



Upgrading the Switch Software

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Finding the Software Version

The package files for the Cisco IOS XE software are stored on the system board flash device (flash:).

You can use the **show version** privileged EXEC command to see the software version that is running on your switch.



Note Although the **show version** output always shows the software image running on the switch, the model name shown at the end of this display is the factory configuration and does not change if you upgrade the software license.

You can also use the **dir filesystem:** privileged EXEC command to see the directory names of other software images that you might have stored in flash memory.

Software Images

Release	Image Type	File Name
Cisco IOS XE Cupertino 17.9.5	CAT9K_IOSXE	cat9k_iosxe.17.09.05.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.05.SPA.bin

Release	Image Type	File Name
Cisco IOS XE Cupertino 17.9.4	CAT9K_IOSXE	cat9k_iosxe.17.09.04.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.04.SPA.bin
Cisco IOS XE Cupertino 17.9.3	CAT9K_IOSXE	cat9k_iosxe.17.09.03.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.03.SPA.bin
Cisco IOS XE Cupertino 17.9.2	CAT9K_IOSXE	cat9k_iosxe.17.09.02.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.02.SPA.bin
Cisco IOS XE Cupertino 17.9.1	CAT9K_IOSXE	cat9k_iosxe.17.09.01.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.01.SPA.bin

Upgrading the ROMMON

To know the ROMMON or bootloader version that applies to every major and maintenance release, see [ROMMON and CPLD Versions](#).

You can upgrade the ROMMON before, or, after upgrading the software version. If a new ROMMON version is available for the software version you are upgrading to, proceed as follows:

- Upgrading the ROMMON in the primary SPI flash device

This ROMMON is upgraded automatically. When you upgrade from an existing release on your switch to a later or newer release for the first time, and there is a new ROMMON version in the new release, the system automatically upgrades the ROMMON in the primary SPI flash device, based on the hardware version of the switch.

- Upgrading the ROMMON in the golden SPI flash device

You must manually upgrade this ROMMON. Enter the **upgrade rom-monitor capsule golden switch** command in privileged EXEC mode.



Note

- Golden ROMMON upgrade is only applicable to Cisco IOS XE Amsterdam 17.3.5 and later releases.
- Golden ROMMON upgrade will fail if the FPGA version is 17101705 or older. To upgrade the FPGA version, see [Upgrading the Complex Programmable Logic Device Version, on page 21](#).
- In case of a Cisco StackWise Virtual setup, upgrade the active and standby supervisor modules.
- In case of a High Availability set up, upgrade the active and standby supervisor modules.

After the ROMMON is upgraded, it will take effect on the next reload. If you go back to an older release after this, the ROMMON is not downgraded. The updated ROMMON supports all previous releases.

Software Installation Commands

Summary of Software Installation Commands	
To install and activate the specified file, and to commit changes to be persistent across reloads: <code>install add file filename [activate commit]</code>	
To separately install, activate, commit, cancel, or remove the installation file: <code>install ?</code>	
add file tftp: <i>filename</i>	Copies the install file package from a remote location to the device and performs a compatibility check for the platform and image versions.
activate [auto-abort-timer]	Activates the file, and reloads the device. The auto-abort-timer keyword automatically rolls back image activation.
commit	Makes changes persistent over reloads.
rollback to committed	Rolls back the update to the last committed version.
abort	Cancels file activation, and rolls back to the version that was running before the current installation procedure started.
remove	Deletes all unused and inactive software installation files.

Upgrading in Install Mode

Follow these instructions to upgrade from one release to another, in install mode. To perform a software image upgrade, you must be booted into IOS via **boot flash:packages.conf**.

Before you begin



Caution You must comply with these cautionary guidelines during an upgrade:

- Do not power cycle the switch.
- Do not disconnect power or remove the supervisor module.
- Do not perform an online insertion and replacement (OIR) of either supervisor (in a High Availability setup), if one of the supervisor modules in the chassis is in the process of a bootloader upgrade or when the switch is booting up.
- Do not perform an OIR of a switching module (linecard) when the switch is booting up.



