Release Notes – Maintenance

OmniSwitch 6465, 6560, 6860(E), 6865, 6900, 9900

Release 8.6.299.R01

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 and should be read prior to performing a maintenance release upgrade.

Contents

Fixed Problem Reports Between Builds 289 (GA) and 299 (MR)

The following issues were fixed between AOS releases 8.6.289.R01 (GA) and 8.6.299.R01 (MR).

CR	Description
Case: 00394825 *CRAOS8X-11555*	**Summary**: OS6560: IP classification not working for users with static IP address. **Explanation**: Configure port group to trap ARP on UNP port during bootup. 🔒 Click for Additional Information
Case: 00402688 *CRAOS8X-11935*	**Summary**: OS6900: Getting traps from the switches DOS attacks. **Explanation**: Fixed issue with NTP synchronization that does not happen in Slave chassis when NTP is enabled in non-default VRF. 🔒 Click for Additional Information
Case: 00404604 *CRAOS8X-12507*	**Summary**: OS9900 switch does not re-join the VC. **Explanation**: Improved logic to check source of packet in VC. 🔒 Click for Additional Information
Case: 00406075 *CRAOS8X-12264*	**Summary**: TCP port 10161 SSL/SNMP TLS is in open state. **Explanation**: Introduced new CLI to disable/enable SNMP force TLS. 🔒 Click for Additional Information
Case: 00410221 *CRAOS8X-12713*	**Summary**: OS6560; 5 switches are connected in VC and port 47 is not working on each switch. **Explanation**: Corrected programming of port 47 of OS6560-P48X4. 🔒 Click for Additional Information

Open Problem Reports and Known Issues

The items listed here are known issues at the time of this AOS Release.

| CRAOS8X-13472 | **Summary**: After performing ISSU the '**ip helpe**r' command is changed to '**ip dhcp relay**' but it is disabled.

Workaround: The '**ip helper**' commands have been deprecated beginning with the 8.6R1 GA release and are automatically converted to '**ip dhcp relay**'. Issue the '**ip dhcp relay admin-state enable**' command after upgrading. Or, if running 8.5R4 GA, the '**ip dhcp relay**' commands can be configured prior to upgrading.

For example:

```-> ip helper address 10.1.1.1 (old)```

```-> ip dhcp relay admin-state enable (new)```
```-> ip dhcp relay destination 10.1.1.1 (new)``` |
| CRAOS8X-12915 | **Summary**: When trying to configure '**ntp key load**' an error message is displayed on the console. "WARNING: New keys are loaded into memory. Please label NTP keys as |

	trusted and reconfigure the NTP servers." This will issue will cause NTP to stop working after VC-takeover/CMM takeover because the CMMB/slave chassis does not have NTP key file (which is needed for NTP authentication).
	Workaround:
	1. Copy the ntp.keys file (/flash/network/ntp.keys) to the same location on all CMMs and all slave chassis.
	2. Issue the CLI command '**ntp key load**'.
	3. Re-configure all NTP config (for example, ntp admin-state, ntp authentication, ntp server, etc.)

Informational:

- The **ntp** parameter for the '**ip service source-ip loopback0**' command has been deprecated beginning in 8.6R1 GA. There is no replacement command.

New Features/Enhancements Introduced in 8.6.299.R01

To address CRAOS8X-12264 a new CLI has been implemented to allow the enabling/disabling of the SNMP TLS port 10161.

```
-> snmp security tls [enable | disable]
```

Default	**Enable**
Enable	Unblocks the SNMP TLS port 10161.
Disable	Blocks the SNMP TLS port 10161.

Use the '**show snmp security tls**' command to view the current setting.

