Troubleshoot ISSU Upgrade on C9800

Contents

Introduction

Prerequisites

- Requirements
- Components Used

Background Information

Pre-Checklist

Potential Problems

- Problem 1: Connection Timed Out
- Problem 2: Invalid or Corrupt File
- Problem 3: Install Operation not Allowed
- Problem 4: System Rollback to Previous Version
- Problem 5: Configuration Compatibility
  - Mismatched Command List – HA Interface Mistmach in Cloud Controller
  - Mismatched Command List – Domain
  - Mismatched Command List – HSRP Traps
  - Parser Return Code – Invalid WPA3 AKM
- Problem 6: ISSU Process Limitations in Cisco IOS XE 17.15 and 17.18

Aborting a Software Install

- Install abort issu
- Clear install state

Verify

Further Troubleshooting

Related Information

Introduction

This document describes the ISSU upgrade pre-checklist and how to troubleshoot potential issues on the Cisco Catalyst 9800 Series Wireless Controller.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Catalyst 9800 Wireless Controller

- High Availability Stateful Switchover (HA SSO)

Components Used

The information in this document is based on these software and hardware versions:

- Cisco Catalyst 9800-L Wireless Controller in HA SSO Pair Version Cisco IOS 17.9.4a & 17.9.5
- AP models (C9130AXI, C9120AXI/E, C9115AXI, AIR-AP4800, AIR-AP3802I/E, AIR-LAP3702I, AIR-AP1852I)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

To perform ISSU, there is a series of background information to follow:

- The device must be in HA SSO pair.
- ISSU supported only to upgrade in these devices, Cisco Catalyst 9800-80, 9800-40, 9800-L, 9800-CL (Private Cloud), CW9800L, CW9800M, CW9800H1, and CW9800H2.
- ISSU downgrade is not supported for Cisco Catalyst 9800 Series Wireless Controller platforms.
- Base image must be Cisco IOS 17.3 and higher.
- ISSU is supported between long-lived releases from the same major release. Example: Cisco IOS 17.15.x to 17.15.y or 17.15.x to 17.18.x is supported.
- ISSU is not supported between major releases. Example: Cisco IOS XE 16.x.x to 17.x.x is not supported.



Note: For more information about ISSU Support between Releases visit In-Service Software Upgrade (ISSU).

Pre-Checklist

Ensure that the system is adequately prepared to upgrade the current software to a later release while the network continues to forward packets using the In-Service Software Upgrade option on the 9800 Controllers.

- Validate both Active and Standby controllers are in INSTALL mode and boot from boots:packages.conf

<#root>

```
WLC#
show version | i Installation mode

Installation mode is
INSTALL



WLC#
show boot

BOOT variable =
bootflash:packages.conf

,12;
CONFIG_FILE variable =
BOOTLDR variable does not exist
Configuration register is 0x2102

Standby BOOT variable =
bootflash:packages.conf

,12;
Standby CONFIG_FILE variable =
Standby BOOTLDR variable does not exist
Standby Configuration register is 0x2102
```



Note: ISSU is not supported in BUNDLE mode. Refer to Change Installation Modes on Catalyst 9800 Wireless Controller technote on how to do the conversion.

- Ensure both chassis have same and latest ROMMON version. This requirement only applies to physical appliances.

```
<#root>
WLC#
show rom-monitor chassis active r0


==========================================================
System Bootstrap,
```

```
Version 16.12(3r)

, RELEASE SOFTWARE
Copyright (c) 1994-2019  by cisco Systems, Inc.

WLC#

show rom-monitor chassis standby r0

============================================================
System Bootstrap,

Version 16.12(3r)

, RELEASE SOFTWARE
Copyright (c) 1994-2019  by cisco Systems, Inc.
```

Note: Refer Upgrading Field Programmable Hardware Devices for Cisco Catalyst 9800 to check latest rommon information and upgrade procedure.

- Ensure HA SSO is up and healthy.