Note Disconnecting and reconnecting power to a Cisco Catalyst 9400 Series Supervisor 1 Module within a 5-second window, can corrupt the boot SPI.

Note that you can use this procedure for the following upgrade scenarios.

When upgrading from ...	Permitted Supervisor Setup (Applies to the release you are upgrading from)	First upgrade to...	To upgrade to ...
Cisco IOS XE Everest 16.6.1 ¹	Upgrade a single supervisor, and complete the boot loader and CPLD upgrade. After completing the first supervisor upgrade, remove and swap in the second supervisor. After both supervisors are upgraded, they can be inserted and booted in a high availability setup. Note Do not simultaneously upgrade dual supervisors from Cisco IOS XE Everest 16.6.1 to a later release. Doing so may cause hardware damage.	Cisco IOS XE Everest 16.6.3 Follow the upgrade steps as in the Release Notes for Cisco Catalyst 9400 Series Switches, Cisco IOS XE Everest 16.6.x → Upgrading the Switch Software → Upgrading in Install Mode	Cisco IOS XE Cupertino 17.9.x
Cisco IOS XE Everest 16.6.2 and later releases	This procedure automatically copies the images to both active and standby supervisor modules. Both supervisor modules are simultaneously upgraded.	Not applicable	

¹ When upgrading from Cisco IOS XE Everest 16.6.1 to a later release, the upgrade may take a long time, and the system will reset three times due to rommon and complex programmable logic device (CPLD) upgrade. Stateful switchover is supported from Cisco IOS XE Everest 16.6.2

The sample output in this section displays upgrade from Cisco IOS XE Cupertino 17.8.1 to Cisco IOS XE Cupertino 17.9.1 using **install** commands.

Procedure

Step 1

Clean-up

install remove inactive

Use this command to clean-up old installation files in case of insufficient space and to ensure that you have at least 1GB of space in flash, to expand a new image.

The following sample output displays the cleaning up of unused files, by using the **install remove inactive** command:

```
Switch# install remove inactive
install_remove: START Fri Jul 29 14:14:40 UTC 2022
Cleaning up unnecessary package files
No path specified, will use booted path flash:packages.conf
Cleaning flash:
Scanning boot directory for packages ... done.
Preparing packages list to delete ...
cat9k-cc_srdriver.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-espbase.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-rpbase.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-rpboot.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-sipbase.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-sipspa.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-srdriver.17.08.01.SPA.pkg
File is in use, will not delete.
cat9k-webui.17.08.01.SPA.pkg
File is in use, will not delete.
packages.conf
File is in use, will not delete.
done.

The following files will be deleted:
[R0]:
/flash/cat9k-cc_srdriver.17.08.01.SPA.pkg
/flash/cat9k-espbase.17.08.01.SPA.pkg
/flash/cat9k-guestshell.17.08.01.SPA.pkg
/flash/cat9k-rpbase.17.08.01.SPA.pkg
/flash/cat9k-rpboot.17.08.01.SPA.pkg
/flash/cat9k-sipbase.17.08.01.SPA.pkg
/flash/cat9k-sipspa.17.08.01.SPA.pkg
/flash/cat9k-srdriver.17.08.01.SPA.pkg
/flash/cat9k-webui.17.08.01.SPA.pkg
/flash/cat9k-wlc.17.08.01.SPA.pkg
/flash/packages.conf
/flash/cat9k_iosxe.17.08.01.SPA.bin

Do you want to remove the above files? [y/n]y
[R0]:
Deleting file flash:cat9k-cc_srdriver.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-espbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-guestshell.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpboot.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipspa.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-srdriver.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-webui.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-wlc.17.08.01.SPA.pkg ... done.
Deleting file flash:packages.conf ... done.
SUCCESS: Files deleted.
SUCCESS: Files deleted.
--- Starting Post_Remove_Cleanup ---
Performing Post_Remove_Cleanup on Active/Standby
[R0] Post_Remove_Cleanup package(s) on R0
[R0] Finished Post_Remove_Cleanup on R0
Checking status of Post_Remove_Cleanup on [R0]
Post_Remove_Cleanup: Passed on [R0]
Finished Post_Remove_Cleanup
```

```
SUCCESS: install_remove Fri Jul 29 14:16:29 UTC 2022
Switch#
```

