Release Notes – Maintenance

OmniSwitch 6860(E) / 6900

Release 8.4.1.233.R02

The following is a list of issues that have been identified and corrected in this AOS software release along with any new features that have been introduced. This document is intended to be used as a pre-upgrade guide and does not replace the GA Release Notes which are created for every GA release of software.

Contents

Fixed Problem Reports Between Builds 229 (GA) and 233 (MR)

The following issues were fixed between AOS releases 8.4.1.229.R02 (GA) and 8.4.1.233.R02 (MR).

PR	Description
229124	**Summary:** Error while adding linkagg's individual physical port in the UDLD. **Explanation**: Code correction to allow UDLD to be enabled on linkagg member ports.

Open Problem Reports and Known Issues

There are no new known issues identified in this AOS Release.

New Features Introduced in 8.4.1.233.R02

There are no new features being introduced in this release.

Technical Support

Alcatel-Lucent technical support is committed to resolving our customer's technical issues in a timely manner. Customers with inquiries should contact us at:

Region	Phone Number
North America	800-995-2696
Latin America	877-919-9526
European Union	+800 00200100 (Toll Free) or +1(650)385-2193
Asia Pacific	+65 6240 8484

Email: ebg_global_supportcenter@al-enterprise.com

Internet: Customers with Alcatel-Lucent service agreements may open cases 24 hours a day via Alcatel-Lucent's support web page at: support.esd.alcatel-lucent.com.

Upon opening a case, customers will receive a case number and may review, update, or escalate support cases on-line. Please specify the severity level of the issue per the definitions below. For fastest resolution, please have telnet or dial-in access, hardware configuration—module type and revision by slot, software revision, and configuration file available for each switch.

Severity 1 Production network is down resulting in critical impact on business—no workaround available.

Severity 2 Segment or Ring is down or intermittent loss of connectivity across network.

Severity 3 Network performance is slow or impaired—no loss of connectivity or data.

Severity 4 Information or assistance on product feature, functionality, configuration, or installation.

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Appendix A: General Upgrade Requirements and Best Practices

This section is to assist with upgrading an OmniSwitch. The goal is to provide a clear understanding of the steps required and to answer any questions about the upgrade process prior to upgrading. Depending upon the AOS version, model, and configuration of the OmniSwitch various upgrade procedures are supported.

Standard Upgrade - The standard upgrade of a standalone chassis or virtual chassis (VC) is nearly identical. All that's required is to upload the new image files to the *Running* directory and reload the switch. In the case of a VC, prior to rebooting the Master will copy the new image files to the Slave and once the VC is back up the entire VC will be synchronized and running with the upgraded code.

ISSU - The In Service Software Upgrade (ISSU) is used to upgrade the software on a VC or modular chassis with minimal network disruption. Each element of the VC is upgraded individually allowing hosts and switches which are dual-homed to the VC to maintain connectivity to the network. The actual downtime experienced by a host on the network should be sub-second in most cases but can vary depending upon the overall network design and VC configuration. Having a redundant configuration is suggested and   will help to minimize recovery times.

Virtual Chassis - The VC will first verify that it is in a state that will allow a successful ISSU upgrade. It will then copy the image and configuration files of the ISSU specified directory to all of the Slave chassis and reload each Slave chassis from the ISSU directory in order from lowest to highest chassis-id. For example, assuming chassid-id 1 is the Master, the Slave with chassis-id 2 will reload with the new image files. When Slave chassis-id 2 has rebooted and rejoined the VC, the Slave with chassis -id 3 will reboot and rejoin the VC. Once the Slaves are complete they are now using the new image files. The Master chassis is now rebooted which causes the Slave chassis to become the new Master chassis. When the original Master chassis reloads it comes back as a Slave chassis. To restore the role of Master to the original Master chassis the current Master can be rebooted and the original Master will takeover, re-assuming the Master role.

Guidelines - Depending on the topology, the following configuration guidelines can be used to help improve ISSU convergence times and connectivity during ISSU:

- Dual-homed hosts and switches can maintain connectivity during the VC upgrade process.

- Redundant L2 and L3 connections are suggested to help maintain connectivity and reduce recovery times.

- Graceful restart support enabled for OSPF.

- OSPF sub-second flag set: "debug ip ospf set subsecond 1"

- SFP Timer configured: delay=1, hold=2

ISSU Supported Upgrade Paths and Procedures

The following releases support upgrading using ISSU. All other releases support a Standard upgrade only.

