



# Cisco IOS-XE In-Service Software Upgrade Process

---

Cisco cBR-8 Routers support the In-Service Software Upgrades (ISSU) for redundant platforms.

## Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

## Contents

- [Hardware Compatibility Matrix for Cisco cBR Series Routers, page 1](#)
- [Information about In-Service Software Upgrade, page 2](#)
- [How to Configure In-Service Software Upgrade, page 3](#)
- [Additional References, page 9](#)
- [Feature Information for In-Service Software Upgrade, page 9](#)

## Hardware Compatibility Matrix for Cisco cBR Series Routers



### Note

The hardware components introduced in a given Cisco IOS-XE Release are supported in all subsequent releases unless otherwise specified.

---

**Table 1: Hardware Compatibility Matrix for the Cisco cBR Series Routers**

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 Supervisor:</p> <ul style="list-style-type: none"> <li>• PID—CBR-CCAP-SUP-160G</li> <li>• PID—CBR-CCAP-SUP-60G</li> <li>• PID—CBR-SUP-8X10G-PIC</li> </ul>	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 CCAP Line Cards:</p> <ul style="list-style-type: none"> <li>• PID—CBR-LC-8D30-16U30</li> <li>• PID—CBR-LC-8D31-16U30</li> <li>• PID—CBR-RF-PIC</li> <li>• PID—CBR-RF-PROT-PIC</li> <li>• PID—CBR-CCAP-LC-40G-R</li> </ul> <p>Cisco cBR-8 Downstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-DS-MOD</li> <li>• PID—CBR-D31-DS-MOD</li> </ul> <p>Cisco cBR-8 Upstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-US-MOD</li> <li>• PID—CBR-D31-US-MOD</li> </ul>

## Information about In-Service Software Upgrade

Cisco cBR-8 Routers support the In-Service Software Upgrades (ISSU) for redundant platforms. The ISSU process allows software to be updated or otherwise modified while packet forwarding continues with the benefit of LCHA. ISSU supports two different software upgrade modes:

- Consolidated package mode
- Subpackages mode

For the Cisco cBR Series Routers, ISSU-compatibility depends on the software subpackage being upgraded and the hardware configuration. Consolidated packages are ISSU-compatible in dual SUP configurations only and have other limitations described later in this document.

The specific procedures in this document represent supported and tested installation sequences. The Cisco IOS-XE system software allows other installation sequences for special purposes under the guidance of Cisco customer support representatives, but the steps in this document should be followed otherwise. These steps should be followed completely, as the Cisco cBR Series Routers are designed to run one version of Cisco IOS-XE for all consolidated packages and subpackages on an SUP, and running subpackages from different versions of Cisco IOS-XE can cause unexpected router behavior.

# How to Configure In-Service Software Upgrade

This section describes the configuration of the ISSU feature:

## Configuring Consolidated Package Upgrade

### Consolidated Package Upgrade

Consolidated packages can only be upgraded using ISSU in dual SUP configurations. ISSU is not supported for consolidated package upgrades in single SUP configurations.

In service one-shot software upgrade procedure enables you to upgrade or downgrade software using a single command. One-shot ISSU needs minimal user intervention or monitoring.

The one-shot upgrade procedure is divided into stages. When a failure occurs, the command execution is stalled and users have to perform the rollback tasks manually. Necessary switchovers are automatically taken care of in one of the upgrade stages. During a switchover, the console and its output are lost. Additional commands are used to connect back to the console.



#### Note

One-shot upgrade does not support multiple upgrades at the same time.

#### Before You Begin

Be sure to complete the following prerequisites before running the consolidated package upgrade process:

- The router has two SUPs setup.
- Standby SUP must be in hot standby mode.
- Auto-boot is enabled.
- Both SUPs are in the consolidated package mode, running the same image from the same path.
- At least 700MB free space on bootflash of both SUPs.

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><b>enable</b></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>

	Command or Action	Purpose
Step 2	<b>request platform software package install node bootflash:</b>  <b>Example:</b>  <pre>Router# request platform software package install node bootflash:subpkg_3_16/cbrsup-universalk9.03.16.00.S.155-3.S-std.SPA.bin</pre>	Upgrades the cBR-8 router using one-shot ISSU procedure.

## Consolidated Package Upgrade Abort

Use **request platform software package install node abort** command to abort the ISSU procedure.

When user abort the ISSU, the linecards will be in the different version with the SUP.

If the customer believes the new version is not stable, and wants to stop the upgrade, he can use this command to abort the current upgrade process. After this command is entered, the customer needs to check both SUP and LC's states to decide what to do in the next step, eg: rollback.

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b>  <pre>Router&gt; enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>request platform software package install node abort</b>  <b>Example:</b>  <pre>Router# request platform software package install node abort</pre>	Abort the ISSU procedure.

## Consolidated Package Upgrade Rollback

If the customer is not satisfied with the new package after the upgrade, the system can go back to previous working state using rollback operation. The linecards that do not in the redundancy group will be reloaded.