Step 2 Copy new image to flash

a) **copy tftp:[[/location]/directory]/filenameflash:**

Use this command to copy the new image from a TFTP server to flash memory. The location is either an IP address or a host name. The filename is specified relative to the directory used for file transfers. Skip this step if you want to use the new image from a TFTP server.

```
Switch# copy tftp://10.8.0.6/image/cat9k_iosxe.17.09.01.SPA.bin flash:
destination filename [cat9k_iosxe.17.09.01.SPA.bin]?
Accessing tftp://10.8.0.6/image/cat9k_iosxe.17.09.01.SPA.bin...
Loading /cat9k_iosxe.17.09.01.SPA.bin from 10.8.0.6 (via GigabitEthernet0/0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 601216545 bytes]
```

```
601216545 bytes copied in 50.649 secs (11870255 bytes/sec)
```

b) **dir flash:**

Use this command to confirm that the image has been successfully copied to flash.

```
Switch# dir flash:*.bin
Directory of flash:/*.bin

Directory of flash:/

434184 -rw- 601216545 Jul 29 2022 10:18:11 -07:00 cat9k_iosxe.17.09.01.SPA.bin
11353194496 bytes total (8976625664 bytes free)
```

Step 3 Set boot variable

a) **boot system flash:packages.conf**

Use this command to set the boot variable to **flash:packages.conf**.

```
Switch(config)# boot system flash:packages.conf
```

b) **no boot manual**

Use this command to configure the switch to auto-boot. Settings are synchronized with the standby switch, if applicable.

```
Switch(config)# no boot manual
Switch(config)# exit
```

c) **write memory**

Use this command to save boot settings.

```
Switch# write memory
```

d) **show bootvar**

Use this command to verify the boot variable (packages.conf) and manual boot setting (no):

```
Switch# show bootvar
BOOT variable = bootflash:packages.conf
MANUAL_BOOT variable = no
BAUD variable = 9600
```

```

ENABLE_BREAK variable = yes
BOOTMODE variable does not exist
IPXE_TIMEOUT variable does not exist
CONFIG_FILE variable =

Standby BOOT variable = bootflash:packages.conf
Standby MANUAL_BOOT variable = no
Standby BAUD variable = 9600
Standby ENABLE_BREAK variable = yes
Standby BOOTMODE variable does not exist
Standby IPXE_TIMEOUT variable does not exist
Standby CONFIG_FILE variable =

```

Step 4 Install image to flash

install add file activate commit

Use this command to install the image.

The following sample output displays installation of the Cisco IOS XE Cupertino 17.9.1 software image in the flash memory:

```

Switch# install add file flash:cat9k_iosxe.17.09.01.SPA.bin
activate commit

install_add_activate_commit: START Fri Jul 29 22:49:41 UTC 2022

*Jul 29 22:49:42.772: %IOSXE-5-PLATFORM: Switch 1 R0/0: Jul 29 22:49:42 install_engine.sh:
%INSTALL-5-INSTALL_START_INFO: Started install one-shot flash:cat9k_iosxe.17.09.01.SPA.bin

install_add_activate_commit: Adding PACKAGE

--- Starting initial file syncing ---
Info: Finished copying flash:cat9k_iosxe.17.09.01.SPA.bin
to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
[1] Add package(s) on switch 1
[1] Finished Add on switch 1
Checking status of Add on [1]
Add: Passed on [1]
Finished Add

install_add_activate_commit: Activating PACKAGE

/flash/cat9k-webui.17.09.01.SPA.pkg
/flash/cat9k-srdriver.17.09.01.SPA.pkg
/flash/cat9k-sipspa.17.09.01.SPA.pkg
/flash/cat9k-sipbase.17.09.01.SPA.pkg
/flash/cat9k-rpboot.17.09.01.SPA.pkg
/flash/cat9k-rpbase.17.09.01.SPA.pkg
/flash/cat9k-guestshell.17.09.01.SPA.pkg
/flash/cat9k-espbase.17.09.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.09.01.SPA.pkg

This operation requires a reload of the system. Do you want to proceed? [y/n]y

--- Starting Activate ---
Performing Activate on all members
[1] Activate package(s) on switch 1
[1] Finished Activate on switch 1
Checking status of Activate on [1]

