# Release Notes – Maintenance

## OmniSwitch 6900/10K

### Release 7.3.4.273.R02

The following is a list of issues that have been identified and corrected in this AOS software release. 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 270 and 273

The following issues were fixed between AOS releases 7.3.4.270.R02 and 7.3.4.273.R02.

| PR | Description |
|---|---|
| 208808* | **Summary**: During ISSU of the OS6900VC, the device got isolated from network for 10mins.<br><br>**Explanation**: Code updated to improve convergence if graceful restart is enabled on the restarting router and helper is disabled on the neighbors for p2p circuits. |
| 212876 | **Summary**: 6900-X72 freeze when inserting unsupported Mikrotik 10G SFP+<br><br>**Explanation**: On hot inserting of a Microtik 10G SFP the OS6900-X72 would lockup the chassis. A software fix has been put in place to address this issue. |
| 213032 | **Summary**: Swlog log file size change query with OS10K switch.<br><br>**Explanation**: The switch log file size was not being applied to the NI switch log files. A change has been made to apply the log file size to the NIs. |
| 213042 | **Summary**: issue with "show log swlog timestamp" when the year 2016 is on timestamp (for example 01/14/2016)<br><br>**Explanation**: The year is missing from switch log entries. A software change has been made to add the year to the switch log so that change over from one year to the next is distinguished in the switch log files. |
| 213122 | **Summary**: If the authentication server is reachable via front panel ports it is authenticated locally, but still tries to authenticate via ASA.<br><br>**Explanation**: ASA (including telnet) won't be attempted with RADIUS while accessing slave/secondary EMP Address. Also, for "admin" telnet access on slave/secondary, always use local irrespective of radius configuration. |
| 213459 | **Summary**: Open SSL vulnerability CVE-2015-3197,CVE-2016-0701 checks in 10K.<br><br>**Explanation**: The FIPS support in ALU NetSNMP agent linked to the OpenSSL 1.0.2x library has been updated to use the latest API for FIPS mode. |
| 213630 | **Summary**: 10K: High CPU due to task /bin/iprm.<br><br>**Explanation**: The alaRouteMapTable GetNext on a display string was not incrementing correctly, causing IPRM to loop when doing a mibwalk. |
| 213662 | **Summary**: CVE-2015-7547 and CVE-2015-0235 in AOS 7 & 8 in OS6860 & OS6900.<br><br>**Explanation**: Update glibc to address CVE-2015-7547 and CVE-2015-0235. |

| 213712 | **Summary**: OS6900 VC takeover after adding IP interfaces and saving the changes.<br><br>**Explanation**: Chassis was rebooted due to memory leak in SLB module. SLB socket disconnection is now properly handled to prevent memory leak. |
|---|---|
| 213789 | **Summary**: OS6900 issue with the GRE on VRF<br><br>**Explanation**: Allow creation of GRE tunnel in non-default VRF in linux kernel. |
| 214017 | **Summary**: 'show ip helper' display issue.<br><br>**Explanation**: Display output of 'show ip helper' completely in case of large configuration. |
| 214320 | **Summary**: OS6900 STP disabled ports moves to forwarding state without a cable plugged in.<br><br>**Explanation**: Display port as DIS when CIST is disabled on port. |
| 214570* | **Summary**: Last time change is not available in show interfaces.<br><br>**Explanation**: Last time change is now always displayed in 'show interfaces' output. |
| 214701 | **Summary**: Impossibility to add some ports in policy port group if ports belong to a linkagg.<br><br>**Explanation**: Code updated to allow linkagg ports to be part of Qos port groups. |
| 214763 | **Summary**: OS6900: BGP does not advertise Loopback0.<br><br>**Explanation**: Code updated to allow Loopback0 to be advertised using BGP. |
| 214780 | **Summary**: 'show interface status' command in Master Split-Topology Switch displays that the interfaces are admin enabled.<br><br>**Explanation**: Set the interfaces status to disable if chassis is in SPLIT topology. |
| 214856 | **Summary**: OS6900 ERP G.8032V2 compatibility with third-party device(Caliex-E7).<br><br>Explanation: Accept 60-byte ERP packet length. |
| 214940 | **Summary**: Error on ip udp relay port 123 description "ntp port" command.<br><br>**Explanation**: Description field is now saved in double qoutes in 'ip udp relay port description' command. |
| 215045 | **Summary**: intfCmm Mgr error(2) IfIndex <40000001> should be <= 708128.<br><br>**Explanation**: Made changes to avoid interface errors. |