### Note

Rollback operation can only go back one step in the history. If the customer wants to go back to an earlier image, downgrade operation should be used.

The following steps can be used to perform the consolidated package upgrade rollback.

## SUMMARY STEPS

1. `enable`
2. `request platform software package install node rollback`

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><code>enable</code></p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<p><code>request platform software package install node rollback</code></p> <p><b>Example:</b></p> <pre>Router# request platform software package install node rollback</pre>	<p>Go back to previous working state.</p>

# Configuring Subpackage Upgrade

## Subpackages Upgrade

Subpackage upgrade allows a subset of the running software to be upgraded. It is intended for patching small and targeted fix instead of full image upgrade. Subpackage upgrade supports both single and dual SUP setup.

### Single SUP Subpackages Upgrade

#### Before You Begin

Be sure to complete the following prerequisites before running the ISSU process:

- Config register autoboot enabled.
- Target patch copied to active SUP in the same directory of the packages.conf file system is booted up with.
- If needed copy patch info file to SUP.
- Enough bootflash disk space on SUP.

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>request platform software package install rp <i>rp-slot</i> file bootflash:</b>  <b>Example:</b> Router# <b>request platform software package install rp 1 file bootflash:cbrsup-universalk9.03.17.00.S.156-1.S-std.SPA.bin</b>	Upgrades the cBR-8 router with one SUP using subpackages ISSU procedure.

## Dual SUPs Subpackages Upgrade

## Before You Begin

Be sure to complete the following prerequisites before running the ISSU process:

- Standby SUP must be in hot standby.
- Config register autoboot enabled.
- Both SUP in sub-package mode, running same base image and patches from same path.
- Target patch copied to active SUP in the same directory of the packages.conf file system is booted up with.
- If needed copy patch info file to both SUPs.
- Enough bootflash disk space on both SUPs.

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>request platform software package install node file bootflash:</b>  <b>Example:</b> Router# <b>request platform software package install node file bootflash:cbrsup-universalk9.03.17.00.S.156-1.S-std.SPA.bin</b>	Upgrades the cBR-8 router with dual SUPs using subpackages ISSU procedure.

## Subpackage Upgrade Rollback

If the customer is not satisfied with the new package after the upgrade, the system can go back to previous working state using rollback operation. The linecards that do not in the redundancy group will be reloaded.



**Note** Rollback operation can only go back one step in the history. If the customer wants to go back to an earlier image, downgrade operation should be used.

The following steps can be used to perform the subpackage upgrade rollback.

### SUMMARY STEPS

1. **enable**
2. **request platform software package install rp 0 rollback**

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>request platform software package install rp 0 rollback</b>  <b>Example:</b> Router# <b>request platform software package install rp 0 rollback</b>	Go back to previous working state.

## Linecard Only In-Service Software Upgrade

If the upgrade fails or is manually aborted at linecard upgrade stage, user can initiate linecard only upgrade.

Use **request platform software package install node linecard-only** command to upgrade only the linecard to the same version as the one in the current active SUP, the customer can choose to upgrade one linecard or all the linecards in the chassis.

This command can be used together with **request platform software package install node file *file-path* noreload linecard** command to upgrade SUP first, and then upgrade linecard.

## DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> <b>enable</b>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>request platform software package install node linecard-only</b>  <b>Example:</b> Router# <b>request platform software package install node linecard-only all</b>	Upgrade all the linecards to the same version as the one in the current active SUP.

## ISSU Upgrade Across Major Releases

Starting from Cisco IOS XE Fuji 16.7.1 release, ISSU can upgrade cbr-8 between major releases.

**Step 1** Copy the base image to active and standby SUPs. Copy the ISSU target image to active SUP.

```
copy <location>/<base_image> <location_active_sup>
copy <location>/<base_image> <location_standby_sup>
copy <location>/<target_image> <location_active_sup>
```

**Step 2** Expand base image to both SUPs at the same folder.

```
request platform software package expand file <location_active_sup>/<base_image>
request platform software package expand file <location_standby_sup>/<base_image>
```

**Step 3** Config register for auto boot (eg) config-reg 0x2102.

```
config-register 0x2102
boot system <location_active_sup>/packages.conf
```

**Step 4** Save then reload router via subpackage mode.

```
reload
```

**Step 5** After boot up, verify base image loaded using **show version running** and check more.

**Step 6** Copy the target image to active SUP in the same location as before.

```
copy <location>/<target_image> <location_active_sup>
```



**Step 7** Using Request command to do ISSU.

```
request platform software package install node file <location_active_sup>/<target_image>
```

## Additional References

The following sections provide references related to the ISSU feature.

### Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for In-Service Software Upgrade

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on [Cisco.com](http://www.cisco.com) is not required.


**Note**

The table below lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

**Table 2: Feature Information for ISSU**

Feature Name	Releases	Feature Information
ISSU	Cisco IOS XE Fuji 16.7.1	This feature was integrated on the cisco cBR Series Converged Broadband Routers.