```

```

Activate: Passed on [1]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
[1] Commit package(s) on switch 1
[1] Finished Commit on switch 1
Checking status of Commit on [1]
Commit: Passed on [1]
Finished Commit

Install will reload the system now!

Chassis 1 reloading, reason - Reload command
SUCCESS: install_add_activate_commit
/flash/cat9k-webui.17.09.01.SPA.pkg
/flash/cat9k-srdriver.17.09.01.SPA.pkg
/flash/cat9k-sipspace.17.09.01.SPA.pkg
/flash/cat9k-sipbase.17.09.01.SPA.pkg
/flash/cat9k-rpboot.17.09.01.SPA.pkg
/flash/cat9k-rpbase.17.09.01.SPA.pkg
/flash/cat9k-guestshell.17.09.01.SPA.pkg
/flash/cat9k-espbase.17.09.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.09.01.SPA.pkg
Fri Jul 29 22:53:58 UTC 2022
Switch#

```

Note Old files listed in the logs will not be removed from flash.

Step 5 Verify installation

After the software has been successfully installed, check that the ten new .pkg files and two .conf are in the flash partition, and also check the version installed on the switch.

a) **dir flash:*.pkg**

The following is sample output of the **dir flash:*.pkg** command:

```

Switch# dir flash:*.pkg
Directory of flash:/*.*pkg
Directory of flash:/
475140 -rw- 2012104 Apr 20 2022 09:52:41 -07:00 cat9k-cc_srdriver.17.08.01.SPA.pkg
475141 -rw- 70333380 Apr 20 2022 09:52:44 -07:00 cat9k-espbase.17.08.01.SPA.pkg
475142 -rw- 13256 Apr 20 2022 09:52:44 -07:00 cat9k-guestshell.17.08.01.SPA.pkg
475143 -rw- 349635524 Apr 20 2022 09:52:54 -07:00 cat9k-rpbase.17.08.01.SPA.pkg
475149 -rw- 24248187 Apr 20 2022 09:53:02 -07:00 cat9k-rpboot.17.08.01.SPA.pkg
475144 -rw- 25285572 Apr 20 2022 09:52:55 -07:00 cat9k-sipbase.17.08.01.SPA.pkg
475145 -rw- 20947908 Apr 20 2022 09:52:55 -07:00 cat9k-sipspace.17.08.01.SPA.pkg
475146 -rw- 2962372 Apr 20 2022 09:52:56 -07:00 cat9k-srdriver.17.08.01.SPA.pkg
475147 -rw- 13284288 Apr 20 2022 09:52:56 -07:00 cat9k-webui.17.08.01.SPA.pkg
475148 -rw- 13248 Apr 20 2022 09:52:56 -07:00 cat9k-wlc.17.08.01.SPA.pkg

491524 -rw- 25711568 Jul 29 2022 11:49:33 -07:00 cat9k-cc_srdriver.17.09.01.SPA.pkg
491525 -rw- 78484428 Jul 29 2022 11:49:35 -07:00 cat9k-espbase.17.09.01.SPA.pkg
491526 -rw- 1598412 Jul 29 2022 11:49:35 -07:00 cat9k-guestshell.17.09.01.SPA.pkg
491527 -rw- 404153288 Jul 29 2022 11:49:47 -07:00 cat9k-rpbase.17.09.01.SPA.pkg
491533 -rw- 31657374 Jul 29 2022 11:50:09 -07:00 cat9k-rpboot.17.09.01.SPA.pkg
491528 -rw- 27681740 Jul 29 2022 11:49:48 -07:00 cat9k-sipbase.17.09.01.SPA.pkg
491529 -rw- 52224968 Jul 29 2022 11:49:49 -07:00 cat9k-sipspace.17.09.01.SPA.pkg
491530 -rw- 31130572 Jul 29 2022 11:49:50 -07:00 cat9k-srdriver.17.09.01.SPA.pkg
491531 -rw- 14783432 Jul 29 2022 11:49:51 -07:00 cat9k-webui.17.09.01.SPA.pkg
491532 -rw- 9160 Jul 29 2022 11:49:51 -07:00 cat9k-wlc.17.09.01.SPA.pkg
11353194496 bytes total (8963174400 bytes free)

