Troubleshoot ISSU Upgrade Failures on Catalyst 9000 Series Switches

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Introduction

This document describes how to identify and resolve common issues during ISSU upgrades on Cisco Catalyst 9000 Series Switches.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Cisco Catalyst 9000 Series architecture and deployment models
- Software maintenance upgrades (SMU) and ISSU process
- StackWise Virtual and StackWise technologies

Components Used

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

- Cisco Catalyst 9400, 9500, and 9600 Series Switches
- Cisco IOS® XE
- Dual supervisor and StackWise Virtual deployments

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

In-Service Software Upgrade (ISSU) allows upgrade of switch software while the network remains operational. Several conditions must exist for ISSU to succeed: the software path must be supported, stack members must run matching versions, and firmware must align. Failure to meet these conditions can interrupt the upgrade or cause network instability.

Perform Initial Checks Before ISSU Upgrade

Before the ISSU upgrade begins, ensure these checks:

1. Confirm that the current and target Cisco IOS XE versions support ISSU.

2. Verify that the upgrade path is listed as supported in the Cisco ISSU Compatibility Matrix.

3. Verify that all stack members or supervisors run the same software image.

4. Ensure that both active and standby supervisors use the same ROMMON versions.

5. Confirm the switch operates in install mode (the boot variable must be packages.conf).

6. Review memory and flash space availability for the new image.

7. Verify the switch is not in a degraded or non-redundant state.

8. Validate that no active faults, hardware alarms, or critical logs exist.

9. Confirm that the **show issu state detail** output indicates that no ISSU operation is in progress.

For example:

```
switch# show issu state detail
Current ISSU Status: Enabled
Previous ISSU Operation: N/A
<snip>
No ISSU operation is in progress <<<<<<<<<
```

⚠ **Caution**: If ISSU is already in progress, do not initiate another upgrade.

Run these commands in order to assist with validation:

- **show boot system**
- **show issu state detail**
- **show redundancy**
- **show module**

Troubleshoot Common ISSU Upgrade Failures

ISSU State Stuck in Progress

Symptom: The command **show issu state detail** shows ISSU is in progress even though the upgrade has not completed or failed explicitly. This condition can block further ISSU attempts and disrupt normal upgrade workflows.

The error message **ISSU in progress** can appear:

```
FAILED: ISSU in progress; please use install abort issu to abort ISSU operation OR install commit to co
```

Verification: Run **show issu state detail** and look for:

```
Current ISSU Status: In Progress
Previous ISSU Operation: N/A
```

If the status remains in progress without change over an extended period, the process is likely stalled.

Root Cause: Unexpected interruption during an earlier ISSU attempt or incompatibility failure.

Solution: Run the **install abort issu** command.

If ISSU is still in progress after trying to abort ISSU operation, perform the next steps:

 **Caution**: This procedure can trigger a reload of the whole switch or stack.

Run **install remove inactive** command:

```
Switch#install remove inactive

install_remove: START Thu Jun 12 04:31:54 UTC 2025

install_remove: Removing IMG

Cleaning up unnecessary package files
```

Enable service internal:

```
switch(config)# service internal
```

Clear the current install state:

```
switch#clear install state
```

 **Warning**: Never start another ISSU while an ISSU operation remains active. This can lead to software corruption or device instability.

Configuration Compatibility Between Releases

Symptom: Certain configurations are not compatible with the new software version and can cause issues during the upgrade. This mismatched command list (MCL) error "MCL-Terminating the current ISSU Operation" can appear:

```
ERROR: MCL-Terminating the current ISSU Operation. ISSU Abort operation is initiated
ERROR: Once ISSU abort is done please check full list of mismatched commands via:
ERROR: show redundancy config-sync failures historic mcl
```

Solution: Run the **show redundancy config-sync failures historic mcl** command and remove the mismatched commands if possible. If the commands cannot be removed, perform a standard upgrade.

Note: Verify that no ISSU upgrade is in progress to initiate a new upgrade. Refer to **ISSU State Stuck in Progress** section.

Incompatibility Due to ROMMON or Software Version Mismatch

- Symptom: ISSU fails to proceed or reverts to non-ISSU reload.

This error can appear:

```
%REDUNDANCY-2-IPC: IOS versions do not match.
```

Verification: Compare Cisco ROMMON and Cisco IOS versions using the **show version** command. In dual-SUP systems, confirm that both SUPs use the same firmware and software versions.

Solution: Upgrade Cisco ROMMON or Cisco IOS to the same version before initiating ISSU.

Note: Refer to the platform-specific release notes for ROMMON upgrade steps.

Recover from ISSU Partial Upgrade or ROMMON Mode

Partial Upgrade

- Verification: For a partial upgrade, verify no ISSU upgrade is still in progress. If ISSU is still in progress, monitor the ISSU operation until it completes or rolls back within the duration documented for the platform and release.

- Solution: If the operation does not progress within that duration, use the recovery procedure in the ISSU State Stuck in Progress section. Verify that no ISSU or install operation remains active and that all redundant units run a consistent software version. Then use the standard upgrade procedure.

Switch or Supervisor Enters ROMMON Mode

- Verification: Console to the affected unit and verify status.

- Solution: Look for the Cisco IOS XE .bin image file or packages.conf file to recover the switch or supervisor, refer to the ROMMON Guide for detailed steps to recover the unit.

Related Information

- ISSU Compatibility Matrix
- ISSU Upgrade Guide
- Upgrade Guide for Catalyst 9000 Switches
- Troubleshoot Rommon on Catalyst 9000
- Upgrading Catalyst 9500 Switches
- Upgrading Catalyst 9400 Switches
- Cisco Technical Support & Downloads