User Logout	aaa admin-logout
End-user Profiles	user end-user profile end-user profile port-list end-user profile vlan-range show end-user profile
User Network Profiles	aaa user-network-profile aaa classification-rule mac-address aaa classification-rule mac-address-range aaa classification-rule ip-address show aaa user-network-profile show aaa classification-rule

Host Integrity Check

```
aaa hic server-name  
aaa hic allowed-name  
aaa hic  
aaa hic web-agent-url  
aaa hic custom-proxy-port  
show aaa hic  
show aaa hic host  
show aaa hic server  
show aaa hic allowed
```

User Authentication Status

```
show aaa-device all-users  
show aaa-device supplicant-users  
show aaa-device non-supplicant-users  
show aaa-device captive-portal-users
```

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 MUST 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, 6855, 9000, 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. 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

show aaa server	Displays information about AAA servers.
aaa authentication vlan single-mode	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
aaa authentication vlan multiple-mode	Specifies the AAA servers to be used for Authenticated VLANs in multiple-authority mode.
aaa authentication	Specifies the AAA servers to be used for Authenticated Switch Access.
aaa accounting vlan	Specifies the accounting servers to be used for Authenticated VLANs.
aaa accounting session	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

default	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.
no-loopback	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, 6855, 9000, 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.

Related Commands

[show aaa server](#) Displays information about AAA servers.

MIB Objects

```
radiusAgentVal
ipedrUsrConfiguredIPaaasRetries
```

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 MUST 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

parameter	default
<i>seconds</i>	2
<i>port</i>	49

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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

show aaa server	Displays information about AAA servers.
aaa authentication vlan single-mode	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
aaa authentication vlan multiple-mode	Specifies the AAA servers to be used for Authenticated VLANs in multiple-authority mode.
aaa authentication	Specifies the AAA servers to be used for Authenticated Switch Access.
aaa accounting vlan	Specifies the accounting servers to be used for Authenticated VLANs.
aaa accounting session	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: cn=manager . 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, o=company or c=country . 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: Generic = Generic Schema Netscape = Netscape Directory Server Novell = Novell NDS Sun = Sun Directory Services Microsoft = 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.

ssl	Enables a secure switch layer (SSL) between the switch and the LDAP server.
no ssl	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
ssl no ssl	no ssl

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- 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

show aaa server	Displays information about AAA servers.
aaa authentication vlan single-mode	Specifies the AAA servers to be used in single-authority mode for Authenticated VLANs.
aaa authentication vlan multiple-mode	Configures AAA servers for Authenticated VLANs in multiple-authority mode.
aaa authentication	Specifies the AAA servers to be used for authenticated switch access.
aaa accounting vlan	Specifies the accounting servers to be used for Authenticated VLANs.
aaa accounting session	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, 6855, 9000, 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

<i>server1</i>	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.
<i>server2...server4</i>	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 <i>server_name1</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, 6855, 9000, 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

aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
aaa ldap-server	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
show aaa server	Displays information about a particular AAA server or AAA servers.
show aaa authentication vlan	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 aaa radius-server , aaa tacacs+-server , and aaa ldap-server 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, 6855, 9000, 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

aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
aaa ldap-server	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
show aaa server	Displays information about a particular AAA server or AAA servers.
show aaa authentication vlan	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

<code>mac-address</code>	Optional syntax.
<code>mac_address</code>	The MAC address of the user who should be removed from an Authenticated VLAN.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

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.
show avlan user	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, 6855, 9000, 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, 6855, 9000, 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

console	Configures Authenticated Switch Access through the console port.
telnet	Configures Authenticated Switch Access for any port used for Telnet.
ftp	Configures Authenticated Switch Access for any port used for FTP.
http	Configures Authenticated Switch Access for any port used for Web-based management.
snmp	Configures Authenticated Switch Access for any port used for SNMP.
ssh	Configures Authenticated Switch Access for any port used for Secure Shell.
default	Configures Authenticated Switch Access for any port using any service (telnet , ftp , 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 aaa radius-server , aaa tacacs+-server , and aaa ldap-server commands. If an ACE/Server will be used, specify ace 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 local). 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.
local	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 local 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, 6855, 9000, 9000E

Usage Guidelines

- 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

aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
aaa ldap-server	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
user	Configures user information for the local database on the switch.
show aaa server	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

console	Configures the default Authenticated Switch Access server setting for the console port.
telnet	Configures the default Authenticated Switch Access server setting for Telnet.
ftp	Configures the default Authenticated Switch Access server setting for FTP.
http	Configures the default Authenticated Switch Access server setting for Web-based management.
snmp	Configures the default Authenticated Switch Access server setting for any port used for SNMP.
ssh	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, 6855, 9000, 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

aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
aaa tacacs+-server	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
user	Configures user information for the local database on the switch.
show aaa server	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. (Note that only RADIUS servers are supported for 802.1X authentication.) At least one server is required. RADIUS server names are set up through the aaa radius-server 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, 6855, 9000, 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

802.1x	Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.
aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
vlan port 802.1x	Enables or disables 802.1X port-based access control on a mobile port.
show aaa authentication 802.1x	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 aaa radius-server 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, 6855, 9000, 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

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 non-supplicant policy authentication	Configures MAC authentication device classification policies for non-supplicants.
aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
vlan port 802.1x	Enables or disables 802.1X port-based access control on a mobile port.
show aaa authentication mac	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 aaa radius-server , aaa tacacs+-server , and aaa ldap-server commands.
<i>server2...</i>	The names of backup servers for 802.1X accounting. Up to 3 backups may be specified (including local); 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.
local	Local accounting is done through the Switch Logging feature in the switch. See Chapter 60, “Switch Logging Commands,” for information about Switch Logging commands.

Defaults

Accounting is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

802.1x	Configures 802.1X parameters on a particular slot/port. Typically used for port access control on a dedicated 802.1X port.
aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
show aaa accounting 802.1x	Displays information about accounting servers for 802.1X sessions.

MIB Objects

```
aaaAcct8021xTable  
  aaacxName1  
  aaacxName2  
  aaacxName3  
  aaacxName4
```

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 aaa radius-server , aaa tacacs+-server , and aaa ldap-server commands. If the local accounting feature will be used as the only accounting mechanism, specify local for <i>server1</i> .
<i>server2...</i>	The names of backup servers. Up to 3 backups may be specified (including local); 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.
local	Local accounting is done through the Switch Logging feature in the switch. See Chapter 60, “Switch Logging Commands,” for information about Switch Logging commands.

Defaults

Accounting is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.
aaa tacacs+-server	Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.
show aaa accounting	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 60, “Switch Logging Commands,”](#) for information about Switch Logging commands.

Defaults

Accounting is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 aaa tacacs+-server 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.
local	Local accounting is done through the Switching Logging feature on the switch. See Chapter 60, “Switch Logging Commands,” for information about Switch Logging commands.

Defaults

Accounting is disabled by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

enable	Enables the switch to allow users authenticating through the switch to traffic in the default VLAN prior to authentication.
disable	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, 6855, 9000, 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, 6855, 9000, 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

In addition to the above binding rule types, a MAC range rule may also be applied to authenticated ports on an OmniSwitch 6800.

For more information about commands for configuring port binding rules, see [Chapter 20, “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, 6855, 9000, 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, 6855, 9000, 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*]

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.
read-only	Specifies that the user will have read-only access to the switch.
read-write	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.
all	Specifies that all command families and domains are available to the user.
none	Specifies that no command families or domains are available to the user.
no snmp	Denies the specified user SNMP access to the switch.
no auth	Specifies that the user has SNMP access without any required SNMP authentication and encryption protocol.
sha	Specifies that the SHA authentication algorithm should be used for authenticating SNMP PDU for the user.
md5	Specifies that the MD5 authentication algorithm should be used for authenticating SNMP PDU for the user.

sha+des	Specifies that the SHA authentication algorithm and DES encryption standard should be used for authenticating and encrypting SNMP PDU for the user.
md5+des	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 end-user profile command. Cannot be associated with the user if command families/domains are associated with the user.

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
read-only read-write	read-only
no snmp no auth sha md5 sha+des md5+des	no snmp

For more information about the default user account, see the *OmniSwitch AOS Release 6 Switch Management Guide*.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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 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

Examples

```
-> user techpubs password writer read-only config
-> no user techpubs
```

Release History

Release 6.1; command was introduced.

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

password

Configures the current user's password.

password

Syntax Definitions

N/A

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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, 6855, 9000, 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.
disable	Disables password expiration for users configured locally on the switch.

Defaults

parameter	default
<i>day</i> / disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

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-expiration	Displays the expiration date for passwords configured for user accounts stored on the switch.
show user password-policy	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

enable	Does not allow the password to contain the username.
disable	Allows the password to contain the username.

Defaults

parameter	default
enable disable	disable

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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-uppercase

Configures the minimum number of uppercase English characters required for a valid password.

user password-policy min-uppercase *number*

Syntax Definitions

number The minimum number of uppercase characters. The range is 0 to 7.

Defaults

parameter	default
<i>number</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Specify **0** with this command to disable the minimum uppercase character requirement.
- The minimum number of uppercase 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-uppercase 2
-> user password-policy min-uppercase 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
    aaaAsaPasswordMinUpperCase
```

user password-policy min-lowercase

Configures the minimum number of lowercase English characters required for a valid password.

`user password-policy min-uppercease number`

Syntax Definitions

number The minimum number of lowercase characters. The range is 0 to 7.

Defaults

parameter	default
<i>number</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Specify **0** with this command to disable the minimum lowercase character requirement.
- The minimum number of lowercase 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-lowercase 2
-> user password-policy min-lowercase 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
  aaaAsaPasswordMinLowerCase
```

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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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, 6855, 9000, 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

user lockout-duration	Configures the amount of time a user account remains locked out of the switch.
user lockout-threshold	Configures the number of failed password attempts allowed before the user account is locked out of the switch.
user lockout unlock	Manually locks or unlocks a user account on the switch.
show user lockout-setting	Displays the global user lockout settings for the switch.