```


b) **dir flash:*.conf**

The following is sample output of the **dir flash:*.conf** command. It displays the .conf files in the flash partition; note the two .conf files:

```
Switch# dir flash:*.conf

Directory of flash:/*.conf
Directory of flash:/

16631  -rw- 4882 Jul 29 2022 05:39:42 +00:00  packages.conf
16634  -rw- 4882 Jul 29 2022 05:34:06 +00:00  cat9k_iosxe.17.09.01.SPA.conf
```

- packages.conf—the file that has been re-written with the newly installed .pkg files
- cat9k_iosxe.17.09.01.SPA.conf— a backup copy of the newly installed packages.conf file

c) **show install summary**

The following is sample output of the **show install summary** command:

```
Switch# show install summary

[ R0 ] Installed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
C - Activated & Committed, D - Deactivated & Uncommitted
-----
Type St Filename/Version
-----
IMG C 17.09.01.0.58

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

d) **show version**

After the image boots up, use this command to verify the version of the new image.

The following sample output of the **show version** command displays the Cisco IOS XE Cupertino 17.9.1 image on the device:

```
Switch# show version
Cisco IOS XE Software, Version 17.09.01
Cisco IOS Software [Cupertino], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.9.1,
RELEASE SOFTWARE (fcl)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2022 by Cisco Systems, Inc.
<output truncated>
```

Downgrading in Install Mode

Follow these instructions to downgrade from one release to another, in install mode. To perform a software image downgrade, you must be booted into IOS via **boot flash:packages.conf**.

Before you begin

Note that you can use this procedure for the following downgrade scenarios:

When downgrading from ...	Permitted Supervisor Setup (Applies to the release you are downgrading from)	To ...
Cisco IOS XE Cupertino 17.9.x	This procedure automatically copies the images to both active and standby supervisor modules. Both supervisor modules are simultaneously downgraded. Note Do not perform an Online Removal and Replacement (OIR) of either supervisor module during the process.	Cisco IOS XE Cupertino 17.8.x or earlier releases.



Note New switch models that are introduced in a release cannot be downgraded. The release in which a module is introduced is the minimum software version for that model. We recommend upgrading all existing hardware to the same release as the latest hardware.

The sample output in this section shows downgrade from Cisco IOS XE Cupertino 17.9.1 to Cisco IOS XE Cupertino 17.8.1, using **install** commands.

Procedure**Step 1**

Clean-up

install remove inactive

Use this command to clean-up old installation files in case of insufficient space and to ensure that you have at least 1GB of space in flash, to expand a new image.

The following sample output displays the cleaning up of unused files, by using the **install remove inactive** command:

```
Switch# install remove inactive
install_remove: START Fri Jul 29 11:42:27 UTC 2022

Cleaning up unnecessary package files

No path specified, will use booted path bootflash:packages.conf

Cleaning bootflash:
Scanning boot directory for packages ... done.
Preparing packages list to delete ...
cat9k-cc_srdriver.17.09.01.SSA.pkg
File is in use, will not delete.
cat9k-espbase.17.09.01.SSA.pkg
File is in use, will not delete.
cat9k-guestshell.17.09.01.SSA.pkg
File is in use, will not delete.
cat9k-rpbase.17.09.01.SSA.pkg
File is in use, will not delete.
```

```

cat9k-rpboot.17.09.01.SSA.pkg
  File is in use, will not delete.
cat9k-sipbase.17.09.01.SSA.pkg
  File is in use, will not delete.
cat9k-sipspa.17.09.01.SSA.pkg
  File is in use, will not delete.
cat9k-srdriver.17.09.01.SSA.pkg
  File is in use, will not delete.
cat9k-webui.17.09.01.SSA.pkg
  File is in use, will not delete.
cat9k-wlc.17.09.01.SSA.pkg
  File is in use, will not delete.
packages.conf
  File is in use, will not delete.
done.
SUCCESS: No extra package or provisioning files found on media. Nothing to clean.