| 215054 | **Summary**: EMP port status is down in VC after upgrade the code 7.3.4.248.R02. |
| | **Explanation**: Update EMP interface status for CMMB's EMP in master chassis. |
| 215251 | **Summary**: LBD timer issue on SAP port. |
| | **Explanation**: Corrected LBD timer. |
| 215347 | **Summary**: OS6900 no MAC address learned on Linkagg port. |
| | **Explanation**: Update MAC address of dynamic linkagg on port leave. |
| 215401 | **Summary**: Both Master and Master Split Topology holds the VC EMP Address. |
| | **Explanation**: Code updated to bring down EMP-VC if it is in SPLIT mode. |
| 215514 | **Summary**: tacClientCmm main error message |
| | **Explanation**: Changes made to refer correct server index in TACACS context. |
| 215699 | **Summary**:  SPB- If VLAN 1 has an IP interface,  Service Port configuration is not loaded after reboot. |
| | **Explanation**: Code updated to preserve the original default VLAN when configure or unconfigure an access port. |
| 215709 | **Summary**: LACP reconfiguring is required to make LAGs join. |
| | **Explanation**: Code updated to ensure the number of attached member ports does not exceed the size of the linkagg. |
| 215849 | **Summary**: mac-ping dst-mac doesnt work on bvlan. |
| | **Explanation**: Added robustness to socket connection between link OAM NI and SAA. |
| 215924* | **Summary**: Auto-VFL on 10GBaseT Ports fails. |
| | **Explanation**: In Auto-VC scenario, copper ports now skipped on T8, T20 and T40 modules when selecting the 5 auto VFL ports. |
| 216030 | **Summary**: BW oper value (qos qsp ouput) is not shown correctly in 7x and 8x. |
| | **Explanation**: BW oper value is shown in percentage. |
| 216689 | **Summary**: VC Chassis isolated after upgrade from 7.3.3.505.R01 to 7.3.4.236.R02. |
| | **Explanation**: Linkagg port state properly cleaned up during ISSU. |
| 216724 | **Summary**: SPB service mapped to wrong port after ISSU from 734.204.R02 to 734.248.R02. |

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| | **Explanation**: Code updated to ensure the current shortest path to the next hop is updated, when the reloaded chassis (through which the data path should flow) rejoins the VC during ISSU, to prevent packet loss. |
| 217641 | **Summary**: Script file is not taking effect in the OS_7.3.4.248.R02.<br><br>**Explanation**: The "alu_soc_script" file was not allowed to run unless there was a Data Center (DC) license installed. The check for the DC license has been removed allowing the script to run. |

## Fixed Problem Reports Between Builds 249 and 270

AOS Release 7.3.4.270.R02 is being released to address the ISSU related issues below. These fixes address the "ALE Support Advisory (SA-N0034) - AOS ISSU Postponement" announced on May 20, 2016 and allow for the resumption of ISSU. Please refer to Appendix A for upgrade instructions.

| PR | Description |
|---|---|
| 213290 | **Summary**: Linkagg down after unplugging U32S from Master chassis.<br><br>**Explanation**: Enabled TCP keep alive to prevent socket connection/disconnection issue. |
| 213512 | **Summary**: Chassis rebooted multiple times to join a VC after electrical failure.<br><br>**Explanation**: Defensive mechanism has been added to clean up the linkagg peer manager during a chassis or NI down. |
| 216689 | **Summary**: VC chassis isolated after upgrade from 7.3.3.505.R01 to 7.3.4.236.R02.<br><br>**Explanation**: Linkagg port state properly handled after completion of ISSU to resolve new VC Master configuration synchronization issue. |
| 217267 | **Summary**: ISSU failure due to lacpNi failure to acknowledge VC takeover event.<br><br>**Explanation**: Added an lacpNi VC takeover acknowledgment timer. |

## Fixed Problem Reports Between Builds 237 and 248

The following issues were fixed between AOS releases 7.3.4.237.R02 and 7.3.4.248.R02.

| PR | Description |
|---|---|
| 208841* | **Summary**: OS6900: VC crash need to know RCA.<br><br>**Explanation**: Defensive fix has been added by protecting a critical section of kernel code from being preempted. |
| 209425* | **Summary**: OS6900: VC crashed due to Ipni task. |