<#root>

```
WLC#

show chassis rmi


Chassis/Stack Mac Address : f4bd.9e57.9d80 - Local Mac Address
Mac persistency wait time: Indefinite
Local Redundancy Port Type: Twisted Pair
                                          H/W   Current
Chassis#   Role    Mac Address     Priority Version  State                 IP                RMI-IP
-------------------------------------------------------------------------------------------------------
*1       Active   f4bd.9e57.9d80     2      V02

Ready

              169.254.10.2       NA

<--Both Chassis in Ready state


 2       Standby  f4bd.9e57.8b20     1      V02

Ready
```

```
              169.254.10.4       NA
```

Always check redundancy information, ensure peer controller is in "Standby Hot" and Communications "Up". Additionally, always go into the Standby peer controller command line and ensure it is not in Recovery state.



Tip: You can refer Handling recovery mechanism for detailed information on how to manage the recovery mechanism effectively.

<#root>

```
WLC#
```

show redundancy

```
Redundant System Information :
------------------------------
       Available system uptime = 8 hours, 38 minutes
Switchovers system experienced = 0
              Standby failures = 0
        Last switchover reason = none
                 Hardware Mode = Duplex
    Configured Redundancy Mode = sso
     Operating Redundancy Mode = sso
              Maintenance Mode = Disabled
                Communications =
```

Up

Current Processor Information

```
 :
-------------------------------
               Active Location = slot 1
        Current Software state =
```

ACTIVE

```
       Uptime in current state = 8 hours, 38 minutes
                 Image Version = Cisco IOS Software [Cupertino], C9800 Software (C9800_IOSXE-K9), Versi
Technical Support: Cisco Support
Copyright (c) 1986-2023 by Cisco Systems, Inc.
Compiled Fri 20-Oct-23 10:28 by mcpre
                         BOOT =
```

bootflash:packages.conf

```
,12;
                  CONFIG_FILE =
        Configuration register = 0x2102
               Recovery mode   = Not Applicable
             Fast Switchover   = Enabled
                Initial Garp   = Enabled
```

Peer Processor Information

```
 :
----------------------------
              Standby Location = slot 2
        Current Software state =
```

STANDBY HOT

```
       Uptime in current state = 8 hours, 35 minutes
                 Image Version = Cisco IOS Software [Cupertino], C9800 Software (C9800_IOSXE-K9), Versi
Technical Support: Cisco Support
Copyright (c) 1986-2023 by Cisco Systems, Inc.
Compiled Fri 20-Oct-23 10:28 by mcpre
                           BOOT =
```

bootflash:packages.conf

```
,12;
                  CONFIG_FILE =
        Configuration register = 0x2102
```

- In the case of C9800-CL validate both chassis have the same HA Interfaces using the show romvar command

<#root>

```
WLC_CL#
```

show romvar

```
ROMMON variables:
SWITCH_NUMBER = 1
CHASSIS_HA_IFNAME = GigabitEthernet3
```

<<< Same HA interface

```
CHASSIS_HA_IFMAC = XX:XX:XX:XX:XX:XX
SWITCH_PRIORITY = 2

WLC_CL-stby#
```

show romvar

```
ROMMON variables:
SWITCH_NUMBER = 2
CHASSIS_HA_IFNAME = GigabitEthernet3
```

<<< Same HA interface

```
CHASSIS_HA_IFMAC = YY:YY:YY:YY:YY:YY
SWITCH_PRIORITY = 1
```

If HA Interface numbers are different do not proceed with ISSU. Refer the **Potential Problems** section in this document.



Tip: For more details regarding HA SSO setup and verification review the High Availability SSO on Catalyst 9800 Quick Start Guide.

- Ensure sufficient bootflash memory available to store the image in both active and standby controllers, make sure there is space for at least three times the size of new code.

<#root>

```
WLC#
```

dir bootflash: | in free

```
26458804224 bytes total (
```

21142224896 bytes free

```
)
WLC#
```

dir stby-bootflash: | in free

```
26458804224 bytes total (
```

21293092864 bytes free

```
)
```

In the case of not enough space in bootflash consider cleaning up the old installation files using the install remove inactive.