Platform	AOS Releases Supporting ISSU to 8.4.1.233.R02 (MR)
OS6860(E) – VC	8.4.1.170.R01 (GA) 8.4.1.229.R02 (GA)
OS6900 – VC	8.3.1.314.R01 (GA) 8.3.1.160.R02 (GA) 8.3.1.180.R02 (MR) 8.4.1.170.R01 (GA) 8.4.1.229.R02 (GA)

If upgrading a standalone chassis or VC using a standard upgrade procedure please refer to Appendix B for specific steps to follow.

If upgrading a VC using ISSU please refer to Appendix C for specific steps to follow.

Prerequisites

This instruction sheet requires that the following conditions exist, or are performed, before upgrading. The person performing the upgrade must:

- Be the responsible party for maintaining the switch's configuration.

- Be aware of any issues that may arise from a network outage caused by improperly loading this code.

- Understand that the switch must be rebooted and network access may be affected by following this procedure.

- Have a working knowledge of the switch to configure it to accept an FTP connection through the EMP or Network Interface (NI) Ethernet port.

- Read the GA Release Notes prior to performing any upgrade for information specific to this release.

- Ensure there is a current certified configuration on the switch so that the upgrade can be rolled-back if required.

- Verify the current versions of Uboot and FPGA. If they meet the minimum requirements, (i.e. they were already upgraded during a previous AOS upgrade) then only an upgrade of the AOS images is required.

- Depending on whether a standalone chassis or VC is being upgraded, upgrading can take from 5 to 20 minutes. Additional time will be needed for the network to re-converge.

The examples below use various models and directories to demonstrate the upgrade procedure. However any user-defined directory can be used for the upgrade.

If possible, have EMP or serial console access to all chassis during the upgrade. This will allow you to access and monitor the VC during the ISSU process and before the virtual chassis has been re-established.

- Knowledge of various aspects of AOS directory structure, operation and CLI commands can be found in the Alcatel-Lucent OmniSwitch User Guides. Recommended reading includes:
    - Release Notes - for the version of software you're planning to upgrade to.
    - The AOS Switch Management Guide
        - Chapter - Logging Into the Switch
        - Chapter - Managing System Files
        - Chapter - Managing CMM Directory Content
        - Chapter - Using the CLI
        - Chapter - Working With Configuration Files
        - Chapter - Configuring Virtual Chassis
    - Do not proceed until all the above prerequisites have been met. Any deviation from these upgrade procedures could result in the malfunctioning of the switch. All steps in these procedures should be reviewed before beginning.

Switch Maintenance

It's recommended to perform switch maintenance prior to performing any upgrade. This can help with preparing for the upgrade and removing unnecessary files. The following steps can be performed at any time prior to a software upgrade. These procedures can be done using Telnet and FTP, however using SSH and SFTP/SCP are recommended as a security best-practice since Telnet and FTP are not secure.

1. Use the command '**show system**' to verify current date, time, AOS and model of the switch.

```
6860-> show system
System:
  Description:  Alcatel-Lucent OS6860-48 8.4.1.229.R02 GA Release, September 18, 2017.,
  Object ID:    1.3.6.1.4.1.6486.801.1.1.2.1.11.1.3,
  Up Time:      3 days 21 hours 23 minutes and 2 seconds,
  Contact:      Alcatel-Lucent, http://enterprise.alcatel-lucent.com,
  Name:         OS6860,
  Location:     Unknown,
  Services:     78,
  Date & Time:  WED OCT 25 2017 11:53:38 (PDT)
Flash Space:
    Primary CMM:
      Available (bytes):  847790080,
      Comments       : None
```

2. Remove any old tech_support.log files, tech_support_eng.tar files:

```
6860-> rm *.log
6860-> rm *.tar
```

3. Verify that the **/flash/pmd** and **/flash/pmd/work** directories are empty. If they have files in them check the date on the files. If they are recently created files (<10 days), contact Alcatel-Lucent Service & Support. If not, they can be deleted.