MIB Objects

```
aaaAsaConfig  
  aaaAsaLockoutWindow
```

user lockout-threshold

Configures the number of failed password login attempts allowed during a certain period of time (observation window). If the number of failed attempts exceeds the lockout threshold number before the observation window period expires, the user account is locked out.

user lockout-threshold *number*

Syntax Definitions

number The number of failed login attempts allowed. The range is 0 to 999.

Defaults

parameter	default
<i>number</i>	0

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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.
- If the lockout threshold is set to zero (the default), there is no limit to the number of failed login attempts allowed.
- A user account remains locked out for the length of the lockout duration time period; at the end of this time, the account is automatically unlocked.
- If the lockout duration time period is set to zero, only the **admin** user or a user with read/write AAA privileges can unlock a locked user account. An account is unlocked by changing the user account password or with the [user lockout unlock](#) command.
- The lockout threshold 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-threshold 3
-> user lockout-threshold 0
```

Release History

Release 6.3.1; command was introduced.

Related Commands

user lockout-window	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.
user lockout-duration	Configures the length of time a user account remains locked out of the switch.
user lockout unlock	Manually locks or unlocks a user account on the switch.
show user lockout-setting	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, 6855, 9000, 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

user lockout-window	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,
user lockout-threshold	Configures the number of failed password attempts allowed before the user account is locked out of the switch.
user lockout unlock	Manually locks or unlocks a user account on the switch.
show user lockout-setting	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.
lockout	Locks the user account out of the switch.
unlock	Unlocks a locked user account.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

show user	Displays information about all users or a particular user configured in the local user database on the switch.
show user lockout-setting	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, 6855, 9000, 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 physical , vlan-table , basic-ip-routing , ip-routes-table , mac-filtering-table , spantree .

Defaults

Areas are disabled for end-user profiles by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

end-user profile port-list	Configures a range of ports associated with an end-user profile.
end-user profile vlan-range	Configures a range of VLANs associated with an end-user profile.
user	Configures or modifies user entries in the local user database.
show end-user profile	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 2-4 .
<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, 6855, 9000, 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

end-user profile	Configures or modifies an end user profile, which specifies access to command areas.
end-user profile vlan-range	Configures a range of VLANs associated with an end-user profile.
show end-user profile	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: 3-6 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, 6855, 9000, 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

end-user profile	Configures or modifies an end user profile, which specifies access to command areas.
end-user profile port-list	Configures a range of ports associated with an end-user profile.
show end-user profile	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.
enable	Enables Host Integrity Check for the profile.
disable	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
hic enable disable	disabled
<i>list_name</i>	none

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

OmniSwitch 9000E, 9000; **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

show aaa user-network-profile	Displays the UNP configuration for the switch.
aaa hic	Globally enables or disables the HIC feature for the switch.
aaa classification-rule mac-address	Defines a MAC address UNP mobile rule.
aaa classification-rule mac-address-range	Defines a MAC address UNP mobile rule for a range of MAC addresses.
aaa classification-rule ip-address	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, 6855, 9000, 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

- | | |
|--|--|
| aaa classification-rule mac-address-range | Configures a UNP mobile rule for a range of MAC addresses. |
| aaa classification-rule ip-address | Configures an IP address UNP mobile rule. |
| show aaa classification-rule | Displays the UNP configuration. |
| show aaa user-network-profile | 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, 6855, 9000, 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, 6855, 9000, 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

- | | |
|--|--|
| aaa classification-rule mac-address | Configures a MAC address UNP mobile rule. |
| aaa classification-rule mac-address-range | Configures a UNP mobile rule for a range of MAC addresses. |
| show aaa classification-rule | Displays the UNP mobile rule configuration. |
| show aaa user-network-profile | 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 [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 MUST match the secret configured on the server. The secret is case-sensitive.
<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, 6855

Usage Guidelines

- A host name, IP address, and a secret are required when configuring a server.
- Use the **no** form of the command to remove a HIC server from the configuration.
- Only one HIC server per switch is supported.
- Configuring the HIC server identity and related parameters is required before globally enabling the HIC feature for the switch.
- Configuring server parameters is not allowed when HIC is enabled for the switch.

Examples

```
-> aaa hic server-name hic-srv1 ip-address 2.2.2.2 secret wwtoe udp-port 12049
-> aaa hic no server-name hic-srv1
```

Release History

Release 6.3.4; command was introduced.

Related Commands

show aaa server

Displays information about AAA servers.

aaa hic allowed-name

Configures a download server as an exception to the HIC process.

aaa hic

Globally enables and disables the HIC feature for the switch.

MIB Objects

aaaHicSvrTable

aaaHicSvrName

aaaHicSvrIpAddr

aaaHicSvrPort

aaaHicSvrKey

aaaHicSvrRowStatus

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

parameter	default
<i>subnet_mask</i>	255.255.255.255

Platforms Supported

OmniSwitch 6400, 6850, 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

enable	Enables the HIC feature for the switch.
disable	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

show aaa server	Displays information about AAA servers.
aaa hic server-name	Configures a HIC server for use with the switch.
aaa hic allowed-name	Configures a remediation, patch, or web agent download server as an exception to the Host Integrity Check (HIC) process.
aaa user-network-profile	Configures a User Network Profile (UNP) that is used to provide role-based access to the switch.

MIB Objects

aaaHicConfigInfo
aaaHicStatus

aaa hic web-agent-url

Specifies the URL for the Web agent download server. The switch uses this information to redirect a host (client device) to a download server where the host can obtain the InfoExpress Web-based compliance agent. This agent provides the interaction between the switch, host device, and HIC server.

aaa hic web-agent-url *url*

Syntax Definitions

url The URL address for the web agent download server.

Defaults

By default, no URL is configured.

Platforms Supported

OmniSwitch 6400, 6850, 6855

Usage Guidelines

- This command overwrites any URL information that was previously configured.
- Add the corresponding name and IP address for the web agent download server to the HIC allowed name exception list.

Examples

```
-> aaa hic web-agent-url http://10.10.10.10:2146
```

Release History

Release 6.3.4; command was introduced.

Related Commands

show aaa hic	Displays the global HIC configuration for the switch.
aaa hic server-name	Configures a HIC server for use with the switch.
aaa hic allowed-name	Configures a remediation, patch, or web agent download server as an exception to the Host Integrity Check (HIC) process.
aaa hic	

MIB Objects

```
aaaHicConfigInfo  
aaaHicWebAgentDownloadURL
```

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

show aaa server	Displays information about AAA servers.
aaa hic	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, 6800, 6850, 6855, 9000, 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

Server name	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 aaa radius-server , aaa tacacs+-server , and aaa ldap-server commands respectively.
Server type	The type of server (ACE, LDAP, TACACS+, or RADIUS).
Host name	The name of the primary LDAP, TACACS+, or RADIUS host.
IP address	The IP address(es) of the server.
Retry number	The number of retries the switch makes to authenticate a user before trying the backup server.
Timeout	The timeout for server replies to authentication requests.
Port	The port number for the primary LDAP or TACACS+ server.
Encryption enabled	The status of the encryption.
Domain name	The super-user or administrative distinguished name in the format recognized by the LDAP-enabled directory servers.
Search base	The search base recognized by the LDAP-enabled directory servers.
Authentication port	The UDP destination port for authentication requests.
Accounting port	The UDP destination port for accounting requests.
VRF	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

aaa radius-server

Configures or modifies a RADIUS server for Authenticated VLANs or Authenticated Switch Access.

aaa ldap-server

Configures or modifies an LDAP server for Authenticated VLANs or Authenticated Switch Access.

aaa tacacs+-server

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, 6800, 6850, 6855, 9000, 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

Authenticated vlan	The VLAN number.
1st authentication server	The first server to be polled for authentication information.
2nd authentication server	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, 6855, 9000, 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

Authentication	Displays denied if the management interface is disabled. Displays Use Default if the management interface is configured to use the default configuration.
1st authentication server	The first server to be polled for authentication information.
2nd authentication server	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, 6855, 9000, 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

1st authentication server	The first server to be polled for authentication information. Any backup servers are also displayed on subsequent lines.
port usage	Whether 802.1X ports on the switch will only accept frames from the supplicant's MAC address after successful authentication (unique); or the switch will accept any frames on 802.1X ports after successful authentication (global)

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

1st authentication server	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, 6855, 9000, 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

1st authentication server	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 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, 6855, 9000, 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

Authenticated vlan	Indicates servers for Authenticated VLANs.
Session	Indicates servers for Authenticated Switch Access session.
1st authentication server	The first server to be polled for authentication information.
2nd authentication server	The next server to be polled for authentication information.

Release History

Release 6.1; command was introduced.

Related Commands

[aaa accounting vlan](#)

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, 6855, 9000, 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,
  1st accounting server      = RadiusServer
  2nd accounting server      = local
Authenticated vlan = 24,
  1st accounting server      = RadiusServer,
  2nd accounting server      = local
Authenticated vlan = 25,
  1st accounting server      = RadiusServer,
  2nd accounting server      = local
Session (telnet, ftp,...),
  1st accounting server      = RadiusServer,
  2nd accounting server      = local
```

output definitions

Authenticated vlan	Indicates servers for Authenticated VLANs.
Session	Indicates servers for Authenticated Switch Access session.
1st authentication server	The first server to be polled for authentication information.
2nd authentication server	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

show user

Displays information about all users or a particular user configured in the local user database on the switch.

show user [*username*]

Syntax Definitions

username The name of the user. Used for logging into the switch.