<#root>

```
WLC#

install remove inactive


install_remove: START Mon Feb 12 18:40:00 UTC 2024
install_remove: Removing IMG
Cleaning up unnecessary package files
...

The following files will be deleted:                                    <-- Review files to be deleted


[R0]: /bootflash/C9800-CL-rpboot.17.09.04.SPA.pkg
[R1]: /bootflash/C9800-CL-rpboot.17.09.04.SPA.pkg
[R0]: /bootflash/C9800-CL-universalk9.17.12.01.SPA.bin
[R1]: /bootflash/C9800-CL-universalk9.17.12.01.SPA.bin
[R0]: /bootflash/C9800-CL-mono-universalk9.17.09.04.SPA.pkg
[R1]: /bootflash/C9800-CL-mono-universalk9.17.09.04.SPA.pkg


Do you want to remove the above files? [y/n] y
```

- Check the current Install states. Ensure there is no inactive or uncommitted software on the controller, the current version must be marked **C** meaning it is "Activated and Committed".
  To view the summary of the active packages in the system, use the show install summary command:

<#root>

```
WLC#

show install summary


[ Chassis 1/R0 ] Installed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
            C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------------
Type  St   Filename/Version
--------------------------------------------------------------------------------

IMG   C    17.09.04a.0.6    <-- Only one version can be activated and committed.


--------------------------------------------------------------------------------
Auto abort timer: inactive
--------------------------------------------------------------------------------
```

- Validate the ISSU state using the show issu state detail command and ensure there is “No ISSU

operation is in progress”.

<#root>

```
WLC#
```

show issu state detail

```
Current ISSU Status: Enabled
Previous ISSU Operation: N/A
=====================================================
System Check               Status
-----------------------------------------------------
Platform ISSU Support      Yes
Standby Online             Yes
Autoboot Enabled           Yes
SSO Mode                   Yes
Install Boot               Yes
Valid Boot Media           Yes
Operational Mode           HA-REMOTE
=====================================================
```

No ISSU operation is in progress   <-- If different consider abort any previous ISSU process.



Caution: Schedule the upgrade when your network is stable and steady and avoid any power interruption during the ISSU upgrade process.



Note: For ISSU upgrade refer instructions in Chapter: In-Service Software Upgrade from Cisco Catalyst 9800 Series Wireless Controller Software Configuration Guide.
Optionally, after ISSU upgrade you can Fallback to Primary controller using the **redundancy force-switchover** command.

Potential Problems

Problem 1: Connection Timed Out

If TFTP server became unreachable, then connection time out can happen.

<#root>

```
install_add: START Tue Feb  6 18:12:02 Pacific 2024
Downloading file tftp://10.31.104.72//ayhusain/C9800-L-universalk9_wlc.17.09.05.SPA.bin
FAILED:
```

Failed to download file

```
 tftp://10.31.104.72//ayhusain/C9800-L-universalk9_wlc.17.09.05.SPA.bin:

Timed out
```

Solution: Ensure the TFTP server is up and reachable or change to a different transport type to start over the file transfer process.

Problem 2: Invalid or Corrupt File

If upgrade is interrupted due to corrupt file or invalid file.

```
<#root>

install_add: START Tue Feb  6 18:54:46 Pacific 2024
FAILED: install_add : bootflash:C9800-L-universalk9_wlc.corrupt_17.09.05.SPA.bin

is not valid file

 or cannot be handled by install CLI.
```

Solution: Ensure the image MD5 checksum matches using the verify /md5 command. If the code does not match download the image again from the official Cisco Software Download site and upload it in the controller. If using tftp server ensure files are sent in binary mode to avoid file modification.

```
<#root>

WLC#

verify /md5

 bootflash:C9800-L-universalk9_wlc.17.09.05.SPA.bin
.....................................................................Done!
verify /md5 (bootflash:C9800-L-universalk9_wlc.17.09.05.SPA.bin) =

07ff2f59787530d2814874ea39416b46
```

Tip: To prevent connectivity problems and save time during the upgrade maintenance window, transfer the bin file to the C9800 flash beforehand.

Problem 3: Install Operation not Allowed

This scenario is applicable when install activate issu command is issued before completing AP pre-

download.