4. Use the '**show running-directory**' command to determine what directory the switch is running from and that the configuration is certified and synchronized:

```
6860-> show running-directory
```

```
CONFIGURATION STATUS
  Running CMM          : MASTER-PRIMARY,
  CMM Mode            : VIRTUAL-CHASSIS MONO CMM,
  Current CMM Slot     : CHASSIS-1 A,
  Running configuration   : WORKING,
  Certify/Restore Status  : CERTIFIED
SYNCHRONIZATION STATUS
  Flash Between CMMs      : SYNCHRONIZED,
  Running Configuration   : NOT SYNCHRONIZED
```

If the configuration is not certified and synchronized, issue the command **'write memory flash-synchro'**:

```
6860-> write memory flash-synchro
```

6. If you do not already have established baselines to determine the health of the switch you are upgrading, now would be a good time to collect them. Using the show tech-support series of commands is an excellent way to collect data on the state of the switch. The show tech support commands automatically create log files of useful show commands in the **/flash** directory. You can create the tech-support log files with the following commands:

```
6860-> show tech-support
6860-> show tech-support layer2
6860-> show tech-support layer3
```

It is a good idea to offload these files and review them to determine what additional data you might want to collect to establish meaningful baselines for a successful upgrade.

Appendix B: Standard Upgrade - Standalone/Virtual Chassis

These instructions document how to upgrade a standalone or virtual chassis using the standard upgrade procedure. Upgrading using the standard upgrade procedure consists of the following steps. The steps should be performed in order:

1. Download the Upgrade Files

Go to the Alcatel-Lucent Service and Support website and download and unzip the upgrade files for the appropriate model. The archives contain the following:

- OS6860E Image Files **-** Uos.img

- OS6900 Image Files – Tor.img

2. FTP the Upgrade Files to the Switch

FTP the image files to the *Running* directory of the switch you are upgrading. The image files and directory will differ depending on your switch and configuration.

3. Upgrade the image file

Follow the steps below to upgrade the image files by reloading the switch from the *Running* directory.

```
6860-> reload from working no rollback-timeout
Confirm Activate (Y/N) : y
This operation will verify and copy images before reloading.
It may take several minutes to complete....
```

If upgrading a VC the new image file will be copied to all the Slave chassis and the entire VC will reboot. After approximately 5-20 minutes the VC will become operational.

4. Verify the Software Upgrade

Log in to the switch to confirm it is running on the new software. This can be determined from the login banner or the **show microcode** command.

```
6860-> show microcode
  /flash/working
  Package         Release            Size    Description
----------------+------------------------+--------+---------------------------------
Uos.img         8.4.1.233.R02          210697424 Alcatel-Lucent OS
```

```
-> show running-directory
CONFIGURATION STATUS
 Running CMM            : MASTER-PRIMARY,
 CMM Mode              : VIRTUAL-CHASSIS MONO CMM,
 Current CMM Slot       : CHASSIS-1 A,
 Running configuration   : WORKING,
```

```
 Certify/Restore Status  : CERTIFY NEEDED
SYNCHRONIZATION STATUS
 Running Configuration   : SYNCHRONIZED
```

Note: If there are any issues after upgrading the switch can be rolled back to the previous certified version by issuing the **reload from certified no rollback-timeout** command.

5. Certify the Software Upgrade

After verifying the software and that the network is stable, use the following commands to certify the new software by copying the *Running* directory to the Certified directory.

```
6860-> copy running certified
Please wait…………………………………….

-> show running-directory
CONFIGURATION STATUS
 Running CMM           : MASTER-PRIMARY,
 CMM Mode             : VIRTUAL-CHASSIS MONO CMM,
 Current CMM Slot      : CHASSIS-1 A,
 Running configuration   : WORKING,
 Certify/Restore Status  : CERTIFIED
SYNCHRONIZATION STATUS
 Running Configuration   : SYNCHRONIZED
```

Appendix C: ISSU – OmniSwitch Virtual Chassis

These instructions document how to upgrade a virtual chassis using ISSU. Upgrading a VC consists of the following steps. The steps should be performed in order:

1. Download the Upgrade Files

Go to the Alcatel-Lucent Service and Support Website and download and unzip the ISSU upgrade files. The archive contains the following:

- OS6860 Image Files **-** Uos.img

- OS6900 Image Files – Tor.img

- ISSU Version File – issu_version

  Note: The following examples use **issu_dir** as an example ISSU directory name. However, any directory name may be used. Additionally, if an ISSU upgrade was previously performed using a directory named **issu_dir**, it may now be the *Running Configuration*, in which case a different ISSU directory name should be used.