Defaults

By default, all users are displayed if the *username* parameter is not specified with this command.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

Use this command to display information about read/write access and partitioned management access (domains and families) or end-user profiles associated with users.

Examples

```
-> show user
User name = Customer1,
  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,
  Read Only for domains   = None,
  Read/Write for domains  = Admin System Physical Layer2 Services policy Security ,
  Read/Write for families = ip rip ospf bgp vrrp ip-routing ipx ipmr ipms ,
  Snmp allowed            = YES,
  Snmp authentication     = SHA,
  Snmp encryption        = DES
User name = admin,
  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
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
```

```

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,
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,
(*)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

```

output definitions

User name	The user name for this account.
Password expiration	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 user password-expiration command. (Note that the date/time are based on the switch's default system date/time or the system date/time configured through the system date and system time commands.)
Password allow to be modified date	The earliest date and time on which the user may change the password. Configured through the user password-min-age command.
Account lockout	Indicates if the user account is locked out (Yes or No) and how many minutes remain until the user account is automatically unlocked. If no remaining time is displayed, the admin user or a user with admin privileges must manually unlock the account. Configured through the user lockout-duration and user lockout unlock commands.
Password bad attempts	The number of failed password login attempts for this user account.

output definitions (continued)

Read Only for domains	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.
Read/Write for domains	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.
Read Only for families	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.
Read/Write for families	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.
END user profile	The name of an end-user profile associated with the user account. Configured through the end-user profile command. This field only displays if an end-user profile is associated with the user account.
Snmp allowed	Indicates whether or not the user is authorized to use SNMP (YES or NO). SNMP is allowed for the user account when SNMP authentication is specified for the account.
Snmp authentication	The level of SNMP authentication, if any, configured for the user. This field only displays if the user is authorized to use SNMP.
Snmp encryption	The level of SNMP encryption, if any, configured for the user. This field only displays if the user is authorized to use SNMP.

Possible values for command domains and families are listed 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 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.

Related Commands

user	Configures user entries in the local user database.
show user password-policy	Displays the global password policy configuration for the switch.
show user lockout-setting	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
```

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, 6855, 9000, 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

user password-size min	Configures the minimum number of characters required when configuring a user password.
user	Configures or modifies user entries in the local user database.
password	Configures the current user's password.
show user password-policy	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, 6855, 9000, 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

user password-expiration	Configures an expiration date for user passwords stored locally on the switch or disables password expiration.
user	Configures or modifies user entries in the local user database.
password	Configures the current user's password.
show user password-policy	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, 6855, 9000, 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

Contain username flag	Indicates if the username is included with the password check (Enable or Disable). Configured through the user password-policy cannot-contain-username command.
Minimum number of English uppercase characters	The minimum number of uppercase characters required in a password. Configured through the user password-policy min-uppercase command.
Minimum number of English lowercase characters	The minimum number of lowercase characters required in a password. Configured through the user password-policy min-lowercase .
Minimum number of base-10 digit	The minimum number of digits required in a password. Configured through the user password-policy min-digit command.
Minimum number of non-alphanumeric	The minimum number of non-alphanumeric characters required in a password. Configured through the user password-policy min-non-alpha command.

output definitions

Minimum size	The minimum number of characters required for the password size. Configured through the user password-size min command.
Password history	The maximum number of old passwords retained in the password history. Configured through the user password-history command.
Password minimum age	The number of days a password is protected from any modification. Configured through the user password-min-age command.
Password expiration	The default expiration date applied to all passwords. Configured through the user password-expiration 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, 6855, 9000, 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

Observation window	The amount of time, in minutes, during which the number of failed password login attempts are counted. Configured through the user lockout-window command.
Duration	The amount of time, in minutes, that a locked user account remains locked out of the switch. Configured through the user lockout-duration command.
Threshold	The maximum number of failed password login attempts allowed before the user is locked out of the switch. Configured through the user lockout-threshold 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

vlan_id The VLAN number. Information displays about users in this VLAN.

slot The slot number. Information displays about users with access on this slot.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

name	The name of the authenticated user.
Mac Address	The MAC address of the user.
Slot	The slot associated with the user.
Port	The port associated with the user.
Vlan	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, 6855, 9000, 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

default DHCP relay address	The gateway address of the DHCP server; configured through the aaa avlan default dhcp command.
authentication DNS name	The DNS host name, configured through the aaa avlan dns command.
default traffic	Whether or not the default VLAN is enabled for users to traffic in before authentication. Configured through the aaa accounting command command.
port bounding	Whether or not port mobility rules are allowed on Authenticated VLANs. Configured through the avlan port-bound command.

Release History

Release 6.1; command was introduced.

Related Commands

aaa avlan dns	Configures a host name.
aaa avlan default dhcp	Configures the gateway address for a DHCP server.
aaa accounting command	Configures whether or not users are able to traffic in the default VLAN before they are actually authenticated.
avlan port-bound	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, 6855, 9000, 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

VLAN number	The VLAN ID.
Authenticated Ip Address	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, 6855, 9000, 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

PM family	The partitioned management (PM) command family to which the command belongs.
R/W mode	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, 6855, 9000, 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.

show end-user profile

Displays basic information about end-user profiles or a particular end-user profile.

show end-user profile *name*

Syntax Definitions

name The name of the end-user profile (up to 32 alphanumeric characters).

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The **show end-user profile** command displays information about profiles configured on the switch. For information about users, use the [show user](#) command.
- If a particular profile is not specified, information about all profiles is displayed.

Examples

```
-> show end-user profile Prof1
```

```
End user profile : Prof1
Area accessible with read and write rights :
  physical,
  vlan table,
  basic ip routing,
  ip routes table,
  mac filtering table,
  spantree
Slot : 1, ports allowed : 1-2, 4-5, 7-8, 10-11, 13-14, 16-17, 19-20, 22-24
Slot : 2, ports allowed : 1-2, 4-5, 7-8, 10-11, 13-14, 16-17, 19-20, 22-24
Slot : 3, ports allowed : 1-2, 4-5, 7-8, 10-11, 13-14, 16-17, 19-20, 22-24
Slot : 4, ports allowed : 1-2, 4-5, 7-8, 10-11, 13-14, 16-17, 19-20, 22-24
Vlan Id :
  1-18, 23, 27-1001, 4073-4092
```

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.

user

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, 6855, 9000, 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

Role Name	The user profile name.
Vlan	The VLAN ID number the profile assigns to the user device.
HIC	Whether or not Host Integrity Check is required for the device to which this profile is assigned.
Policy List Name	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

mac-rule	Displays MAC address rules.
mac-range-rule	Displays MAC address range rules.
ip-net-rule	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

MAC Address	The source MAC address of the host device to which the UNP is applied.
User Network Profile Name	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

Low MAC Address	The MAC address that identifies the low end of the range of addresses.
High MAC Address	The MAC address that identifies the high end of the range of addresses.
User Network Profile Name	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       engr_user
```

output definitions

IP Addr	The source IP address of the host device to which the UNP is applied.
IP Mask	The subnet mask for the IP address.
User Network Profile Name	The name of the UNP applied to the host device.

Release History

Release 6.3.4; command was introduced.

Related Commands

aaa classification-rule mac-address	Defines a MAC address classification rule and associates that rule with a user network profile.
aaa classification-rule mac-address-range	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.
aaa classification-rule ip-address	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, 6855

Usage Guidelines

N/A

Examples

```
HIC Global Status: Enabled
HIC Web Agent Download URL: http://100.100.100.100:8080/CGAgentLauncher.htm
HIC Host Custom HTTP Proxy Port: 8383
```

output definitions

HIC Status	The HIC status for the switch (Enabled or Disabled). Configured through the aaa hic command.
HIC Web Agent Download URL	The URL for the web agent download server. Configured through the aaa hic web-agent-url command.
HIC Host Custom HTTP Proxy Port	The proxy port number used when the web-based host is redirected to the HIC server. Configured through the aaa hic custom-proxy-port command.

Release History

Release 6.3.4; command was introduced.