<#root>

```
install_activate: START Tue Feb 6 19:09:10 Pacific 2024
System configuration has been modified.
Press Yes(y) to save the configuration and proceed.
Press No(n) for proceeding without saving the configuration.
Press Quit(q) to exit, you may save configuration and re-enter the command. [y/n/q]
y
Building configuration...
[OK]Modified configuration has been saved
install_activate: Activating ISSU
NOTE: Going to start Activate ISSU install process
STAGE 0: System Level Sanity Check
================================================
--- Verifying install_issu supported ---
--- Verifying standby is in Standby Hot state ---
--- Verifying booted from the valid media ---
--- Verifying AutoBoot mode is enabled ---
--- Verifying Platform specific ISSU admission criteria ---

CONSOLE: FAILED: Install operation is not allowed.



 Reason -> AP pre-image download is mandatory for hitless software upgrade.


 Action -> Trigger AP pre-image download.
FAILED: Platform specific ISSU admission criteria
ERROR: install_activate  exit(2 )  Tue Feb  6 19:09:43 Pacific 2024
```

Solution: In such instances, run ap image pre-download command and then proceed with the activation only after the AP predownload is completed. If AP download is slow verify the link between AP and the controller.

<#root>

```
WLC#terminal monitor
WLC#

ap image predownload


*Feb 12 13:26:21.829: %UPGRADE-5-AP_SW_UPDATE_LOG_MSG: Chassis 1 R0/0: wncmgrd: AP SW update PREPARE:

predownload is in progress



WLC#
```

show ap image

```
Total number of APs : 9
Number of APs
Initiated : 0
Downloading : 0
Predownloading : 0
Completed downloading : 1
Completed predownloading : 1
Not Supported : 0
Failed to Predownload : 0
```

Predownload in progress : Yes

```
AP Name Primary Image Backup Image Predownload Status Predownload Version Next Retry Time Retry Count M
-----------------------------------------------------------------------------------------------------
AP00f6.63c8.6a14 17.9.4.27 17.9.5.47 Complete 17.9.5.47 0 0 CAPWAP
AP38ED.18C6.0C60 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
AP70D3.79D6.0A00 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
AP7488.BB66.1CF2 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
AP4C71.0DC8.9D3A 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
AP6C71.0DF4.29CC 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
APA4B2.3986.C900 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
APC828.E56F.6190 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
APA453.0E5B.3E30 17.9.4.27 17.9.5.47 None 0.0.0.0 N/A 0 N/A
WLC#
*Feb 12 13:36:32.832: %UPGRADE-5-AP_SW_UPDATE_LOG_MSG: Chassis 1 R0/0: wncmgrd:
```

AP SW update Predownload is successful

.

<--AP predownload completed

WLC#

install activate issu **<-- Then activate ISSU upg**

```
install_activate: START Mon Feb 12 13:26:50 Pacific 2024
install_activate: Activating ISSU
*Feb 12 13:26:50.895: %INSTALL-5-INSTALL_START_INFO: Chassis 1 R0/0: install_engine: Started install ac
NOTE:
```

Going to start Activate ISSU install process

Problem 4: System Rollback to Previous Version

A common event during ISSU upgrade is that the system apparently rollback on its own to previous version

hours after the upgrade finished. When the system reloads after activating a new image, the auto-abort-timer is triggered. If the timer expires before committing the new image, then the installation process is aborted; the device reloads again and boots up with the previous version of the software image.
Solution: To avoid this issue make sure to issue the 'install commit' command within 6 hours (default time) of the 'install activate issu' command, otherwise the system can revert to the original committed position.

<#root>

```
WLC#
```

show issu state detail

Current ISSU Status: In Progress

```
Previous ISSU Operation: N/A
=====================================================
System Check                    Status
-----------------------------------------------------
Platform ISSU Support           Yes
Standby Online                  Yes
Autoboot Enabled                Yes
SSO Mode                        Yes
Install Boot                    Yes
Valid Boot Media                Yes
Operational Mode                HA-REMOTE
=====================================================
Added Image:
Name                            Compatible
-----------------------------------------------------
17.09.05.0.6450                 Yes

Operation type: Step-by-step ISSU
Install type : Image installation using ISSU
Current state : Activated state
Last operation: Switchover

Completed operations:
Operation Start time
-----------------------------------------------------
Activate location standby chassis 2/R0 2024-02-12:13:27:12
Activate location active chassis 1/R0 2024-02-12:13:38:43
Switchover 2024-02-12:13:43:10
State transition: Added -> Standby activated -> Active switched-over
```