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| | **Explanation**: Added check for the IP header length to discard IP packet with invalid length. |
| 209905* | **Summary**: OS6900: Switch respond to broadcast address from Omnivista.<br><br>**Explanation**: When source IP for snmp is not configured, switch will not respond to subnet broadcast request. |
| 209918* | **Summary**: Tx loss frames on SPB interface ports not working for SNMP.<br><br>**Explanation**: Sent the Tx Lost as "0" to OV for the Interface which is configured as SPB Network Interface. Also for all the linkagg member port, where linkagg is configured as SPB Network Interface. |
| 210829* | **Summary**: Lost frames and Error frames increasing on FC port<br><br>**Explanation**: FIP packets are not forwarded out of FC ports but were accounted as Lost Frames on the FC ports. Fixed by dropping FIP packets on the egress pipeline, hence not having these packets accounted as Lost Frame anymore. |
| 211034 | **Summary**: VLAN member port configuration is lost after the switch reboots with linkagg configuration.<br><br>**Explanation**: Port is now correctly removed from old default VLAN. |
| 211111* | **Summary**: OS6900: DDM issue - input value is 0 when unidirectional failure happens.<br><br>**Explanation**: Keep DDM Input Power value as it is when link is down. |
| 211125* | **Summary**: OS10K unable to retrieve the current configuration of the switch.<br><br>**Explanation**: The Config Manager process has been changed to a non-restartable process. |
| 211365 | **Summary**: OS6900 Interruption in file transfer between sites with FCOE tunnel.<br><br>**Explanation**: Corrected PFC link delay issues. |
| 211376* | **Summary**: Randomly many ports on OS10k went down and generated the PMD files on most of the NI.<br><br>**Explanation**: Added corrective code to avoid memory leaks. |
| 211602* | **Summary**: Port goes into blocking state when a new VLAN is created and a port from slave chassis is added.<br><br>**Explanation**: Initiated a re-check of vlanManager mesh connection after vc-takeover event is received and re-establish the connection if it was not created. Additional swlog events added to help in future debugging. |
| 211886 | **Summary**: OS6900-X20 Penetration test "vulnerable to a man-in-the-middle (MiTM) attack".<br><br>**Explanation**: Update openSSL to version 1.0.2e. |

| 211914 | **Summary:** OS6900 "mac-learning port x/x disable" disappears after a reboot.<br><br>**Explanation:** Code updated to ensure 'mac-learning port x/x disable' command from saved config is applied correctly. |
|---|---|
| 212086 | **Summary:** 'show interfaces capabilities' output for 10Gig SFP+ is not showing support for pause frames.<br><br>**Explanation:** Added pause frame information for 10G SFP+ in 'show interfaces capability' output. |
| 212129* | **Summary:** OS6900: Microcode changes AAA Setting during upgrade.<br><br>**Explanation:** Provided fix to reserve the AAA configuration of the "Console" access type. |
| 212339* | **Summary:** OS6900 SPB Multicast mode hybrid Issue.<br><br>**Explanation:** Code updated to allow hybrid multicast mode for VxLAN service only. For SPB service, either head-end or tandem multicast mode is applicable. |
| 212356* | **Summary:** vcmCmm library(vcmLib) info(5) vcmlib_calculate_table_usage@8126 message printing in the switch log<br><br>**Explanation:** Supressed such periodic messages in swlog. |
| 212387 | **Summary:** Difference in the Vxlan SDP operational status seen on 2 CLI commands output on OS6900 switches.<br><br>**Explanation:** Fixed the detailed output of the 'show service sdp x' command to reflect the current Oper Status. |
| 212560* | **Summary:** Error message when creating SAP port.<br><br>**Explanation:** When configuring a SAP port on a network port the following error message is now displayed "ERROR: A vlan with IP interface attached to this port." |
| 212600* | **Summary:** Issue with staggered upgrade from 7.3.2.613.R01 to 734.236.R02 on a OS6900-T model units.<br><br>**Explanation:** Code updated to make sure that FTP is enabled before proceeding with staggered upgrade process. |
| 212602* | **Summary:** OS6900: Outbound packets discarded though no errors detected.<br><br>**Explanation:** Sent the Tx Lost as "0" to OV for the Interface which is configured as SPB Network Interface. |
| 212619 | **Summary:** SCP command issue.<br><br>**Explanation:** Code changed during SCP to not print or echo a statement on Non-Interactive Shell. |
| 212773* | **Summary:** OS10K All NI in unpowered state. |