SUCCESS: install_remove Fri Jul 29 11:42:39 UTC 2022

--- Starting Post_Remove_Cleanup ---
Performing Post_Remove_Cleanup on all members
[1] Post_Remove_Cleanup package(s) on switch 1
[1] Finished Post_Remove_Cleanup on switch 1
Checking status of Post_Remove_Cleanup on [1]
Post_Remove_Cleanup: Passed on [1]
Finished Post_Remove_Cleanup

SUCCESS: install_remove Fri Jul 29 19:52:25 UTC 2022
Switch#

```

Step 2 Copy new image to flash

a) **copy tftp:[*location*]/*directory*]/*filename*flash:**

Use this command to copy the new image from a TFTP server to flash memory. The location is either an IP address or a host name. The filename is specified relative to the directory used for file transfers. Skip this step if you want to use the new image from a TFTP server.

```

Switch# copy tftp://10.8.0.6/image/cat9k_iosxe.17.08.01.SPA.bin flash:
Destination filename [cat9k_iosxe.17.08.01.SPA.bin]?
Accessing tftp://10.8.0.6//cat9k_iosxe.17.08.01.SPA.bin...
Loading /cat9k_iosxe.17.08.01.SPA.bin from 10.8.0.6 (via GigabitEthernet0/0):
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 508584771 bytes]
508584771 bytes copied in 101.005 secs (5035244 bytes/sec)

```

b) **dir flash:**

Use this command to confirm that the image has been successfully copied to flash.

```

Switch# dir flash:*.bin
Directory of flash:/*.bin

Directory of flash:/

434184 -rw- 508584771 Jul 29 2022 13:35:16 -07:00 cat9k_iosxe.17.08.01.SPA.bin
11353194496 bytes total (9055866880 bytes free)

```

Step 3 Set boot variable

a) **boot system flash:packages.conf**

Use this command to set the boot variable to **flash:packages.conf**.

```
Switch(config)# boot system flash:packages.conf
```

b) no boot manual

Use this command to configure the switch to auto-boot. Settings are synchronized with the standby switch, if applicable.

```
Switch(config)# no boot manual
Switch(config)# exit
```

c) write memory

Use this command to save boot settings.

```
Switch# write memory
```

d) show bootvar

Use this command to verify the boot variable (packages.conf) and manual boot setting (no):

```
Switch# show bootvar
BOOT variable = bootflash:packages.conf
MANUAL_BOOT variable = no
BAUD variable = 9600
ENABLE_BREAK variable = yes
BOOTMODE variable does not exist
IPXE_TIMEOUT variable does not exist
CONFIG_FILE variable =

Standby BOOT variable = bootflash:packages.conf
Standby MANUAL_BOOT variable = no
Standby BAUD variable = 9600
Standby ENABLE_BREAK variable = yes
Standby BOOTMODE variable does not exist
Standby IPXE_TIMEOUT variable does not exist
Standby CONFIG_FILE variable =
```

Step 4 Downgrade software image

Use one of these options, to downgrade:

- **install add file activate commit**
- **install rollback to committed**

The following example displays the installation of the `cat9k_iosxe.17.08.01.SPA.bin` software image to flash, to downgrade the switch by using the **install add file activate commit** command. You can point to the source image on your tftp server or in flash if you have it copied to flash.