Auto abort timer: automatic, remaining time before rollback: 04:25:37 <-- Remaining time before rol

```
Abort Reason: N/A
Running image: bootflash:packages.conf
Operating mode: sso, terminal state reached

WLC#
```

show install summary

```
[ Chassis 1/R0 2/R0 ] Installed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------------
Type St Filename/Version
--------------------------------------------------------------------------------

IMG U 17.09.05.0.6450



 <-- System is activated but uncommited


--------------------------------------------------------------------------------

Auto abort timer: active , time before rollback - 04:25:52



<-- Remaining time before rollback


--------------------------------------------------------------------------------


WLC#

install commit



<-- Commit the new code


install_commit: START Mon Feb 12 15:20:35 Pacific 2024
install_commit: Committing ISSU

*Feb 12 15:20:36.362: %INSTALL-5-INSTALL_START_INFO: Chassis 2 R0/0: install_engine: Started install co
NOTE: Going to start Commit ISSU install process

STAGE 0: System Level Sanity Check
================================================
--- Verifying install_issu supported ---
--- Verifying standby is in Standby Hot state ---
--- Verifying booted from the valid media ---
--- Verifying AutoBoot mode is enabled ---
--- Verifying Platform specific ISSU admission criteria ---
Finished Initial System Level Sanity Check

STAGE 1: Dispatching the commit command to remote
================================================
--- Starting install_commit_remote ---
Performing install_commit_remote on Chassis remote
[1] install_commit_remote package(s) on chassis 1/R0
[1] Finished install_commit_remote on chassis 1/R0
```

```
install_commit_remote: Passed on [1/R0]
Finished install_commit_remote
```

SUCCESS: install_commit Mon Feb 12 15:21:12 Pacific 2024

```
WLC#
*Feb 12 15:21:12.367: %INSTALL-5-INSTALL_COMPLETED_INFO: Chassis 2 R0/0: install_engine: Completed inst
```

```
WLC#
```

show issu state detail

<-- Verify ISSU state is successful

```
Current ISSU Status: Enabled
```

Previous ISSU Operation: Successful

```
============================================================
System Check Status
------------------------------------------------------------
Platform ISSU Support Yes
Standby Online Yes
Autoboot Enabled Yes
SSO Mode Yes
Install Boot Yes
Valid Boot Media Yes
Operational Mode HA-REMOTE
============================================================
```

No ISSU operation is in progress

```
WLC#
```

show install summary

<-- Verify new code is Activated & Committed

```
[ Chassis 1/R0 2/R0 ] Installed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------------
Type St Filename/Version
--------------------------------------------------------------------------------
```

```
IMG C 17.09.05.0.6450



--------------------------------------------------------------------------------
Auto abort timer: inactive
--------------------------------------------------------------------------------
```

(Optional) To stop the auto-abort-timer use the install auto-abort-timer stop command. This stops the termination timer so that the upgrade process is not terminated after the default auto-abort time.

```
<#root>

WLC#

install auto-abort-timer stop



install_auto_abort_timer: START Mon Feb 12 15:13:59 Pacific 2024
Abort timer cancelled, auto-rollback will not take place
Please use 'install abort issu' to rollback the ISSU upgrade
SUCCESS: install_auto_abort_timer Mon Feb 12 15:14:00 Pacific 2024

WLC#

show install summary



[ Chassis 1/R0 2/R0 ] Installed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------------
Type St Filename/Version
--------------------------------------------------------------------------------

IMG U 17.09.05.0.6450




 <-- You still need to commit new image to persist



--------------------------------------------------------------------------------

Auto abort timer: inactive <-- Remaining time before rollback. Commit still needed for new image to pers



--------------------------------------------------------------------------------
```

(Optional) To modify the auto abort timer use the activate **issu auto-abort-timer** command. This can be done before activating the image.

```
<#root>

WLC#

install activate issu auto-abort-timer

 ?
<30-1200> Number of minutes the abort-timer is set for
```

Problem 5: Configuration Compatibility

Certain configurations cannot be compatible with the new Cisco IOS version and can cause issues during the upgrade. Configuration synchronization failures cause the standby controller reload and rollback to original software image.

To resolve configuration issues remove the offending configuration. Provided a list of the most common configuration compatibility issues seen during ISSU upgrades.