```
-> show snmp security tls
```

```
snmp security tls = enable
```

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 service agreements may open cases 24 hours a day via Alcatel-Lucent's Enterprise portal at: businessportal2.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.

Third Party Licenses and Notices

Legal Notices applicable to any software distributed alone or in connection with the product to which this document pertains, are contained in files within the software itself located at: **/flash/foss**.

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(s) 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 minimal 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 resulting in sub-second convergence 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.

Modular Chassis - The chassis 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 the secondary CMM and reload the secondary CMM which becomes the new primary CMM. The old primary CMM becomes the secondary CMM and reloads using the upgraded code. As a result of this process both CMMs are now running with the upgraded code and the primary and secondary CMMs will have changed roles (i.e., primary will act as secondary and the secondary as primary). The individual NIs can be reset either manually or automatically (based on the NI reset timer).

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 8.6.299.R01 (MR)
OS6465	8.5.164.R01 (GA) 8.5.255.R02 (GA) 8.5.54.R03 (GA) 8.5.196.R04 (GA) 8.6.289.R01 (GA)
OS6560	8.5.196.R04 (GA) 8.6.289.R01 (GA)
OS6860(E)	8.5.164.R01 (GA) 8.5.255.R02 (GA) 8.5.54.R03 (GA) 8.5.196.R04 (GA) 8.6.289.R01 (GA)
OS6865	8.5.164.R01 (GA) 8.5.255.R02 (GA) 8.5.196.R04 (GA) 8.6.289.R01 (GA)
OS6900	8.5.164.R01 (GA) 8.5.255.R02 (GA) 8.5.54.R03 (GA) 8.5.196.R04 (GA) 8.6.289.R01 (GA)
OS6900-V72/C32	8.5.255.R02 (GA) - See Appendix E. 8.5.54.R03 (GA) - See Appendix E. 8.5.196.R04 (GA) - See Appendix E. 8.6.289.R01 (GA)
OS9900	8.4.1.141.R03 (GA) 8.5.255.R02 (GA) 8.5.54.R03 (GA) 8.5.199.R04 (GA) 8.6.289.R01 (GA) **Note:** ISSU on a VC of 1 OS9900 is not supported.

Note: Error messages similar to the ones below may be displayed when performing an ISSU upgrade. This is a display issue only, the upgrade will complete successfully.

Thu Sep 19 16:05:52 : ChassisSupervisor bootMgr INFO message:
+++ bootMgrSendSecondaryMasterChanged: entry
PKG_MGR[3743] ERROR: pkg_app_update_Memory_from_DB(222) failed to access /flash/issu/pkg/.pkgDB
PKG_MGR[3743] ERROR: pkg_app_handle_reload_takeover(378) Failed to update memory from PKG DB
PKG_MGR[3743] ERROR: pkg_app_update_Memory_from_DB(245) failed to access /flash/issu/pkg/.appDB

8.6.299.R01 ISSU Supported Releases

Prerequisites

These upgrade instructions require 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 may need to 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 – Getting Started
      - 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.
```
6900-> show system
System:
  Description: Alcatel-Lucent OS6900-X20 8.6.289.R01 GA, July 14, 2019.,
  Object ID:   1.3.6.1.4.1.6486.801.1.1.2.1.10.1.1,
  Up Time:     9 days 0 hours 1 minutes and 44 seconds,
  Contact:     Alcatel-Lucent, http://enterprise.alcatel-lucent.com,
  Name:        6900,
  Location:    Unknown,
  Services:    78,
  Date & Time: MON AUG 12 2019 06:55:43 (UTC)
Flash Space:
    Primary CMM:
      Available (bytes): 1111470080,
      Comments       :  None
```

2. Remove any old tech_support.log files, tech_support_eng.tar files:
```
6900-> rm *.log
6900-> 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:
```
6900-> show running-directory

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

If the configuration is not certified and synchronized, issue the command '**write memory flash-synchro**':
```
6900-> 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:

```
6900-> show tech-support
6900-> show tech-support layer2
6900-> show tech-support layer3
```

Additionally, the '**show tech-support eng complete**' command will create a TAR file with multiple tech-support log files as well as the SWLOG files from the switches.

```
6900-> show tech-support eng complete
```

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.

- 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.

Appendix B: Standard Upgrade - OmniSwitch Standalone or 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 Service and Support website and download and unzip the upgrade files for the appropriate model and release. The archives contain the following:

- OS6465 – Nos.img

- OS6560 – Uos.img - (**Note**: If upgrading an OS6560-P24Z24/P48Z16 (903954-90)/P24Z8, upgrading the FPGA to version 0.7 may be required to address CRAOS8x-7207. AOS must be upgraded prior to upgrading the FPGA. See Appendix D.)

- OS6860 – Uos.img

- OS6865 – Uos.img (**Note**: If upgrading an OS6865-U28X, upgrading the FPGA to version 0.12 may be required to address CRAOS8X-4150. AOS must be upgraded prior to upgrading the FPGA. See Appendix D.)

- OS6900 **-** Tos.img (V72/C32 – Yos.img). See Appendix E.

- OS9900 – Mos.img, Mhost.img, Meni.img

- imgsha256sum (not required) –This file is only required when running in Common Criteria mode. Please refer to the Common Criteria Operational Guidance Document for additional information.