| | Explanation: Fixed file descriptor leak in trap manager. |
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| 212913 | Summary: Ebgp neighborship stuck in idle state when the link to ISP is toggled.<br><br>Explanation: Processing BFD neighbor down when BGP is not established causes BGP neighborship never to get established again even if BGP neighbor is reachable. Code updated to restrict this message when BGP neighbor is not established. |
| 212935 | Summary: If the authentication server is reachable via front panel ports then ASA is not working for VC slave.<br><br>Explanation: Code updated to allow admin user to login in to slave primary using local database authentication when authentication mode is configured as a remote server. |
| 213014 | Summary: OS10K-XNI-U16L - license unable to convert from 1G to 10G.<br><br>Explanation: Allow installation of NI license on slave chassis. |
| 213124 | Summary: Getting vcboot.cfg.err file after the reboot when "usb enable" is configured.<br><br>Explanation:  USB enable command will no longer display error across reboot. |
| 213164* | Summary: OS6900 getting error when apply the SAP command in OS6900-T40 switch.<br><br>Explanation: Code updated to prevent configuring Access Port on LPS port. |
| 213213* | Summary: Switch not logging message in switch logs.<br><br>Explanation: Update the nvram on current running if the running directory is modified. |
| 213222* | Summary: Status of CVE-2016-0778 and CVE-2016-0777.<br><br>Explanation: Fixed issues raised by CVE-2016-0778 and CVE-2016-0777. |
| 213270 | Summary: Clarification on negative value seen on BFD session output.<br><br>Explanation: Corrected the display to always show unsigned integer (positive number). |
| 213406* | Summary: OS6900: Changing logging from hexadeimal to decimal for swlogd: ospf_0 STATE info(5) sendto failed.<br><br>Explanation: Code updated to display IP interface address in IP format. |

## Fixed Problem Reports Between Builds 213 and 236

The following issues were fixed between AOS releases 7.3.4.213.R02 and 7.3.4.236.R02.

| PR | Description |
|---|---|
| 203384 | Summary: Getting the error message "plGetChassisSlotPortFromIfIndex@1302".<br><br>Explanation: Fix done to check linkagg ifindex before calling |

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| | pIGetChassisSlotPortFromIfIndex in udprelay context during vctakeover. |
| 203406* | **Summary**: rtr-port configured on OS6900 switch participating in spantree when running on flat mode.<br><br>**Explanation**: IP Router Port will not participate in STP in flat mode. |
| 204463* | **Summary**: An out prefix list for BGP doesn't filter any prefixes.<br><br>**Explanation**: BGP prefix list without LE or GE options will accept default route only. |
| 207463 | **Summary**: On an OS10K port mirroring does not work when mirrored traffic has to go over an Auto-VFL.<br><br>**Explanation**: Fix provided to allow port mirroring over VFL. |
| 208308 | **Summary**: switch crashed while taking debug "call msg_vector(0,0)" output.<br><br>**Explanation**: Defensive fix has been added to avoid crash while accessing null pointer. |
| 208364 | **Summary**: "Last State Change" in "show erp ring" is not updated in case one of nodes in a ring is reloaded.<br><br>**Explanation**: Changes made to modify the format of Last status Change to be compliant with CLI guide. |
| 208365 | **Summary**: "VRRP toggled once" is not logged in SWLOG in case of transition from VRRP Backup to VRRP Master.<br><br>**Explanation**: Log message to show transition from VRRP backup to master. |
| 208833 | **Summary**: OS6900 - Unable to see entire ip helper statistics.<br><br>**Explanation**: Handling the show ip helper statistics command to give proper output. |
| 209289 | **Summary**: unable to mirror the UNP port .<br><br>**Explanation**: Port-mirroring can now be enabled on UNP port also. |
| 209311 | **Summary**: When performing an ISSU upgrade from 7.3.4.R01 to 7.3.4.R02 on a VC of 3 OS6900s with auto-VFL, when the second Slave chassis reboots it does not re-establish the auto-VFL with the first Slave chassis that has already rebooted with the new code. When the Master reboots the VC is split and all the chassis reboot again before recovering. This issue is only seen with a VC of 3 OS6900s using auto-VFL.<br><br>**Explanation**: Fix provided to allow Slave chassis to correctly re-establish the auto-VFL. |
| 209312 | **Summary**: OS10K: LINKAGG port was blocked in hardware When an CMMA is removed from Slave Chassis  VC and then.<br><br>**Explanation**: Force port state as aggregatable on receiving port join. |
| 209327 | **Summary**: BGP Prefix-list configuration getting removed and boot.cfg.1.err generated after reboot of OS6900. |