Tip: Always review the Before You Upgrade section in the target image Release Notes for important details on software changes and configuration adjustments to consider prior to the upgrade.

Mismatched Command List – HA Interface Mistmach in Cloud Controller

A common error in ISSU upgrade is when the C9800-CL WLCs have defined different High Availability Interfaces causing the Mismatched Command List (MCL) to terminate the ISSU Operation on the active controller.

Solution: If your controllers have different HA interfaces then ISSU is not possible. Redeploy your controllers and ensure the HA interface mapping in the virtual environment is the same for both controllers.



Note: Refer the 9800-CL network interface mappings section in the Cisco Catalyst 9800-CL Wireless Controller for Cloud Deployment Guide.

```
<#root>

WLC#

show redundancy config-sync failures historic mcl
```

```
Mismatched Command List
-----------------------

-interface GigabitEthernet3          <-- Gi3 is detected as MCL leading to config sync failure.


 ! <submode> "interface"
 negotiation auto
 no mop enabled
 no mop sysid
 ! </submode> "interface"

WLC#

show romvar


ROMMON variables:
SWITCH_NUMBER = 1
CHASSIS_HA_IFNAME = GigabitEthernet3

<-- HA Interface differs


CHASSIS_HA_IFMAC = XX:XX:XX:XX:XX:XX
SWITCH_PRIORITY = 2

WLC-stby#

show romvar


ROMMON variables:
SWITCH_NUMBER = 2
CHASSIS_HA_IFNAME = GigabitEthernet1

<-- HA Interface differs


CHASSIS_HA_IFMAC = YY:YY:YY:YY:YY:YY
SWITCH_PRIORITY = 1
```

Mismatched Command List – Domain

Controller upgrade from Cisco IOS 17.3.x to any release using ISSU can fail if the domain command is configured.

Solution: Run the no domain command before starting an ISSU upgrade because the domain command has been removed from Cisco IOS 17.6.x.

<#root>

WLC#

show redundancy config-sync failures mcl

```
Mismatched Command List
-----------------------
```

-domain example.local. <-- Run "no domain" from configuration

```
 ! <submode> "cent_domain"
! </submode> "cent_domain"
```

Mismatched Command List – HSRP Traps

Controller upgrade from Cisco IOS 17.3.x to any release using ISSU can fail if the snmp-server enable traps hsrp command is configured.

Solution: Remove the snmp-server enable traps hsrp command from the configuration before starting an ISSU upgrade because that command has been removed from Cisco IOS 17.4.x.

<#root>

WLC#

show redundancy config-sync failures mcl

```
Mismatched Command List
-----------------------
```

-snmp-server enable traps hsrp

<-- Remove hsrp trap

Parser Return Code – Invalid WPA3 AKM

Controller upgrade to Cisco IOS 17.9.x and onwards using ISSU can fail if there is a WLAN that is misconfigured with WPA3 without Authentication Key Management (AKM). Starting Cisco IOS 17.9.x release it is mandatory to have a valid combination, requiring the enforcement of the AKM parameter for WPA3. During the ISSU process, if the WLC detects an invalid WPA3 configuration, it leads to a configuration synchronization failure.

Solution: Avoid this condition by configuring the appropriate AKM for WPA3 before starting ISSU upgrade.

```
<#root>

WLC#

show redundancy config-sync failures prc


PRC Failed Command List
-----------------------
wlan test 1 test
! <submode> "wlan"

- no shutdown       <-- The wlan shuts down due to the invalid WPA3 configuration


! </submode> "wlan"
```

Note: To configure WPA3, see the Chapter: Wi-Fi Protected Access 3 of the Cisco Catalyst 9800 Series Wireless Controller Software Configuration Guide.

Problem 6: ISSU Process Limitations in Cisco IOS XE 17.15 and 17.18

Cisco has identified significant stability and configuration synchronization issues when performing an In-Service Software Upgrade (ISSU) on Cisco IOS XE versions 17.15.x and 17.18.x. These issues, tracked under Cisco bug ID CSCws19380, Cisco bug ID CSCws35670 and Cisco bug ID CSCwr15775.