Related Commands

<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.
<code>show aaa hic allowed</code>	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
```

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

HIC Host MAC	The MAC address for each learned host device.
Status	The HIC status for the host device (In-Progress , Successful , Failed , or Timeout).

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 allowed

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, 6855

Usage Guidelines

There is only one HIC server per switch allowed.

Examples

```
-> show aaa hic server
```

```
HIC Server Name:      cgs
HIC Server IP Address: 100.100.100.100
HIC Server UDP Port:  11707
HIC Server Key:       *****
```

output definitions

HIC Server Name	The name of the HIC server. Note that only one server is supported per switch. Configured through the aaa hic server-name command.
HIC Server IP Address	The IP address of the HIC server. Configured through the aaa hic server-name command.
HIC server UDP Port	The UDP port number. Configured through the aaa hic server-name command.
HIC Server Key	The secret key. Configured through the aaa hic server-name command.

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 host

Displays a list of the learned host MAC addresses and the HIC status for each host.

show aaa hic allowed

Displays the list of servers allowed access to the switch and host device as part of the HIC process.

MIB Objects

aaaHicSvrTable

aaaHicSvrName

aaaHicSvrIpAddr

aaaHicSvrPort

aaaHicSvrKey

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

Allowed Name	The name of the server that is allowed access to the switch and host as part of the HIC process. Configured through the aaa hic allowed-name command.
IP Address	The IP address of the allowed server. Configured through the aaa hic allowed-name command.
IP Mask	The IP subnet mask for the allowed server. Configured through the aaa hic allowed-name command.

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 host** Displays a list of the learned host MAC addresses and the HIC status for each host.
- show aaa hic server** 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, 6800, 6850, 6855, 9000, 9000E

Usage Guidelines

- Valid values for the family parameter are listed in the Corresponding Families column of the following table:

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 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

- 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,
webmgmt       = 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.
success	Display all users that have successfully authenticated.
fail	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, 6855, 9000, 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

Slot/Port	The slot and port number to which the user device is connected.
MAC Address	The MAC address of the user device.
User Name	The user login name used to access the switch.
VLAN	The VLAN ID the user device is authorized to access.
Addr Mode	The status of the MAC address for the user device.
Ip Address	The IP address of the user device.
Authentication Type	The type of authentication used to grant the device access to the switch (1X , MAC , or none).
Authentication Result	The result of the authentication process (Pass , Fail , or N/A).
User Network Profile Name	The name of the user network profile used to classify the user device. If N/A 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

show aaa-device supplicant-users	Displays a list of all supplicant (802.1x) users learned on the switch.
show aaa-device non-supplicant-users	Displays a list of all non-supplicant (non-802.1X) users learned on the switch.
show aaa-device captive-portal-users	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.
success	Display all supplicant users that have successfully authenticated.
fail	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, 6855, 9000, 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	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	

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	00:00:39:93:46:10	--	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	Result	User Profile	Network Name
5/9	00:90:27:17:91:a8	pc2006	1000	Brdg	-	1X	Pass	engr	
5/9	00:00:39:93:46:10	--	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	Result	User Profile	Network Name
5/9	00:00:39:93:46:10	--	1	Blk	-	1X	Fail	-	

output definitions

Slot/Port	The slot and port number to which the user device is connected.
MAC Address	The MAC address of the user device.
User Name	The user login name used to access the switch.
VLAN	The VLAN ID the user device is authorized to access.
Addr Mode	The status of the MAC address for the user device.
Ip Address	The IP address of the user device.
Authentication Type	The type of authentication used to grant the device access to the switch (1X , MAC , or none).
Authentication Result	The result of the authentication process (Pass , Fail , or N/A).
User Network Profile Name	The name of the user network profile used to classify the user device. If N/A 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

show aaa-device all-users	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
show aaa-device non-supplicant-users	Displays a list of all non-supplicant (non-802.1X) users learned on the switch.
show aaa-device captive-portal-users	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-supPLICant-users

Displays the Access Guardian status of all non-supPLICant (non-802.1x) users learned on the switch.

show aaa-device non-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.
authentication success	Display all non-supPLICant users that have successfully authenticated.
authentication fail	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 non-supPLICant users are displayed by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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-supPLICant-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

Slot/Port	The slot and port number to which the user device is connected.
MAC Address	The MAC address of the user device.
User Name	The user login name used to access the switch.
VLAN	The VLAN ID the user device is authorized to access.
Addr Mode	The status of the MAC address for the user device.
Ip Address	The IP address of the user device.
Authentication Type	The type of authentication used to grant the device access to the switch (IX , MAC , or none).

output definitions

Authentication Result	The result of the authentication process (Pass , Fail , or N/A).
User Network Profile Name	The name of the user network profile used to classify the user device. If N/A 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

show aaa-device all-users	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
show aaa-device supplicant-users	Displays a list of all supplicant (802.1X) users learned on the switch.
show aaa-device captive-portal-users	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.
authentication success	Display all non-suppliant users that have successfully authenticated.
authentication fail	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 Captive Portal users are displayed by default.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Slot/Port	The slot and port number to which the user device is connected.
MAC Address	The MAC address of the user device.

output definitions

User Name	The user login name used to access the switch.
VLAN	The VLAN ID the user device is authorized to access.
Addr Mode	The status of the MAC address for the user device.
Ip Address	The IP address of the user device.
Authentication Type	The type of authentication used to grant the device access to the switch (1X , MAC , or none).
Authentication Result	The result of the authentication process (Pass , Fail , or N/A).
User Network Profile Name	The name of the user network profile used to classify the user device. If N/A 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

show aaa-device all-users	Displays a list of all users (supplicant and non-supplicant) learned on the switch.
show aaa-device supplicant-users	Displays a list of all supplicant (802.1X) users learned on the switch.
show aaa-device non-supplicant-users	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
```

59 802.1X 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:

802.1X port commands	802.1x 802.1x initialize 802.1x re-authenticate 802.1x supp-polling retry 802.1x captive-portal address 802.1x auth-server-down 802.1x auth-server-down policy 802.1x auth-server-down re-authperiod show 802.1x show 802.1x users show 802.1x statistics show 802.1x non-supplicant show 802.1x auth-server-down
Access Guardian commands	802.1x supplicant policy authentication 802.1x non-supplicant policy authentication 802.1x non-supplicant policy 802.1x policy default 802.1x captive-portal policy authentication 802.1x captive-portal session-limit 802.1x captive-portal retry-count 802.1x captive-portal address 802.1x auth-server-down show 802.1x device classification policies show 802.1x auth-server-down

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.
both	Configures bidirectional control on the port.
in	Configures control over incoming traffic only.
force-authorized	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.
force-unauthorized	Forces the port control to be unauthorized, which means the port cannot accept any traffic.
auto	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.
quiet-period <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.
tx-period <i>seconds</i>	The time before an EAP Request Identity will be re-transmitted. The range is 1 to 65535 seconds.
supp-timeout <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).
server-timeout <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 aaa radius-server 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 supp-timeout . The range is 1 to 10.

re-authperiod <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.
reauthentication	Specifies that the port will be reauthenticated after the re-authperiod timer expires.
no reauthentication	Specifies that the port will not be reauthenticated unless the 802.1x re-authenticate command is entered.

Defaults

parameter	default
both in	both
force- authorized force-unauthorized auto	auto
quiet-period <i>seconds</i>	60
tx-period <i>seconds</i>	30
supp-timeout <i>seconds</i>	30
<i>max_req</i>	2
re-authperiod <i>seconds</i>	3600
reauthentication no reauthentication	no reauthentication

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

aaa authentication 802.1x	Enables/disables the switch for 802.1X authentication.
vlan port 802.1x	Enables or disables 802.1X port-based access control on a mobile port.
aaa radius-server	Configures or modifies a RADIUS server for Authenticated VLANs, Authenticated Switch Access, or 802.1X port access control.
802.1x captive-portal address	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 initialize

Re-initializes a particular 802.1X port. Stops traffic on the port; then requires re-authentication of the port.

802.1x initialize *slot/port*

Syntax Definitions

slot/port The slot and port number of the 802.1x port.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- This command is typically only used for troubleshooting, to reset the port access control mechanism in the switch.
- When this command is entered, all traffic on the port is stopped; the port is then re-authenticated. Connectivity is restored with successful re-authentication.

Examples

```
-> 802.1x initialize 3/1
```

Release History

Release 6.1; command was introduced.

Related Commands

[802.1x](#) Configures 802.1X parameters on a particular slot/port.

MIB Objects

dot1xPaePortTable
 dot1xPaePortInitialize

802.1x re-authenticate

Forces a particular 802.1X port to be re-authenticated.

802.1x reauthenticate *slot/port*

Syntax Definitions

slot/port The slot and port number of the 802.1x port.

Defaults

By default, 802.1X ports are not configured for periodic re-authentication. Use the **802.1x re-authenticate** command to force a re-authentication.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- This command forces a port to be re-authenticated, regardless of the re-authentication setting configured for the **802.1x** command.
- Re-authentication is transparent to the user. It does not affect traffic on the port unless there is a problem with the physical device connected to the port. The re-authentication mechanism verifies that there is a device connected to the port, and that the authentication exchange is still valid.

Examples

```
-> 802.1x reauthenticate 3/1
```

Release History

Release 6.1; command was introduced.

Related Commands

802.1x Configures 802.1X parameters on a particular slot/port.

MIB Objects

```
dot1xPaePortTable  
  dot1xPaePortReauthenticate
```

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.
retries	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, 6855, 9000, 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

- 802.1x captive-portal address** Displays information about ports configured for 802.1X.
- show 802.1x non-suppliant** Displays a list of all non-802.1x supplicants learned on one or more 802.1x ports. Displays a list of all non-802.1x supplicants learned on one or more 802.1x ports.