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| | **Explanation:** Fix provided to correctly parse the BGP prefix list name config after reboot. |
| 209531 | **Summary:** OS6900: Copy Certified Working Make-Running-Directory not working in 7.3.4.450.R01<br><br>**Explanation:** The modify running-directory <directory> command can now be executed when not running on the certified directory. Command is still refused when the switch is not in a certified status. |
| 209535 | **Summary:** Unable to configure dual-speed SFP to 1G on an 6900-X72. Displays message "ERROR: port speed setting is not supported on OS6900-X72".<br><br>**Explanation:** Fix provided to allow SFP speed to be set to 1G. |
| 209625 | **Summary:** OS6900 switch getting crashed when the BGP Prefix-list name length exceeds 70 characters.<br><br>**Explanation:** BGP prefix list name size modified to avoid crash. |
| 209851 | **Summary:** 6900 in 7.3.4 GA doesn?t include Calling-Station-ID in the radius request for 802.1x.<br><br>**Explanation:** Radius attributes NAS-Port, NAS-Port-Id, Calling-Station-ID, Called-Station-ID and NAS-Identifier added. |
| 209891 | **Summary:** 7.3.3.598.R01 throws error messages when VLAN description is of size 32 characters.<br><br>**Explanation:** Fixed issue with VLAN description of exactly 32 characters in length; it caused the command to fail. |
| 209892 | **Summary:** OS6900 chassis 2 ip interface is not coming up.<br><br>**Explanation:** Added logs to capture initial configuration events for VLAN port association. |
| 209897 | **Summary:** [TYPE1]: After multiple port toggle some of of the spanning tree instannces are stuck on listenning.<br><br>**Explanation:** Handling of STP Timer nodes has been modified to accomodate flush logic. |
| 210130 | **Summary:** OS6900: VC : Lose connectivity after removal of SAP profiles from linkagg.<br><br>**Explanation:** Problem is seen in the case of a configuration with multiple SAP's on an access Trunk port and the access trunk is also enabled for egress vlan xlation.<br><br>When one of the SAP is removed, the egress vlan translation is disabled for all the other SAPs of this trunk. The fix rectified this issue and now egress vlan xlation will continue to work on the remaining SAPs even after one of the SAP is deleted from the trunk access port. |
| 210386 | **Summary:** OS6900: TACACS server missing from configuration.<br><br>**Explanation:** Changes done to update the second server IP correctly in tacacs configuartion. |

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| 210411 | **Summary:** "portmgrcmm library(plApi) error(2) plGetChassisSlotPortFromIfIndex_f@1390: Invalid port type 2" log<br><br>**Explanation:** Call Port Library API function only for physical port type. |
| 210544 | **Summary:** BGP: network advertisement issue in OS6900 7.3.4.204.R02.<br><br>**Explanation:** Allow BGP network triggers on regular Loopback interface to advertise static routes set with the Loopback gateway (blackhole routes). |
| 210571 | **Summary:** "plGetGportFromIfIndex and intfCmm Mgr error" message are filling the swlog of the switch and console.<br><br>**Explanation**: Call Port Library API function only if the ifindex is for a valid chassis/slot/port. |
| 210937 | **Summary:** OS6900 issue with ARP resolution on unp port        .<br><br>**Explanation:** Issue occurs when dynamic SAPs ageout and are later recreated. Fixed use-after-free problem that manifests when multiple dynamic non-xlate SAPs are configured on the same interface. Also fixed a mac-learning aging-time issue to allow the max age time configuration of 1000000 sec. |
| 210957 | **Summary**: swlog messages "portMgrNi main error(2)".<br><br>**Explanation:** Use PM_MAX_SLOTS for internal slot count instead of MAX_NI_SLOTS. |
| 211169 | **Summary**: OS6900: No command to disable the daylight-savings-time.<br><br>**Explanation**: CLI command enhanced to disable daylight saving.<br><br>-> system dayight-savings-time {enable \| disable} |
| 211243 | **Summary**: bcm54616_config_init message seen on switch log every 30 seconds.<br><br>**Explanation**: When EMP cable is not present, some device status messages are logged in swlog every 30 seconds. Fixed by reporting the status only once. |
| 211283 | **Summary**: OS6900: Inactive BFD static routes are displayed in "show ip routes".<br><br>**Explanation**: Static Route with BFD will not be installed if the gateway is not reachable. |

## Fixed Problem Reports Between Builds 204 and 212

The following issues were fixed between AOS releases 7.3.4.204.R02(GA) and 7.3.4.212.R02.

| PR | Description |
|---|---|
| 210052 | **Summary**: ARP is not programmed correctly after CMM extraction on the slave VC chassis.<br><br>**Explanation**: Issue fixed by clearing the appropriate flag when the primary CMM is extracted. This ensures the state will be properly requested when the connection is |

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| | restored. |
| 210445 | **Summary**: When using RADIUS authentication with ASA the following error message is seen after 5 minutes of inactivity. "ERROR: Authorization failed. No functional privileges for this command." <br><br> **Explanation**: Issue fixed by properly handling the referesh request from session manager. |
| 210633 | **Summary**: Staggered upgrade unsuccessful on a VC of 6900s or OS10Ks if the 'admin' account default password has been changed. Staggered upgrade unsuccessful on a VC of OS10Ks if CMM-B is the primary CMM. <br><br> **Explanation**: Staggered upgrade script modified to prompt for the 'admin' account password and to properly handle CMM-B being the primary CMM on an OS10K. |

**Please Note:** PRs identified with an asterisk have been addressed and are considered to be fixed in AOS. However, the status of the PR may still be in 'Verify'. This is likely due to the issue only being seen in very specific configurations or the issue is seen intermittently making the exact issue difficult to reproduce in a lab environment.