```
Switch# install add file flash:cat9k_iosxe.17.08.01.SPA.bin activate commit

install_add_activate_commit: START Fri 1 Apr 22:49:41 UTC 2022

*Jul 29 22:49:42.772: %IOSXE-5-PLATFORM: Switch 1 R0/0: Jul 29 22:49:42 install_engine.sh:
%INSTALL-5-INSTALL_START_INFO: Started install one-shot
flash:cat9k_iosxe.17.08.01.SPA.bininstall_add_activate_commit: Adding PACKAGE

--- Starting initial file syncing ---
Info: Finished copying flash:cat9k_iosxe.17.08.01.SPA.bin to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
[1] Add package(s) on switch 1
```

```

[1] Finished Add on switch 1
Checking status of Add on [1]
Add: Passed on [1]
Finished Add

install_add_activate_commit: Activating PACKAGE

/flash/cat9k-webui.17.08.01.SPA.pkg
/flash/cat9k-srdriver.17.08.01.SPA.pkg
/flash/cat9k-sipspace.17.08.01.SPA.pkg
/flash/cat9k-sipbase.17.08.01.SPA.pkg
/flash/cat9k-rpboot.17.08.01.SPA.pkg
/flash/cat9k-rpbase.17.08.01.SPA.pkg
/flash/cat9k-espbase.17.08.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.08.01.SPA.pkg

This operation requires a reload of the system. Do you want to proceed? [y/n]

--- Starting Activate ---
Performing Activate on all members
[1] Activate package(s) on switch 1
[1] Finished Activate on switch 1
Checking status of Activate on [1]
Activate: Passed on [1]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
[1] Commit package(s) on switch 1
[1] Finished Commit on switch 1
Checking status of Commit on [1]
Commit: Passed on [1]
Finished Commit

Install will reload the system now!

Chassis 1 reloading, reason - Reload command
SUCCESS: install_add_activate_commit
/flash/cat9k-webui.17.08.01.SPA.pkg
/flash/cat9k-srdriver.17.08.01.SPA.pkg
/flash/cat9k-sipspace.17.08.01.SPA.pkg
/flash/cat9k-sipbase.17.08.01.SPA.pkg
/flash/cat9k-rpboot.17.08.01.SPA.pkg
/flash/cat9k-rpbase.17.08.01.SPA.pkg
/flash/cat9k-guestshell.17.08.01.SPA.pkg
/flash/cat9k-espbase.17.08.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.08.01.SPA.pkg
Fri Jul 29 22:53:58 UTC 2022
Switch#

```

The following example displays sample output when downgrading the switch by using the **install rollback to committed** command.

Caution Use the **install rollback to committed** command for downgrading, *only* if the version you want to downgrade to, is committed.

```

Switch# install rollback to committed

install_rollback: START Fri 29 Jul 14:24:56 UTC 2022

This operation requires a reload of the system. Do you want to proceed? [y/n]
*Jul 29 14:24:57.555: %IOSXE-5-PLATFORM: R0/0: Jul 29 14:24:57 install_engine.sh:
%INSTALL-5-INSTALL_START_INFO: Started install rollbacky

```