Recommendation: Due to these defects, the ISSU process must be avoided when upgrading to versions 17.15.1 - 17.15.4d, 17.18.1, and 17.18.2 releases. To maintain network stability, customers are advised to utilize the standard, non-ISSU upgrade process. The defects are fixed, with ISSU operational, on both trains from versions 17.15.5 and 17.18.3.

Symptoms can vary, including:

- Controller crash
- NETCONF is broken after upgrade
- Missing 802.11be profiles that cause WLANs not to be broadcast
- WLANs are not pushed to the APs
- GUI is unresponsive

Recovery – Delete the persistent database configuration. Reload both controllers without saving the configuration (configuration is recreated from startup-config).

- delete /force /recursive bootflash:.dbpersist/persistent-config.tar.gz
- delete /force /recursive bootflash:.dbpersist/persistent-config.meta
- delete /force /recursive stby-bootflash:.dbpersist/persistent-config.tar.gz
- delete /force /recursive stby-bootflash:.dbpersist/persistent-config.meta

Detection

The 802.11be profile issue has been included in WCAE 1.3. Additional symptoms are currently under evaluation for automated detection.

If you have performed ISSU from older releases, such as 17.9 or 17.12 to 17.15 or 17.18, you can be impacted. In this case, perform the recommended recovery process.

Aborting a Software Install

Install abort issu

Manually abort the activation of a software image using the **install abort issu** command to cancel current process and return the system to the version that was running before installing the new software. Use this command before issuing the install commit.

<#root>

```
WLC#terminal monitor
WLC#
```

install abort issu

```
install_abort: START Fri Jan XX 16:50:00 EDT 2024
<5>%INSTALL-5-INSTALL_START_INFO: R0/0: install_engine: Started install abort ISSU
```

Once finished verify ISSU status.

<#root>

```
WLC#
```

show issu state detail

```
Current ISSU Status: Enabled
```

Previous ISSU Operation: Abort Successful

```
=====================================================
System Check Status
-----------------------------------------------------
Platform ISSU Support Yes
Standby Online Yes
Autoboot Enabled Yes
SSO Mode Yes
Install Boot Yes
Valid Boot Media Yes
=====================================================

No ISSU operation is in progress
```

Clear install state

If there is an unwanted ISSU operation that could not be cleared issuing the abort command you can manually clean up the internal installation states.

⚠ **Caution**: Use this procedure with caution as reload can be required for clear install state process.

---

1. Enable Service Internal in the global configuration mode.

```
<#root>

WLC#

conf t


WLC(config)#

service internal


WLC(config)#

end
```

2. Clean ISSU state using the clear install state command.

```
<#root>

WLC#
```

```
clear install state
```

3. Verify the install state using the show install summary and **show issu state** detail command.

4. Disable Service Internal in the global configuration mode.

<#root>

```
WLC#
```

```
conf t
```

```
WLC(config)#
```

```
no service internal
```

```
WLC(config)#
```

```
end
```

Verify

To verify the upgrade process and to check the mismatched command list.

```
#show install summary
#show issu state detail
#show install log
#show chassis rmi
#show redundancy
#show ap image
#show redundancy config-sync failures mcl
#show redundancy config-sync failures historic mcl
#show redundancy config-sync failures bem
#show redundancy config-sync failures prc
```

Further Troubleshooting

- Collect show tech wireless before and after the event, or **show run** and **show ap summary** in scale scenarios where show tech wireless takes a long time.
- Use WLC terminal monitor to check for errors in configuration synchronization. If possible, access the console from both active and standby controllers.

- Archive logs for the last 1 day or last 2 hours once both WLCs are in High Availability (HA). Use the command:

```
#request platform software trace archive last 1 days target harddisk:ARCHIVE
```

Related Information

- Cisco Wireless Solutions Software Compatibility Matrix
- Recommended Cisco IOS XE Releases for Catalyst 9800 Wireless LAN Controllers
- Upgrade and Downgrade of Catalyst 9800 Controllers: Tips and Tricks
- C9800 Change Installation Modes
- C9800 Recommended ROMMON Version
- ISSU Support between Releases
- Configure High Availability SSO on Catalyst 9800 | Quick Start Guide
- C9800 ISSU Upgrade Process
- Hot patching and ISSU upgrade guide