## Open Problem Reports and Known Issues

The following issues are identified in this AOS Release.

**IP over SPB Loopback (PR 207150)**

On an OmniSwitch 6900-Q32 or 6900-X72, when a packet with a destination address of a router MAC or a MAC associated with a VRRP interface is received on the SAP of any access/trunk port the VLAN tag in the frame is removed to allow it to be processed properly by the switch. The tag needs to be restored so that the frame can be properly forwarded on the egress SAP by configuring the following:

- VLAN translation must be enabled on the port and SAP level on one side of the loopback cable

- All VLAN tags need to be explicitly configured on the SAP side of the loopback cable

New Features Introduced – 7.3.4.236.R02

The following new features were introduced.

## 1. Support of Separate Auth Key and Encryption Key for SNMPv3 User Access

The existing AOS implementation supports SNMPv3 users with both hashing and encryption such as SHA+DES/MD5+DES/SHA+AES. However, in the existing implementation only one password is supported which is used for both authentication and encryption. This enhancement is to provide support for separate Auth Key and Priv Key. To support two different passwords, a new option *priv-password* has been added to the existing user creation CLI.

CLI Usage:

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 | sha+aes]**[priv-password password]** [console-only {enable | disable}]

### Usage Guidelines

- The priv-password token is be accepted only when SNMP level with encryption is configured for the user. If SNMP level with encryption is not selected and priv-password is configured, then CLI command is rejected with error.
- If priv-password is not configured for the user with encryption SNMP level, then user "password" parameter is used for priv-password (both for authentication/encryption).
- Minimum length of the priv-password is 8 and maximum length for priv-password is 30 characters.
- Password policy is not applicable for the new optional parameter "priv-password".
- Existing password is still used for authenticating switch access through other methods such as telnet, ftp, ssh etc.
- When the SNMP level for an existing user with priv-password configured is changed from one encryption level to another encryption level , then the previously configured priv-password will not be used with the new SNMP level. Priv-password needs to be configured again when SNMP level is changed for an existing user.

### Examples:

```
-> user snmpv3user password pass1pass1 priv-password priv1priv1 read-write all
sha+aes

-> show user snmpv3user
User name = snmpv3user,
  Password allow to be modified date     = None,
  Account lockout     = None,
```

```
Password bad attempts     = 0,
Read Only for domains   = None,
Read/Write for domains  = All ,
Snmp allowed      = YES,
Snmp authentication     = SHA,
Snmp encryption     = AES
Console-Only    = Disabled
```

**MIB Objects**

aaaUserTable
        aaauSnmpPrivPassword

**LDAP**

To support separate Auth Key and Priv Key through LDAP, two new attributes **bop-md5privkey** & **bop-shaprivkey** have been added to existing LDAP schema. If the LDAP server returns these two new attributes for users with SNMP level SHA+DES/MD5+DES or SHA+AES the switch will them for the encryption key. If the LDAP server returns a user with SNMP level SHA+DES/MD5+DES or SHA+AES without these attributes the switch will continue to use the existing auth key(bop_**md5key** & bop_**shakey**) for both authentication and encryption.

**2. Daylight Savings Time**

This enhancement adds the capability to enable or disable system daylight-savings-time.  This command can disable daylight savings time even if the time zone that has been selected normally supports DST.

**CLI Usage:**

system daylight-savings-time {enable | disable}

**Examples:**

```
-> system daylight-savings-time disable
```

**Usage Guidelines**

- Entering the command with no parameters will display the current setting.

**MIB Objects**

systemServices
  systemServiceEnableDST

## 3. 802.1x Calling Station ID

The following attributes are now supported:

**NAS-Port-Id** - This attribute (NAS-Port) holds the physical port number of the NAS (switch) which is authenticating the user. It can only be part of RADIUS Access-Request.

**NAS-Identifier** - This attribute holds the name of the NAS (switch) from where the RADIUS request is sent. This attribute can be only part of RADIUS Access-Request.

**Calling-Station-Id** - This attribute allows NAS (switch) to send the user's (supplicant) MAC address in the RADIUS Access-Request.

**Called-Station-Id** - This attribute allows NAS (switch) to send the MAC address the user (suplicant) called which will be the MAC address of the NAS (switch).