MIB Objects

alaDot1xSuppPollingCnt

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.
pass	Indicates which policies to apply if 802.1x authentication is successful but does not return a VLAN ID.
fail	Indicates which policies to apply if 802.1x authentication fails or if successful authentication returns a VLAN ID that does not exist.
group-mobility	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.
default-vlan	Assigns supplicant to the default VLAN for the 802.1x port.
block	Blocks supplicant access on the 802.1x port.
captive-portal	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
pass	block
fail	block

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

802.1x non-suppliant policy authentication	Configures MAC authentication device classification policies for non-suplicants.
802.1x non-suppliant policy	Configures device classification policies that do not perform 802.1x or MAC authentication for non-suplicants.
802.1x policy default	Resets the device classification policy to the default policy value for the 802.1x port.
show 802.1x device classification policies	Displays device classification policies configured for an 802.1x port.
show 802.1x non-suppliant	Displays a list of all non-suplicants learned on all 802.1x ports.
show 802.1x users	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.
pass	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.
fail	Indicates which policies to apply if MAC authentication fails.
group-mobility	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.
vlan vid	Use this VLAN ID number for device classification.
default-vlan	Assigns suppliant to the default VLAN for the 802.1x port.
block	Blocks suppliant traffic on the 802.1x port.
captive-portal	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, 6855, 9000, 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

802.1x supplicant policy authentication	Configures 802.1x authentication device classification policies for supplicants.
802.1x non-suppliant policy	Configures device classification policies that do not perform 802.1x or MAC authentication for non-suplicants.
802.1x policy default	Resets the device classification policy to the default policy value for the 802.1x port.
show 802.1x device classification policies	Displays device classification policies configured for an 802.1x port.
show 802.1x non-suppliant	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.
group-mobility	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.
vlan vid	Use this VLAN ID number for device classification.
default-vlan	Assign suppliant to the default VLAN for the 802.1x port.
block	Block suppliant traffic on the 802.1x port.
captive-portal	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, 6855, 9000, 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

802.1x suppliant policy authentication	Configures 802.1x authentication device classification policies for suplicants.
802.1x non-suppliant policy authentication	Configures MAC authentication device classification policies for non-suplicants.
802.1x policy default	Resets the device classification policy to the default policy value for the 802.1x port.
show 802.1x device classification policies	Displays device classification policies configured for an 802.1x port.
show 802.1x non-suppliant	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.
supplicant	Reset the supplicant policy to the default policy value.
non-supplicant	Reset the non-supplicant policy to the default policy value.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- The default non-supplicant policy blocks all non-suppliants 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

802.1x supplicant policy authentication	Configures 802.1x authentication device classification policies for supplicants.
802.1x non-supplicant policy authentication	Configures MAC authentication device classification policies for non-supplicants.
802.1x non-supplicant policy	Configures device classification policies that do not perform 802.1x or MAC authentication for non-supplicants.
show 802.1x device classification policies	Displays device classification policies configured for an 802.1x port.
show 802.1x non-supplicant	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.
pass	Indicates which policies to apply if authentication is successful but does not return a VLAN ID or the VLAN ID returned does not exist.
fail	Indicates which policies to apply if authentication fails.
group-mobility	Use Group Mobility rules for device classification.
<i>profile_name</i>	The name of a User Network Profile to use for device classification.
vlan vid	Use this VLAN ID number for device classification.
default-vlan	Assigns the device to the default VLAN for the 802.1x port.
block	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, 6855, 9000, 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

802.1x supplicant policy authentication	Configures 802.1x authentication device classification policies for supplicants.
802.1x non-supplicant policy	Configures device classification policies that do not perform 802.1x or MAC authentication for non-supplicants.
802.1x captive-portal session-limit	Configures the length of a Captive Portal session and the number of login attempts allowed before the device is classified as a failed login.
show 802.1x device classification policies	Displays device classification policies configured for an 802.1x port.
show 802.1x auth-server-down	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

<i>slot/port</i>	The slot and port number of the 802.1x port.
<i>time</i>	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, 6855, 9000, 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 auth-server-down** Displays the global Captive Portal configuration for the switch.

MIB Objects

alaDot1xAuthPolicyTable
alaDot1xCaptivePortalSessionLimit

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, 6855, 9000, 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

- 802.1x captive-portal session-limit** Configures the length of an active Captive Portal session.
- 802.1x captive-portal policy authentication** Configures a Captive Portal device classification policy for an 802.1x port.
- show 802.1x auth-server-down** 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, 6855, 9000, 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 auth-server-down](#) Displays the global Captive Portal configuration for the switch.

MIB Objects

```
alaDot1xCportalConfig
  alaDot1xCPortalIpAddress
```

802.1x captive-portal proxy-server-url

Configures Captive Portal to work with a specific proxy server URL used by the client.

802.1x captive-portal proxy-server-url *proxy_url*

Syntax Definitions

proxy_url The URL address for the users proxy server.

Defaults

By default, the proxy server URL value is set to **proxy**. Captive Portal will look for the word “proxy” to identify the users web server URL.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Changing the Captive Portal proxy server URL value is only necessary if the proxy server URL does not contain any of following in the address:
 - www**
 - http**
 - https**
 - proxy**
- When using a proxy server with Microsoft’s Internet Explorer browser, select the “bypass proxy for local address” option.
- When using a proxy server with the Firefox or Netscape browsers, add the name “captive-portal” to the proxy exception list.

Examples

```
-> 802.1x captive-portal proxy-server-url www.companyname.com
```

Release History

Release 6.3.4; command was introduced.

Related Commands

[show 802.1x auth-server-down](#) Displays the global Captive Portal configuration for the switch.

MIB Objects

```
alaDot1xCportalConfig  
  alaDot1xCPortalProxyURL
```

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, 6855, 9000, 9000E

Usage Guidelines

- Use this command to enable or disable the authentication server down policy.
- This command is global and applies to all 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 the device when the authentication server is not reachable.

802.1x auth-server-down policy {**user-network-profile** *profile_name* | **block**}

Syntax Definitions

profile_name The name of an existing User Network Profile (UNP) to use for device classification.

block Blocks supplicant access on the 802.1x port.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use this command to configure the authentication server down classification policy.
- Use the optional parameter **block** to restrict the device traffic on the 802.1x port.
- This command is global and applies to all ports on the switch.

Examples

```
-> 802.1x auth-server-down policy user-network-profile
-> 802.1x auth-server-down policy block
```

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

alaDot1xAuthServerTimeoutPolicy

802.1x auth-server-down re-authperiod

Sets 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 re-authperiod {*value*}

Syntax Definitions

value The value of re-authentication timer. The range is 1 to 9999 seconds.

Defaults

parameter	default
re-authperiod <i>value</i>	3600

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 9000E

Usage Guidelines

- Use this command to set the time for the device to re-authenticate.

Examples

```
-> 802.1x auth-server-down re-authperiod 30
```

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

alaDot1xAuthSvrTimeoutReAuthPeriod

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, 6855, 9000, 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
```

output definitions

direction	Whether the port is configured for control on bidirectional traffic or incoming traffic only. May be configured through the 802.1x command. Possible values are both or in .
operational directions	The operational state of controlled direction on the port, which is set automatically by the switch. If the value of direction is both , the value of operational directions is both . If the value of direction is in , the operational state is set to in 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 both .
port-control	The value of the port control parameter for the port (auto , force-authorized , or force-unauthorized), which is set through the 802.1x command.
quiet-period	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.
tx-period	The time before an EAP Request Identity will be transmitted. The range is 1 to 65535 seconds.
supp-timeout	The number of seconds before the switch will time out an 802.1x user who is attempting to authenticate.
server-timeout	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 aaa radius-server command.
max-req	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 supp-timeout . The range is 1 to 10.
re-authperiod	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.
reauthentication	Whether or not the port will be re-authenticated after the re-authperiod expires.
Supplicant polling retry count	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 802.1x supp-polling retry command. This field does not appear on an OmniSwitch 6800.
Captive Portal Session Limit (hrs)	The amount of time, in hours, that a Captive Portal session can remain active. Configured through the 802.1x captive-portal session-limit command.
Captive Portal Login Retry Count	The number of login attempts allowed before the Captive Portal fail policy is applied to the device. Configured through the 802.1x captive-portal retry-count command.

Release History

Release 6.1; command was introduced.

Release 6.3.4; Captive Portal fields added.

Related Commands

[802.1x](#)

Configures 802.1X parameters on a particular slot/port.

[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.

MIB Objects

```
dot1xAuthConfigTable
  dot1xAuthAdminControlledDirections
  dot1xAuthOperControlledDirections
  dot1xAuthAuthControlledPortControl
  dot1xAuthQuietPeriod
  dot1xAuthTxPeriod
  dot1xAuthSuppTimeout
  dot1xAuthServerTimeout
  dot1xAuthMaxReq
  dot1xAuthReAuthPeriod
  dot1xAuthReAuthEnabled
  alaDot1xSuppPollingCnt
```

show 802.1x users

Displays a list of all users for one or more 802.1X ports.

show 802.1x users [*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, 6855, 9000, 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	Policy	User Name
3/1	00:60:4f:11:22:33	Authenticated	VLAN ID	user50
3/1	00:60:4f:44:55:66	Authenticated	VLAN ID	user51
3/1	00:60:4f:77:88:99	Authenticated	VLAN ID	user52
3/3	00:60:22:15:22:33	Force-authenticated	N/A	
3/3	00:60:22:44:75:66	Force-authenticated	N/A	
3/3	00:60:22:37:98:09	Force-authenticated	N/A	

->show 802.1x users 3/1

Slot Port	MAC Address	Port State	Policy	User Name
3/1	00:60:4f:11:22:33	Connecting	VLAN ID	user50
3/1	00:60:4f:44:55:66	Held	VLAN ID	user51
3/1	00:60:4f:77:88:99	Authenticated	VLAN ID	user52

-> show 802.1x users 1/5

Slot Port	MAC Address	Port State	Policy	User Name
01/05	00:00:39:eb:50:0c	Authenticated-T	UNP - Auth Dwn	user1

output definitions

Slot/Port	The 802.1X slot and port number that provides access to the user.
MAC Address	The source MAC address of the 802.1X user.
Port State	The current state of the 802.1X port for a specific user: <ul style="list-style-type: none"> • Initialize • Disconnected • Connecting • Authenticating • Authenticated • Authenticated-L • Authenticated-T - Supplicant learned according to the auth-server-down policy • Aborting • Held • Force-Authenticated • Force-Unauthenticated
Policy	The 802.1x device classification policy that was applied to the device.
User Name	The user name that is used for authentication.

Release History

Release 6.1; command was introduced.

Release 6.1.2; **Policy** field added.

Related Commands

802.1x Configures 802.1X parameters on a particular slot/port.

MIB Objects