2. Create the new directory on the Master for the ISSU upgrade:

```
6860-> mkdir /flash/issu_dir
```

3. Clean up existing ISSU directories

It is important to connect to the Slave chassis and verify that there is no existing directory with the path **/flash/issu_dir** on the Slave chassis. ISSU relies upon the switch to handle all of the file copying and directory creation on the Slave chassis. For this reason, having a pre-existing directory with the same name on the Slave chassis can have an adverse effect on the process. To verify that the Slave chassis does not have an existing directory of the same name as the ISSU directory on your Master chassis, use the internal VF-link IP address to connect to the Slave. In a multi-chassis VC, the internal IP addresses on the Virtual Fabric Link (VFL) always use the same IP addresses: 127.10.1.65 for Chassis 1,127.10.2.65 for Chassis 2, etc. These addresses can be found by issuing the debug command '**debug show virtual-chassis connection**' as shown below:

```
6860-> debug show virtual-chassis connection
                        Address          Address
 Chas  MAC-Address      Local IP         Remote IP       Status
-----+-----------------+-------------------+------------------+-------------
 1     e8:e7:32:b9:19:0b  127.10.2.65       127.10.1.65     Connected
```

4. SSH to the Slave chassis via the internal virtual-chassis IP address using the password 'switch':

```
6860-> ssh 127.10.2.65

Password: switch
```

5. Use the **ls** command to look for the directory name being used for the ISSU upgrade. In this example, we're using **/flash/issu_dir** so if that directory exists on the Slave chassis it should be deleted as shown below. Repeat this step for all Slave chassis:

```
6860-> rm –r /flash/issu_dir
6860-> rm vc811Issu
```

6. Log out of the Slave chassis:

```
6860-> exit
logout
Connection to 127.10.2.65 closed.
```

7. On the Master chassis copy the current *Running* configuration files to the ISSU directory:

```
6860-> cp /flash/working/*.cfg /flash/issu_dir
```

8. FTP the new image files and the "issu_version" file to the ISSU directory. Once complete verify that the ISSU directory contains only the required files for the upgrade:

```
6860-> ls /flash/issu_dir

Uos.img      issu_version vcboot.cfg   vcsetup.cfg
```

9. Upgrade the image files using ISSU:

```
6860-> issu from issu_dir
Are you sure you want an In Service System Upgrade? (Y/N) : y
```

During ISSU '**show issu status**' gives the respective status (pending, complete, etc)

```
6860-> show issu status
Issu pending
```

This indicates that the ISSU is completed

```
6860-> show issu status
Issu not active
```

Allow the upgrade to complete. DO NOT modify the configuration files during the software upgrade. It normally takes between 5 and 20 minutes to complete the ISSU upgrade.

10. Verify the Software Upgrade

Log in to the switch to confirm it is running on the new software. This can be determined from the login banner or the **show microcode** command**.**

```
6860-> show microcode
  /flash/working
  Package         Release            Size    Description
----------------+-----------------------+--------+---------------------------------
Uos.img        8.4.1.233.R02         210697424 Alcatel-Lucent OS
```

```
6860-> copy running certified
Please wait…………………………………….

-> show running-directory

CONFIGURATION STATUS
  Running CMM           : MASTER-PRIMARY,
  CMM Mode             : VIRTUAL-CHASSIS MONO CMM,
  Current CMM Slot      : CHASSIS-1 A,
  Running configuration  : issu_dir,
  Certify/Restore Status : CERTIFY NEEDED
SYNCHRONIZATION STATUS
  Flash Between CMMs      : SYNCHRONIZED
  Running Configuration   : SYNCHRONIZED
```

11. Certify the Software Upgrade

After verifying the software and that the network is stable, use the following commands to certify the new software by copying the *Running* directory to the Certified directory:

```
6860-> copy running certified
Please wait…………………………………….

-> show running-directory

CONFIGURATION STATUS
  Running CMM           : MASTER-PRIMARY,
  CMM Mode             : VIRTUAL-CHASSIS MONO CMM,
  Current CMM Slot      : CHASSIS-1 A,
  Running configuration  : issu_dir,
  Certify/Restore Status : CERTIFIED
SYNCHRONIZATION STATUS
  Flash Between CMMs      : SYNCHRONIZED
  Running Configuration   : SYNCHRONIZED
```