**CLI Usage:**

aaa radius nas-port-id {default | user-string "string"]

aaa radius nas-identifier {default | user-string "string"]

aaa radius mac-format username delimiter {none | "string"} case {uppercase | lowercase}

aaa radius mac-format password delimiter {none | "string"} case {uppercase | lowercase}

aaa radius mac-format calling-station-id delimiter {none | "string"} case {uppercase | lowercase}

aaa radius mac-format called-station-id delimiter {none | "string"} case {uppercase | lowercase}

**Usage Guidelines**

- The delimiter character to use to separate the octets within a MAC address. The valid characters are a space (" "), a hyphen ("-"), or a colon (":"). For example, "e8 e7 32 a4 63 23", "e8-e7-32-a4-63-23", or "e8:e7:32:a4:63:23".

**Examples:**

```
-> aaa radius nas-port-id user-string "nasport"
-> aaa radius nas-identifier user-string "os6900"
-> aaa radius mac-format username delimiter ":" case lowercase
```

**MIB Objects**

alaAaaRadClientGlobalAttr
        alaAaaRadNasPortId
        alaAaaRadNasIdentifier

alaAaaRadUserNameDelim
alaAaaRadPasswordDelim
alaAaaRadCallnStnIdDelim
alaAaaRadCalldStnIdDelim
alaAaaRadUserNameCase
alaAaaRadPasswordCase
alaAaaRadCallingStationIdCase
alaAaaRadCalledStationIdCase

## 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:** esd.support@alcatel-lucent.com

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

## 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).

**Staggered Upgrade** - A staggered upgrade is similar to ISSU but is designed for those situations that do not completely support ISSU. A staggered upgrade may be required when upgrading between different AOS release trees (i.e. 7.3.2 to 7.3.4) due to underlying code variations between the two releases which may not allow CMMs or Master/Slave chassis to communicate after one is upgraded to the newer version of code.

A staggered upgrade requires a script file to be run prior to the upgrade. The script will copy the required configuration and image files to the CMMs or chassis to be upgraded. It also provides a mechanism to allow the Primary CMM or Master chassis to know the upgrade has been completed successfully on the redundant CMM or Slave chassis before rebooting. This allows for an upgrade between different AOS release trees with minimal network disruption. Convergence times will vary based on the network topology but should not exceed 120 seconds.

## Supported Upgrade Paths and Procedures

The following tables outline the supported upgrade paths when upgrading to AOS Maintenance Release 7.3.4.273.R02.

| | Upgrading From:<br>- 7.3.4.R01 GA or any MR | Upgrading From:<br>- 7.3.4.R02 GA or any MR |
|---|---|---|
| OS6900 – VC | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS6900 – Standalone | ISSU – N/A<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – N/A<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – VC | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – Standalone (Dual-CMM) | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – Supported<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – Standalone (Single-CMM) | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |

**7.3.4 Supported Upgrade Paths**

| | Upgrading From:<br>- 7.3.3.384.R01 GA<br>- 7.3.3.505.R01 MR<br>- 7.3.3.598.R01 MR | Upgrading From:<br>- 7.3.3.646.R01 MR |
|---|---|---|
| OS6900 – VC | ISSU – N/S<br>Staggered Upgrade –N/S<br>Standard Upgrade - Supported | ISSU – Supported<br>Staggered Upgrade –N/S<br>Standard Upgrade - Supported |
| OS6900 – Standalone | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |
| OS10K – VC | N/A | N/A |
| OS10K – Standalone (Dual-CMM) | N/A | N/A |
| OS10K – Standalone (Single-CMM) | N/A | N/A |

**7.3.3.R01 Supported Upgrade Paths**

| | Upgrading From:<br>- Any 7.3.2 GA or MR below 7.3.2.469.R01 | Upgrading From:<br>- 7.3.2.469.R01 MR or higher |
|---|---|---|
| OS6900 – VC | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – N/S<br>Staggered Upgrade - Supported<br>Standard Upgrade - Supported |
| OS6900 – Standalone | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |
| OS10K – VC | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – N/S<br>Staggered Upgrade - Supported<br>Standard Upgrade - Supported |
| OS10K – Standalone (Dual-CMM) | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – Standalone (Single-CMM) | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |

**7.3.2.R01 Supported Upgrade Paths**

| | Upgrading From:<br>- 7.3.1.R01 GA or any MR |
|---|---|
| OS6900 – VC | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS6900 – Standalone | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |
| OS10K – VC | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – Standalone (Dual-CMM) | ISSU – N/S<br>Staggered Upgrade – N/S<br>Standard Upgrade - Supported |
| OS10K – Standalone (Single-CMM) | ISSU – N/A<br>Staggered Upgrade – N/A<br>Standard Upgrade - Supported |

**AOS 7.3.1.R01 Supported Upgrade Paths**

- 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.

- If upgrading a VC using a staggered upgrade please refer to Appendix D for specific steps to follow to help minimize any network disruption.