```

alaDot1xPortTable
  alaDot1xPortSlotNumber
  alaDot1xPortPortNumber
  alaDot1xPortMACAddress
  alaDot1xPortUserName
  alaDot1xPortState
alaDot1xAuthPolicyTable
  alaDot1xSuppPolicy
  alaDot1xNonSuppPolicy

```

show 802.1x statistics

Displays statistics about 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, 6855, 9000, 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

Slot	The slot number of the 802.1X port.
Port	The 802.1X port number.
Last EAPOL frame version	The protocol version number carried in the most recently received EAPOL frame.
Last EAPOL frame source	The source MAC address carried in the most recently received EAPOL frame.
EAPOL frames received	The number of valid EAPOL frames of any type that have been received by the switch.

output definitions (continued)

EAPOL frames transmitted	The number of EAPOL frames of any type that have been transmitted by the switch.
EAPOL Start frames received	The number of EAPOL Start frames that have been received by the switch.
EAPOL Logoff frames received	The number of EAPOL Logoff frames that have been received by the switch.
EAP Resp/Id frames received	The number of EAP Resp/Id frames that have been received by the switch.
EAP Response frames received	The number of valid EAP Response frames (other than Resp/Id frames) that have been received by the switch.
EAP Req/Id frames transmitted	The number of EAP Req/Id frames that have been transmitted by the switch.
EAP Req frames transmitted	The number of valid EAP Request frames (other than Req/Id frames) that have been transmitted by the switch.
EAP length error frames received	The number of EAPOL frames that have been received by the switch for which the Packet Body Length field is invalid.
Invalid EAPOL frames received	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, 6855, 9000, 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

Supplicant:	Displays the supplicant device classification policy configured for the 802.1x port.
Non-Supplicant:	Displays the non-supplicant device classification policy configured for the 802.1x port.
Captive Portal	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*]

Syntax Definitions

slot/port The slot/port number of the 802.1x port for which you want to display information.

Defaults

All non-supplicants associated with all 802.1X ports are displayed.

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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
03/3	00:61:22:15:22:33	Failed	Vlan ID	1001
03/3	00:61:22:44:75:66	Authenticated	MAC Authent	14
03/11	00:00:39:47:4f:0c	Failed	Vlan ID	1001
03/11	00:00:39:c9:5a:0c	Authenticated	Group Mobility	12
03/11	00:b0:d0:52:47:35	Authenticated	Group Mobility	12
03/11	00:c0:4f:0e:70:68	Authenticated	MAC Authent	14

```
->show 802.1x non-supp 3/3
```

Slot Port	MAC Address	MAC Authent Status	Classification Policy	Vlan Learned
03/3	00:61:22:15:22:33	Failed	Vlan ID	1001
03/3	00:61:22:44:75:66	Authenticated	MAC Authent	14

```
-> show 802.1x non-supplicant 1/5
```

Slot Port	MAC Address	MAC Authent Status	Classification Policy	Vlan Learned
01/05	00:00:39:eb:50:0c	Fail (timeout)	Blk - Auth Dwn	2

output definitions

Slot/Port	The 802.1X slot and port number that provides access to the non-802.1x device.
MAC Address	The source MAC address of the non-802.1x device connected to the 802.1x port.
MAC Authent Status	Indicates whether or not MAC authentication failed. <ul style="list-style-type: none"> • Success - Non-suppliant learned according to the Success policy. • Failed - Non-suppliant learned according to the Failed policy • Fail (timeout) - Non-Suppliant learned according to the auth-server-down policy.
Classification Policy	The 802.1x device classification policy that was applied to the device.
VLAN Learned	The VLAN ID of the VLAN in which the source MAC address of the non-802.1x device was learned.

Release History

Release 6.1; command was introduced.

Release 6.1.2; **Authentication Status** and **Classification Policy** columns 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
  alaDot1xNonSuppliantSlotNum
  alaDot1xNonSuppliantPortNum
  alaDot1xNonSuppliantMACAddress
  alaDot1xNonSuppliantVlanID
```

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, 6855, 9000, 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

Status	Authentication server down policy status: Enabled or Disabled
Re-authentication Interval	The amount of time for the device to authenticate again with the RADIUS server when it is classified according to the Auth-server-policy.
Classification Policy	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 policy** Configures the policy for classifying the device when the authentication server is not reachable
- 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

MIB Objects

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, 6855, 9000, 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
```

output definitions

Captive Portal IP address	The Captive Portal IP address. Configured through the 802.1x captive-portal address command.
Proxy Server URL	The website URL for the client proxy web server. Configured through the 802.1x auth-server-down command.

Release History

Release 6.3.4; command was introduced.

Related Commands

[show 802.1x device classification policies](#) Displays device classification policies configured for 802.1x ports.

MIB Objects

```
alaDot1xCportalConfig  
  alaDot1xCPortalIpAddress  
  alaDot1xCPortalProxyURL
```

60 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 swlog-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, 6855, 9000, 9000E

Usage Guidelines

N/A

Examples

```
-> swlog
-> no swlog
```

Release History

Release 6.1; command was introduced.

Related Commands

swlog appid level	Defines the level at which switch logging information will be filtered for the specified application.
swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.
show swlog	Displays switch logging information.

MIB Objects

```
systemSwitchLoggingGroup
  systemSwitchLoggingEnable
```

swlog swlog-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, 6855, 9000

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

swlog	Enables or disables switch logging.
swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.
show swlog	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
alarm	2	Highest severity. The system is about to crash and reboot.
error	3	System functionality is reduced.
alert	4	A violation has occurred.
warning	5	A unexpected, non-critical event has occurred.
info	6	Any other non-debug message (default).
debug1	7	A normal event debug message.
debug2	8	A debug-specific message.
debug3	9	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, 6855, 9000, 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

swlog	Enables or disables switch logging.
swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.
show swlog	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, 6855, 9000, 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

swlog output	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.
show swlog	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

console	Specifies console output. When enabled, switch logging output is printed to the user console.
flash	Specifies /flash file output. When enabled, switch logging output is printed to a file in the switch's /flash file system.
socket	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.
remote command-log	Specifies command-log output to be sent to a remote session.

Defaults

parameter	default
console flash socket	flash and console

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

swlog	Enables or disables switch logging.
swlog appid level	Defines the level at which switch logging information will be filtered for the specified application.
show log swlog	Displays stored switch logging information from flash.
show swlog	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, 6855, 9000, 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

swlog clear	Clears the files that store switch logging data.
show log swlog	Displays stored switch logging information from flash.
show swlog	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, 6855, 9000, 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

swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.
show swlog	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
alarm	2	Highest severity. The system is about to crash and reboot.
error	3	System functionality is reduced.
alert	4	A violation has occurred.
warning	5	A unexpected, non-critical event has occurred.
info	6	Any other non-debug message (default).
debug1	7	A normal event debug message.
debug2	8	A debug-specific message.
debug3	9	Lowest severity. A maximum verbosity debug message.

Defaults

N/A

Platforms Supported

OmniSwitch 6400, 6850, 6855, 9000, 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

Time Stamp	The day, date and time for which Switch Logging log information is displayed.
Application	The Application ID (Subsystem) for which Switch Logging log information is displayed.
Level	The corresponding Severity Level for which Switch Logging information was stored. Levels include alarm, error, alert, warning, info, debug1, debug2, and debug3.
Log Message	The condition that resulted in the logging information being stored.

Release History

Release 6.1; command was introduced.

Related Commands

swlog	Enables or disables switch logging.
swlog appid level	Adds or removes a filter level for a specified subsystem.
swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
swlog clear	Clears the files that store switch logging data.
show swlog	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, 6855, 9000, 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

Operational Status	The operational status of switch logging.
Log Device	The device where the output is being logged.
Syslog FacilityID	The facility ID that switch logging will include in the priority (PRI) section of the event message.
Remote command-log	The status of the remote command-log feature.
Console Display Level	The Console Display Level. Levels include alarm (2), error (3), alert (4), warning (5), info (6), debug1 (7), debug2 (8), and debug3 (9).
All Applications Trace Level	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

swlog	Enables or disables switch logging.
swlog appid level	Defines the level at which switch logging information will be filtered for the specified application.
swlog remote command-log	Enables or disables switch logging output to the console, file, or data socket.
show log swlog	Displays stored switch logging information from flash.

61 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 9000 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, 6855, 9000, 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

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 summary	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).
group all	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).
anomaly all	Monitors all anomalies.
state	Specifies the status of anomaly detection.
log	Logs detected anomalies.
trap	Sends a trap when an anomaly is detected.
quarantine	Quarantines the port on which an anomaly is detected.
period <i>seconds</i>	The time duration to observe traffic pattern, in seconds. The valid range is 5-3600
count <i>num</i>	The number of packets that must be seen during the period to trigger anomaly detection. The valid range is 1-100000.
sensitivity <i>num</i>	Sensitivity of anomaly detection to deviation from the expected traffic pattern. The valid range is 1-100.
enable	Enables the status of the state, log, trap, and quarantine parameters for the anomaly.
disable	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, 6855, 9000, 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

netsec group port	Associates or disassociates port-range with monitoring-group.
show netsec config	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.
group all	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.
anomaly all	Monitors all anomalies.

Defaults

By default, a list of all anomalies is displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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:

anomaly name
arp-addr-scan
arp-flood
arp-failure
icmp-addr-scan
icmp-flood
icmp-unreachable
tcp-port-scan
tcp-addr-scan
syn-flood
syn-failure

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

Slot/Port	Slot number for the module and physical port number on that module.
Anomaly	The type of anomaly.
Observed	The number of times an anomaly was checked for this port since monitoring was enabled.
Detected	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.
group all	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.
anomaly all	Monitors all anomalies.

Defaults

By default, a list of all anomalies traffic is displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

Slot/Port	Slot number for the module and physical port number on that module.
Anomaly	The type of anomaly.
Packet	The packet being monitored.
Curr-in	The number of incoming packets during the current monitoring period.
Curr-out	The number of outgoing packets during the current monitoring period.
Last-in	The number of incoming packets during the last monitoring period.
Last-out	The number of outgoing packets during the last monitoring period.

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.
show netsec statistics	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).
group all	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, 6855, 9000, 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

Slot/Port	Slot number for the module and physical port number on that module.
Packet	The packet being monitored.
Last-In	The number of incoming packets observed during the last 5 seconds.
Last-Out	The number of outgoing packets observed during the last 5 seconds.
Total-In	The total number of incoming packets observed since monitoring was enabled.
Total-Out	The total number of outgoing packets observed 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.
show netsec traffic	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.
group all	Specifies all the monitoring-groups.
<i>anomaly_name</i>	The type of the anomaly.
anomaly all	Monitors all anomalies.

Defaults

By default, a list of all anomalies configuration is displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

Group	The name of the monitoring-group.
Anomaly	The anomaly type of the monitoring group.
S	The current state (- indicates Not configured, E indicates enabled, and D indicates disabled).
L	Log (- indicates Not configured, E indicates enabled, and D indicates disabled).
T	Trap (- indicates Not configured, E indicates enabled, and D indicates disabled).
Q	Quarantine (- indicates Not configured, E indicates enabled, and D indicates disabled).
Per	Anomaly monitoring period (- indicates Not configured)
Cnt	Anomaly detection threshold (- indicates Not configured)
Sen	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 operation	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).
group all	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.
anomaly all	Monitors all anomalies.

Defaults

By default, the network security operational condition of all the anomalies is displayed.

Platforms Supported

OmniSwitch 6850, 6855, 9000, 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

Slot/Port	Slot number for the module and physical port number on that module.
Port-Range group	Range of ports or name of the monitoring-group.
Anomaly-Type	The anomaly type of the monitoring group.
S	The current state (- indicates Not configured, E indicates enabled, and D indicates disabled).

output definitions (continued)

L	Log (- indicates Not configured, E indicates enabled, and D indicates disabled).
T	Trap (- indicates Not configured, E indicates enabled, and D indicates disabled).
Q	Quarantine (- indicates Not configured, E indicates enabled, and D indicates disabled).
Per	Anomaly monitoring period (- indicates Not configured)
Cnt	Anomaly detection threshold (- indicates Not configured)
Sen	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).
all	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, 6855, 9000, 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

Slot/Port	Slot number for the module and physical port number on that module.
Group	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
```