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.

```
OS6900-> 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**.**

```
OS6900-> show microcode
   /flash/working
   Package          Release                Size     Description
----------------+-----------------------+--------+----------------------------------
```

```
Tos.img          8.6.299.R01              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.

```
OS6900-> copy running certified

-> 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 Chassis or Virtual Chassis

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

1. Download the Upgrade Files

Go to the Service and Support Website and download and unzip the ISSU upgrade files for the appropriate platform and release. The archive contains the following:

- OS6465 – Nos.img

- OS6560 – Uos.img - (**Note**: If upgrading an OS6560-P24Z24/P48Z16 (903954-90)/P24Z8, upgrading the FPGA to version 0.7 may be required to address CRAOS8x-7207. AOS must be upgraded prior to upgrading the FPGA. See Appendix D.)

- OS6860 – Uos.img

- OS6865 – Uos.img (**Note**: If upgrading an OS6865-U28X, upgrading the FPGA to version 0.12 may be required to address CRAOS8X-4150. AOS must be upgraded prior to upgrading the FPGA. See Appendix D.)

- OS6900 **-** Tos.img (V72/C32 – Yos.img) - See Appendix E.

  - **Note:** When performing an ISSU upgrade on an OS6900-V72/C32 from the 8.5R2 GA Release the following error is displayed on the console. This is a display issue only, the upgrade will be completed successfully. For example:

```
6900-V72-VC-2-> issu from issu
Are you sure you want an In Service System Upgrade? (Y/N) : y
md5sum: can't open '/flash/issu/Tos.img': No such file or directory
sh: 9260: unknown operand
sh: 9260: unknown operand
```

- OS9900 – Mos.img, Mhost.img, Meni.img

- imgsha256sum (not required) –This file is only required when running in Common Criteria mode. Please refer to the Common Criteria Operational Guidance Document for additional information.

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:

```
OS6900-> 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:

```
OS6900-> 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':

```
OS6900-> 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:

```
6900-> rm –r /flash/issu_dir
```

6. Log out of the Slave chassis:

```
6900-> exit
logout
Connection to 127.10.2.65 closed.
```

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

```
OS6900-> cp /flash/working/*.cfg /flash/issu_dir
```

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

```
6900-> ls /flash/issu_dir
Tos.img        issu_version  vcboot.cfg     vcsetup.cfg
```

9. Upgrade the image files using ISSU:

```
OS6900-> 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)

```
OS6900-> show issu status
Issu pending
```

This indicates that the ISSU is completed

```
OS6900-> 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. Wait for the System ready or [L8] state which gets displayed in the ssh/telnet/console session before performing any write-memory or configuration changes.

```
    6900-> debug show virtual-chassis topology
    Local Chassis: 1
    Oper                                        Config   Oper                System
```

```
 Chas  Role         Status           Chas ID  Pri   Group  MAC-Address       Ready
 -----+------------+-----------------+--------+-----+------+-----------------+-------
 1     Master       Running          1        100   19     e8:e7:32:b9:19:0b  Yes
 2     Slave        Running          2        99    19     e8:e7:32:b9:19:43  Yes
```

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**.**

```
OS6900-> show microcode
  /flash/working
  Package         Release                 Size     Description
----------------+------------------------+--------+----------------------------------
Tos.img          8.6.299.R01


OS6900-> copy running certified

-> 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:

```
OS6900-> copy running certified

-> 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
```

Appendix D: FPGA Upgrade Procedure

- For issue CRAOS8X-7207 an FPGA upgrade may be required for the OS6560-P24Z24, OS6560-P48Z16 (903954-90 only), or the OS6560-P24Z8 models.
- For issue CRAOS8X-4150 an FPGA upgrade (0.12) may be required for the OS6865-U28X.

Note: AOS must be upgraded to 8.6R1 prior to performing an FPGA upgrade.

1. Download and extract the upgrade archive from the Service & Support website. In addition to the AOS images, the archive will also contain the following FPGA upgrade kit.

- CPLD File - fpga_kit_6285

2. FTP (Binary) the FPGA upgrade kit listed above to the **/flash** directory on the primary CMM.

3. Enter the following to upgrade the FPGA. The '**all**' parameter should be used when upgrading with an FPGA kit. Additionally, this will update all the elements of a VC.

```
-> update fpga-cpld cmm all file fpga_kit_6285
Parse /flash/fpga_kit_6285
Please wait...
fpga file: fpga_6560_v07.vme
update chassis 1
Starting CMM ALL FPGA Upgrade
CMM 1/1
Successfully updated
Reload required to activate new firmware.
```

Once complete, a reboot is required.

Appendix E: OS6900-V72/C32 Flash Cleanup Procedure

Prior to performing a standard or ISSU upgrade on an OS6900-V72/C32 it's required to perform a cleanup of some files in the flash memory. This procedure must be performed when upgrading from the releases listed below. A script file has been created that will automatically perform the file cleanup on a VC or standalone chassis. It must be run from the maintenance shell prior to upgrading.

- If upgrading from AOS Release 8.5R02, 8.5R03, or 8.5R04.
- Script file name: *pre_update_script.sh* (Available from service & support website)

1. FTP the script file to the **/flash** directory on the Master chassis of the VC or standalone chassis.
2. OS6900-> su
3. YUKON #-> cd /flash
4. YUKON #-> sh pre_update_script.sh
5. YUKON #-> exit
6. OS6900->
7. You may now proceed to performing a standard or ISSU upgrade.