## 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 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 – 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 7.3.2.568.R01 Service Release, September 05, 2014.,
  Object ID:    1.3.6.1.4.1.6486.801.1.1.2.1.10.1.1,
  Up Time:      0 days 0 hours 1 minutes and 44 seconds,
  Contact:      Alcatel-Lucent, http://alcatel-lucent.com/wps/portal/enterprise,
  Name:         6900,
  Location:     Unknown,
  Services:     78,
  Date & Time:  FRI OCT 31 2014 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
```

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 -  OmniSwitch 6900/10K Standalone/Virtual Chassis

These instructions document how to upgrade an OS6900 or OS10K standalone or virtual chassis to 7.3.4.R02 using the standard upgrade procedure. Upgrading to 7.3.4.R02 using the standard upgrade procedure consists of the following steps. The steps should be performed in order:

1. Download the Upgrade Files

Go the to Alcatel-Lucent Service and Support website and download and unzip the 7.3.4.R02 upgrade files for the appropriate model. The archives contain the following:

- OS6900 Image Files - Tos.img

- OS10K Image Files – Ros.img, Reni.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.

```
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** commmand.

```
OS6900-> show microcode
  /flash/working
  Package         Release                 Size          Description
----------------+-----------------------+-------------+--------------------------------
Tos.img         7.3.4.273.R02            212058664 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
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 6900/10K Virtual Chassis

These instructions document how to upgrade an OS6900 or OS10K virtual chassis to AOS release 7.3.4.R02 using ISSU. Upgrading a VC to 7.3.4.R02 consists of the following steps. The steps should be performed in order:


1. Download the Upgrade Files

Go the to Alcatel-Lucent Service and Support Website and download and unzip the 7.3.4.R02 ISSU upgrade files for the appropriate platform. The archive contains the following:


- OS6900 Image Files **-** Tos.img

- OS10K Image Files **-** Ros.img, Reni.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:

```
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 affect 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.

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        7.3.4.273.R02         212058664 Alcatel-Lucent OS
```

```
OS6900-> 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:

```
OS6900-> 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
```

## Appendix D: Staggered Upgrade - OmniSwitch OS10K/OS6900

These instructions document how to upgrade an OS10K or OS6900 VC to 7.3.4.R02 using a staggered upgrade process. Upgrading an OmniSwitch to 7.3.4.R02 using a staggered upgrade procedure consists of the following steps. The steps should be performed in order.

1. Download the Upgrade Files

Go the to Alcatel-Lucent Service and Support Website and download and unzip the 7.3.4.R02 upgrade files for the appropriate model. The archives contain the following:

- OS6900 Image Files – Tos.img

- OS10K Image Files **-** Ros.img, Reni.img

- Upgrade Script – vcof2-upgrade

**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 a directory to hold the upgrade files on the Master chassis

```
OS10K-> mkdir /flash/issu_dir
```

3. FTP the upgrade files to the directories below on the Master chassis:

- Ros.img and Reni.img - /flash/issu_dir

- vcof2-upgrade - /flash

4. Execute the script on the Master chassis:

```
OS10K-> chmod a+x /flash/vcof2-upgrade
OS10K-> /flash/vcof2-upgrade  issu_dir
```

The script uses the default 'admin' account to FTP the required files to the CMMs. When prompted, enter the password for the 'admin' account.

```
Please enter password for user admin
Password:
```

The above commands perform the following:

4a. Copies the **vcboot.cfg** and **vcsetup.cfg** from the current *Running* directory to **/flash/issu_dir** directory. It also copies the image files and configuration files to the secondary and Slave CMMs. It then creates the special upgrade helper file "**vcupgrade.cfg**" and copies it to the Slave. It then initiates a reload on the Slave with the new software to begin the upgrade process. This process can take approximately 3-5 minutes.

4b. The Slave chassis reboots with the new code and detects the "**vcupgrade.cfg**" file. The Slave chassis shuts down all ports except the VFL ports to the old Master with the old code. This process can take approximately 6-8 minutes and may result in minimal traffic loss.

4c. When the Slave chassis with the new code is ready it reloads the old Master, takes over the Master role with the new code and brings up all ports that were previously shut down. Depending on the network protocols, routes, links, and switch configuration it can take approximately 10-60 seconds to stabilize.

4d. The old Master comes up as the Slave chassis with the new code and joins the VC. This process can take approximately 6-8 minutes and may result in minimal traffic loss.

5. Verify the Software Upgrade

To verify that the software was successfully upgraded to 7.3.4.R02, use the **show microcode** command as shown below:

```
OS10K-> show microcode
/flash/working

Package        Release        Size      Description
-------------+----------------+-----------+------------------
Ros.img       7.3.4.273.R02   106031376   Alcatel-Lucent OS
Reni.img      7.3.4.273.R02   106031376   Alcatel-Lucent OS
```

6. 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
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
```