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```
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```
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and you are welcome to redistribute it under certain conditions; type 'show c' for details.
```

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```
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```

```
<signature of Ty Coon>, 1 April 1989
Ty Coon, President of Vice
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G. Random.c

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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CLI Quick Reference

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]
[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]

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-slot *saved-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]
hash-control extended no udp-tcp-port
show hash-control
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

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*

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}
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
rcp [cmm-b: | slot:] source_filepath [cmm-b: | slot:] destination_filepath
rmm 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
ftftp {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

```

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 | gigasethernet} slot/port agg num agg_num
static agg no {ethernet | fastethernet | gigasethernet} 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
show linkagg [agg_num]
show linkagg [agg_num] port [slot/port]

```

Interswitch Protocol Commands

```

amap {enable | disable}
amap discovery [time] seconds
amap common [time] seconds
show amap

```

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 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 [instance] bpdu-switching {enable | disable}
bridge path cost mode {auto | 32bit}
bridge [msti msti_id] auto-vlan-containment {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 mist 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 port slot/port 10gig os8800optimized {enable | disable}
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]
bridge mode 1x1 pvst+ {enable | disable}
bridge port {slot/port | agg_num} pvst+ {auto | enable | disable}

```

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]]

```

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
```

Learned Port Security Commands

```
port-security slot/port[-port2] [enable | disable]
port-security chassis disable
no port security slot/port[-port2]
port-security shutdown minutes [convert-to-static {enable | disable}]
port-security slot/port[-port2] maximum number
port-security slot/port[-port2] max-filtering number
```

```
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 / low mac_address high mac_address]
port-security slot/port[-port2] violation {restrict | shutdown}
port-security slot/port release
port-security slot/port[-port2] learn-trap-threshold number
show port-security [slot/port[-port2] / slot]
show port-security shutdown
```

Ethernet Port Commands

```
trap slot/port[-port2] port link {enable | disable | on | off}
interfaces slot/port[-port2] speed {auto | 10 | 100 | 1000 | 10000 | max {100 | 1000}}
interfaces slot/port mode {uplink | stacking}
interfaces slot/port[-port2] autoneg {enable | disable | on | off}
interfaces slot/port[-port2] crossover {auto | mdix | mdi}
interfaces slot/port[-port2] pause {tx | rx | tx-and-rx | disable}
interfaces e2e-flow-vlan vlan_id
interfaces no e2e-flow-vlan
interfaces slot/port[-port2] duplex {full | half | auto}
interfaces slot/port[-port2] admin {up | down}
interfaces cli-prompt {enable | disable}
interfaces slot/port alias description
interfaces slot/port[-port2] ifg bytes
interfaces slot/port[-port2] no l2 statistics [cli]
interfaces slot/port[-port2] max frame bytes
interfaces slot/port[-port2] flood multicast {enable | disable}
interfaces slot/port[-port2] flood rate Mbps
interfaces slot/port[-port2] clear-violation-all
interfaces transceiver ddm [trap] {enable | disable}
interfaces slot/port[-port2] hybrid preferred-fiber
interfaces slot/port[-port2] hybrid preferred-copper
interfaces slot/port[-port2] hybrid forced-fiber
interfaces slot/port[-port2] hybrid forced-copper
interfaces slot/port[-port2] hybrid {fiber | copper} autoneg {enable | disable | on | off}
interfaces slot/port[-port2] hybrid copper crossover {auto | mdix | mdi}
interfaces slot/port[-port2] hybrid {fiber | copper} duplex {full | half | auto}
interfaces slot/port[-port2] speed hybrid {fiber | copper} {auto | 10 | 100 | 1000 | 10000 | max {100 | 1000}}
interfaces slot/port[-port2] hybrid {fiber | copper} pause {tx | rx | tx-and-rx | disable}
show interfaces [slot/port[-port2]]
show interfaces [slot/port[-port2]] capability
```

```

show interfaces [slot/port[-port2]] flow [control]
show interfaces [slot/port[-port2]] pause
show interfaces e2e-flow-vlan
show interfaces [slot/port[-port2]] accounting
show interfaces [slot/port[-port2]] counters
show interfaces [slot/port[-port2]] counters errors
show interfaces [slot/port[-port2]] collisions
show interfaces [slot/port[-port2]] status
show interfaces [slot/port[-port2]] port
show interfaces [slot/port[-port2]] ifg
show interfaces [slot/port[-port2]] flood rate
show interfaces [slot/port[-port2]] traffic
show interfaces transceiver [slot/port[-port2]] transceiver [ddm | W-Low | W-High | A-Low
|
A-High | actual]
show interfaces [slot/port[-port2]] hybrid {fiber |copper}
show interfaces [slot/port[-port2]] hybrid {fiber |copper} status
show interfaces [slot/port[-port2]] hybrid {fiber |copper} flow control
show interfaces [slot/port[-port2]] hybrid {fiber |copper} pause
show interfaces [slot/port[-port2]] hybrid {fiber |copper} capability
show interfaces [slot/port[-port2]] hybrid {fiber |copper} accounting
show interfaces [slot/port[-port2]] hybrid {fiber |copper} counters
show interfaces [slot/port[-port2]] hybrid {fiber |copper} counters errors
show interfaces [slot/port[-port2]] hybrid {fiber |copper} collisions
show interfaces [slot/port[-port2]] hybrid {fiber |copper} traffic
show interfaces [slot/port[-port2]] hybrid {fiber |copper} port
show interfaces [slot/port[-port2]] hybrid {fiber |copper} flood rate
show interfaces [slot/port[-port2]] hybrid {fiber |copper} ifg
debug interfaces set [slot] backpressure {enable | disable}
debug interfaces [slot] backpressure

```

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 snaptypes}
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 snaptypes}
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 snaptypes}
vlan vid no protocol {ip-e2 | ip-snap | ipx-e2 | ipx-nov | ipx-llc | ipx-snap | decnet | appletalk |
ethertype type | dsapssap dsap/ssap | snap snaptypes}
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]

```

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 router ipx ipx_net [rip | active | inactive | triggered] [e2 | llc | snap | novell] [timeticks
ticks]
vlan vid no router ipx
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]]
```

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
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}]
```

