



## Configuring ISSU

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## Prerequisites for Performing ISSU

The following prerequisites apply for performing ISSU:

- The active switch must have access to the new IOS XE image or pre-load it into flash.
- The switch must be running in install mode.
- Non-Stop Forwarding (NSF) must be enabled.

## Information About ISSU

ISSU is a process that upgrades an image to another image on a device while the network continues to forward packets. ISSU helps network administrators avoid a network outage when performing a software upgrade. The images are upgraded in install mode wherein each package is upgraded individually.

ISSU supports upgrade and rollback of software. It can be performed either in a single step, or in three-steps.

Cisco StackWise Virtual solution supports ISSU. This solution comprises of two switches that are connected together to form one virtual switch. For more information, see the *Configuring Cisco StackWise Virtual* chapter in this guide.

### ISSU Upgrade

The following steps describe the process that is followed in performing ISSU:

1. Copy the new image to the standby and active switches.
2. Unzip the files and copy packages to both the active and standby switches.

3. Install the packages on the standby switch.
4. Restart the standby switch.  
The standby switch is now upgraded to the new software.
5. Install the packages on the active switch.
6. Restart the active switch and switchover the standby to new active switch. After the switchover, the new standby switch will be up with the new software. The new software image is already installed on the new active switch, hence ISSU is completed.

### ISSU Upgrade: 3-Step Work Flow

This workflow involves three steps—add, activate, and commit. After activation, all switches are upgraded to new software version except that the software is not committed automatically but must be performed manually via the **install commit** command. The advantage of this approach is the system can be rolled back to a previous software version. The system automatically rolls back if the rollback timer is not stopped using the **install abort-timer-stop** or the **install commit** command. If the rollback timer is stopped, the new software version could be run on the device for any duration and then rolled back to the previous version.

### ISSU Upgrade: 1-Step Work Flow

This workflow involves only one step and helps in optimization. You cannot roll back as the upgrade is committed automatically.

For more information about ISSU release support and recommended releases, see Technical References → [In-Service Software Upgrade \(ISSU\)](#).

## Restrictions and Guidelines for Performing ISSU

- ISSU is supported only if both the switches in Stackwise Virtual are booted in install mode. (If the chassis is booted in a bundle mode, ISSU is not supported).
- Upgrading hardware and software simultaneously is not supported. Only one upgrade operation can be performed at a time.
- We recommend that upgrades are performed during a maintenance window.
- Do not perform any configuration changes while the ISSU process is being performed.
- Downgrade with ISSU is not supported.
- ISSU is not supported for an upgrade from Cisco IOS XE Fuji 16.9.1 to Cisco IOS XE Fuji 16.9.2.
- ISSU from Cisco IOS XE Fuji 16.9.x to Cisco IOS XE Gibraltar 16.10.x or Cisco IOS XE Gibraltar 16.11.x is not supported.
- On Cisco Catalyst 9500 Series Switches - High Performance, ISSU with Cisco StackWise Virtual is supported starting from Cisco IOS XE Gibraltar 16.12.1. Therefore, ISSU upgrades can be performed only starting from this release to a later release.
- While performing ISSU from Cisco IOS XE Fuji 16.9.x to Cisco IOS XE Gibraltar 16.12.x, if **interface-id snmp-if-index** command is not configured with OSPFv3, packet loss can occur. Configure the **interface-id**

**snmp-if-index** command either during the maintenance window or after isolating the device (by using maintenance mode feature) from the network before doing the ISSU.

- Changes made to the parameters of the hardware resources does not take effect after an ISSU upgrade. Perform a restart to load the changes on to the device.

## Upgrade Software Using 1-Step WorkFlow

### Before you begin

- The device must be booted in the install mode.
- Ensure that SVL is up.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	enable  <b>Example:</b> Switch> <b>enable</b>	Enables privileged EXEC mode. Enter your password if prompted.
<b>Step 2</b>	<b>install add file { ftp:   tftp:   flash:   disk: *.bin } activate issu commit</b>	Automates the sequence of all upgrade procedures that include downloading the images to both the switches and expanding into packages, and upgrading each switch as per the procedure.  <b>Note</b> This command throws an error if the switch is booted with a bundle image.

## Upgrade Software Using 3-Step WorkFlow

### Before you begin

- The device must be booted in the install mode.
- Ensure that the SVL link is up.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	enable  <b>Example:</b> Switch> <b>enable</b>	Enables privileged EXEC mode. Enter your password if prompted.

	Command or Action	Purpose
<b>Step 2</b>	<b>install add file { ftp:   tftp:   flash:   disk: *.bin }</b>  <b>Example:</b> Switch# <code>install add file ftp:file.bin</code>	This command downloads the image into the bootflash and expands it on both the switches.
<b>Step 3</b>	<b>install activate issu</b>  <b>Example:</b> Switch# <code>install activate issu</code>	<p>On executing this command, the following sequence of events occurs:</p> <ol style="list-style-type: none"> <li>A rollback timer is started. If the rollback timer expires, the system rolls back to the same state before the start of the ISSU. The rollback timer can be stopped by using the <b>install abort-timer stop</b> command. ISSU can be rolled back using <b>install abort issu</b> command.</li> <li>The standby switch is provisioned with the new software and it reloads with the new software version. Next, the active switch is provisioned with the new software and it reloads. The standby switch with the new image now becomes the active switch and the old active switch becomes the standby.</li> <li>At the end of this procedure, both the switches run with the new software image.</li> </ol>
<b>Step 4</b>	<b>install commit</b>  <b>Example:</b> Switch# <code>install commit</code>	<p>The <b>commit</b> command performs the necessary clean up, enables the new software as permanent (removing the older version of the software) and stops the rollback timer. Any reboot after the commit will boot with new software.</p> <p><b>Note</b> There is no rollback when this command is used.</p>

## Monitoring ISSU

To verify ISSU on StackWise Virtual, use the following **show** commands:

Command	Description
<b>show issu clients</b>	Displays a list of the current ISSU clients--that is, the network applications and protocols supported by ISSU.
<b>show issu message types</b>	Displays the formats, versions, and size of ISSU messages supported by a particular client.

Command	Description
<b>show issu negotiated</b>	Displays results of a negotiation that occurred concerning message versions or client capabilities.
<b>show issu sessions</b>	Displays detailed information about a particular ISSU client, including whether the client status is compatible for the impending software upgrade.
<b>show issu comp-matrix</b>	Displays information regarding the ISSU compatibility matrix.
<b>show issu entities</b>	Displays information about entities within one or more ISSU clients.
<b>show issu state [detail]</b>	Displays the current ISSU state.

## Feature History for ISSU

This table provides release and related information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature	Feature Information
Cisco IOS XE Fuji 16.9.2	ISSU on Cisco StackWise Virtual switches	<p>This feature was introduced.</p> <p>ISSU is a process that upgrades an image to another image on a device while the network continues to forward packets. ISSU helps network administrators avoid a network outage when performing a software upgrade. ISSU is supported in install mode.</p> <p><b>Note</b> You can perform ISSU <i>only</i> in a set-up where Cisco StackWise Virtual is configured.</p> <p>Support for this feature was introduced only on the C9500-12Q, C9500-16X, C9500-24Q, C9500-40X models of the Cisco Catalyst 9500 Series Switches.</p>

Use the Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to <https://cfnng.cisco.com/>.