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]
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} 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 {svlan | ipmvlan} svid1[-svid2] source-learning {enable| disable}
ethernet-service uni-profile uni-profile-name [l2-protocol {stp | 802.1x | 802.1ab | 802.3ad |
gvrp | amap} {peer | discard | 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
```

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-id ldp
configure service sdp sdp-id no ldp
configure service sdp sdp-id signaling {off | tldp}
configure service sdp sdp-id lsp lsp-name
configure service sdp sdp-id no lsp lsp-name
configure service sdp sdp-id adv-mtu-override
configure service sdp sdp-id no adv-mtu-override
configure service sdp sdp-id path-mtu bytes
configure service sdp sdp-id 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 |
  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]

```

802.1AB Commands

```

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 {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} {enable | disable}
show lldp system-statistics
show lldp [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}]

```

Ethernet OAM Commands

ethoam domain {*domain_name* | *mac_address*} format {**dnsname** | **mac-address-uint** | **string**}
level *level_num*
no ethoam domain {*domain_name* | *mac_address*}
ethoam domain {*domain_name* | *mac_address*} **mhf** {**none** | **explicit** | **default**}
ethoam association *association_name* format {*string* | *integer* | *vpnId* | *primaryVid*}
domain {*domain_name* | *mac_address*} vlan *vlan_id*
no ethoam association *association_name* domain {*domain_name* | *mac_address*}
ethoam association *association_name* **domain** {*domain_name* | *mac_address*} **mhf**
{**none** | **explicit** | **default**}
ethoam association *association_name* **domain** {*domain_name* | *mac_address*}
ccm-interval {**interval-invalid** | **interval1s** | **interval10s** | **interval1m** |
interval10m}
ethoam association *association_name* domain {*domain_name* | *mac_address*}
endpoint-list *mep_id*[-*mep_id2*]
no ethoam association *association_name* domain {*domain_name* | *mac_address*}
endpoint-list *mep_id*[-*mep_id2*]
ethoam default-domain vlan *vlan_id* level *level_num* mhf {**none** | **explicit** | **default**}
no ethoam default-domain
ethoam endpoint *mep_id* domain {*domain_name* | *mac_address*} association
association_name direction {**up** | **down**} {*port slot/port* | *linkagg agg_num*}
no ethoam endpoint *mep_id* domain *domain_name* association *association_name*
ethoam endpoint *mep_id* domain {*domain_name* | *mac_address*} association
association_name admin-state {**enable** | **disable**}
ethoam endpoint *mep_id* domain {*domain_name* | *mac_address*} association
association_name
ccm {**enable** | **disable**}
ethoam endpoint *mep_id* domain {*domain_name* | *mac_address*} association
association_name priority *ccm_ltm_priority*
ethoam endpoint *mep_id* domain {*domain_name* | *mac_address*} association
association_name lowest-priority-defect *lowest_priority_defect*
ethoam loopback {**target-macaddress** *mac_address* | **target-endpoint**
tar_mep_id} **source-endpoint** *src_mep_id* **domain** {*domain_name* |
mac_address} **association** *association_name* [**number** *number_of_messages*]
[**data** *data_size*] [**vlan-priority** *vlan_priority*] [**drop-eligible** {**true** | **false**}]
ethoam linktrace {**target-macaddress** *mac_address* | **target-endpoint**
tar_mep_id} **source-endpoint** *src_mep_id* **domain** {*domain_name* |
mac_address} **association** *association_name* [**flag fdbonly**] [**hop-count**
hop_count]
ethoam fault-alarm-time *centiseconds* **endpoint** *endpoint_id* **domain**
{*domain_name* | *mac_address*}
association *association_name*

no ethoam fault-alarm-time endpoint *endpoint_id* **domain** {*domain_name* |
mac_address}
association *association_name*
ethoam fault-reset-time *centiseconds* **endpoint** *endpoint_id* **domain** {*mac_address*
| *domain_name*} **association** *association_name*
no ethoam fault-reset-time endpoint *endpoint_id* **domain** {*mac_address* |
domain_name} **association** *association_name*
show ethoam
show ethoam domain {*domain_name* | *mac_address*}
show ethoam domain {*domain_name* | *mac_address*} **association** *association_name*
show ethoam domain {*domain_name* | *mac_address*} **association** *association_name*
end-point *endpoint_id*
show ethoam default-domain [vlan *vlan_id*]
show ethoam remote endpoint domain {*domain_name* | *mac_address*}
association *association_name* **end-point** *endpoint_id* [**remote-mep**
remote_mepid]
show ethoam cfmstack {*port slot/port* | *linkagg agg_num*}
show ethoam linktrace-reply domain {*domain_name* | *mac_address*} **association**
association_name **endpoint** *mep_id* **tran-id** *transaction_id*
show ethoam linktrace-tran-id domain {*domain_name* | *mac_address*}
association *association_name* **endpoint** *mep_id*
show ethoam statistics [**domain** {*domain_name* | *mac_address*}] [**association**
association_name] [**end-point** *endpoint_id*]

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* l1-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]

```

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]

```

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}
show port mapping [port_mapping_sessionid]

```

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] [e2 | snap] [primary |
no primary]
no ip interface name
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 gateway [metric metric]

```

```

no ip static-route ip_address [mask mask] gateway ip_address [metric metric]
ip route-pref {static | ospf | rip | ebgp | ibgp} value
ip default-ttl hops
ping {ip_address | hostname} [count count] [size packet_size] [interval seconds] [timeout
seconds]
traceroute {ip_address | hostname} [max-hop max_hop_count]
ip directed-broadcast {on | off}
ip service {all | service_name | port service_port}
no ip service {all | service_name | port service_port}
ip redistribute {local | static | rip | ospf | isis | bgp} into {rip | ospf | isis | bgp} route-map route-map-
name [status {enable | disable}]
no ip redistribute {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}]
[redist-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]
show ip route [summary]
show ip route-pref
show ip redist [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 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

```

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 redist {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

```

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]

```

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 data-insertion format {base-mac | system-name | user-
string string | interface-alias | auto-interface-alias}
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 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 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]

```

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} recv-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]

```

IPX Commands

```

ipx routing
no ipx routing
ipx default-route [vlan] network_number [network_node]
no ipx default-route [vlan]
ipx route network_number next_hop_network next_hop_node [hop_count] [delay]
no ipx route network_number
clear ipx route {rip | sap | all}
ping ipx network_number network_node [count packets] [size bytes] [timeout seconds] [type packet_type]
ipx filter [vlan] rip {in | out} {allow | block} [network_number [mask network_mask]]
no ipx filter [vlan] rip {in | out} {allow | block} [network_number [mask network_mask]]
ipx filter [vlan] sap {all | sap_type} {in | out} {allow | block} [network_number [mask network_mask] [network_node [mask node_mask]]]
no ipx filter [vlan] sap {all | sap_type} {in | out} {allow | block} [network_number [mask network_mask] [network_node [mask node_mask]]]
ipx filter [vlan] gns {all | gns_type} out {allow | block} [network_number [mask network_mask] [network_node [mask node_mask]]]
no ipx filter [vlan] gns {all | gns_type} out {allow | block} [network_number [mask network_mask] [network_node [mask node_mask]]]
ipx type-20-propagation [vlan] {enable | disable}
no ipx type-20-propagation [vlan]
ipx packet-extension [vlan] {enable | disable}
no ipx packet-extension [vlan]
ipx timers [vlan] rip_timer sap_timer
no ipx timers [vlan]
show ipx interface [vlan]
show ipx traffic [vlan]

```

```

show ipx default-route
show ipx route {network_number / vlan vlan}
show ipx servers {vlan vlan | server_name / server_type}
show ipx filter {vlan | rip in | rip out | sap in | sap out | gns out | global}
show ipx type-20-propagation
show ipx packet-extension
show ipx timers

```

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
```

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_id] [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 system-wait-time time
no ip isis system-wait-time
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 px_list_name
ip bgp neighbor peer_address out-prefix6list px_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 px_list_name prefix6/px_length [action{permit|deny}]
[status{enable/disable}] [ge[{masklength}]] [le[{masklength}]]
no ip bgp policy prefix6-list px_list_name prefix6/px_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

```

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]

```

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

```

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

```

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 | output] [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 | output | 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]

```

RMON Commands

```
rmon probes {stats | history | alarm} [entry-number] {enable | disable}
show rmon probes [stats | history | alarm] [entry-number]
show rmon events [event-number]
```

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]
```

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]
```

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 stats interval seconds
qos nms priority
qos no nms priority
qos phones [priority priority_value | trusted]
qos no phones
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 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] [nopingonly]
qos clear log
qos apply
qos revert
qos flush
qos reset
qos stats reset
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] | drr [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}
show qos port [slot/port] [statistics]
show qos queue
show qos slice [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 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 net_mask] [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 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 port 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 *condition_name* 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
 policy condition *condition_name* source vlan *vlan_id*

policy condition *condition_name* no source vlan
 policy condition *condition_name* inner source vlan *vlan_id*
 policy condition *condition_name* no inner source vlan
 policy condition *condition_name* destination vlan *vlan_id*
 policy condition *condition_name* no destination vlan
 policy condition *condition_name* 802.1p *802.1p_value*
 policy condition *condition_name* no 802.1p
 policy condition *condition_name* inner 802.1p *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* 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 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 [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

```

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
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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]

```

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]

```

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 accounting 802.1x server1 [server2...] [local]
no aaa accounting 802.1x
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]
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 [udp-port udp_port]
aaa hic no server-name server
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 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]

```

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 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 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 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]
show 802.1x statistics [slot/port]
show 802.1x device classification policies [slot/port]
show 802.1x non-supplicant [slot/port]
show 802.1x auth-server-down
show 802.1x captive-portal configuration

```

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
```

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]}
```

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