```
--- Starting Rollback ---
```

```
Performing Rollback on Active/Standby
```

```
WARNING: Found 55 disjoint TDL objects.
```

```
[R0] Rollback package(s) on R0
```

```
--- Starting rollback impact ---
```

```
Changes that are part of this rollback
```

```
Current : rp 0 0 rp_boot cat9k-rpboot.17.09.01.SPA.pkg
Current : rp 1 0 rp_boot cat9k-rpboot.17.09.01.SPA.pkg
Replacement: rp 0 0 rp_boot cat9k-rpboot.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_boot cat9k-rpboot.17.08.01.SPA.pkg
Current : cc 0 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 0 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 0 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 1 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 1 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 1 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 10 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 10 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 10 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 2 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 2 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 2 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 3 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 3 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 3 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 4 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 4 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 4 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 5 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 5 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 5 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 6 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 6 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 6 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 7 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 7 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 7 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 8 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 8 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 8 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : cc 9 0 cc_srdriver cat9k-cc_srdriver.17.09.01.SPA.pkg
Current : cc 9 0 cc_cat9k-sipbase.17.09.01.SPA.pkg
Current : cc 9 0 cc_spa cat9k-sipspace.17.09.01.SPA.pkg
Current : fp 0 0 fp_cat9k-espbase.17.09.01.SPA.pkg
Current : fp 1 0 fp_cat9k-espbase.17.09.01.SPA.pkg
Current : rp 0 0 guestshell cat9k-guestshell.17.09.01.SPA.pkg
Current : rp 0 0 rp_base cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 0 0 rp_daemons cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 0 0 rp_iosd cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 0 0 rp_security cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 0 0 rp_webui cat9k-webui.17.09.01.SPA.pkg
Current : rp 0 0 rp_wlc cat9k-wlc.17.09.01.SPA.pkg
Current : rp 0 0 srdriver cat9k-srdriver.17.09.01.SPA.pkg
Current : rp 1 0 guestshell cat9k-guestshell.17.09.01.SPA.pkg
Current : rp 1 0 rp_base cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 1 0 rp_daemons cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 1 0 rp_iosd cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 1 0 rp_security cat9k-rpbase.17.09.01.SPA.pkg
Current : rp 1 0 rp_webui cat9k-webui.17.09.01.SPA.pkg
Current : rp 1 0 rp_wlc cat9k-wlc.17.09.01.SPA.pkg
Current : rp 1 0 srdriver cat9k-srdriver.17.09.01.SPA.pkg
Replacement: cc 0 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
```

```

Replacement: cc 0 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 0 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 1 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 1 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 1 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 10 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 10 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 10 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 2 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 2 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 2 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 3 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 3 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 3 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 4 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 4 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 4 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 5 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 5 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 5 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 6 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 6 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 6 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 7 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 7 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 7 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 8 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 8 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 8 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: cc 9 0 cc_srdriver cat9k-cc_srdriver.17.08.01.SPA.pkg
Replacement: cc 9 0 cc cat9k-sipbase.17.08.01.SPA.pkg
Replacement: cc 9 0 cc_spa cat9k-sipspace.17.08.01.SPA.pkg
Replacement: fp 0 0 fp cat9k-espbase.17.08.01.SPA.pkg
Replacement: fp 1 0 fp cat9k-espbase.17.08.01.SPA.pkg
Replacement: rp 0 0 guestshell cat9k-guestshell.17.08.01.SPA.pkg
Replacement: rp 0 0 rp_base cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 0 0 rp_daemons cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 0 0 rp_iosd cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 0 0 rp_security cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 0 0 rp_webui cat9k-webui.17.08.01.SPA.pkg
Replacement: rp 0 0 srdriver cat9k-srdriver.17.08.01.SPA.pkg
Replacement: rp 1 0 guestshell cat9k-guestshell.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_base cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_daemons cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_iosd cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_security cat9k-rpbase.17.08.01.SPA.pkg
Replacement: rp 1 0 rp_webui cat9k-webui.17.08.01.SPA.pkg
Replacement: rp 1 0 srdriver cat9k-srdriver.17.08.01.SPA.pkg

```

```

Finished rollback impact
[R0] Finished Rollback on R0
Checking status of Rollback on [R0]
Rollback: Passed on [R0]
Finished Rollback

```

```

Install will reload the system now!
SUCCESS: install_rollback Fri 29 Jul 14:26:35 UTC 2022

```

```

Switch#
*Jul 29 14:26:35.880: %IOSXE-5-PLATFORM: R0/0: Jul 29 14:26:35 install_engine.sh:
%INSTALL-5-INSTALL_COMPLETED_INFO: Completed install rollback PACKAGE
*Jul 29 14:26:37.740: %IOSXE_OIR-6-REMCARD: Card (rp) removed from slot R1
*Jul 29 14:26:39.253: %IOSXE_OIR-6-INSCARD: Card (rp) inserted in slot R1 Jul 29 14:26:5

```

Initializing Hardware...

System Bootstrap, Version 17.3.1r
Compiled Tue 03/16/2022 10:19:23.77 by rel

Current image running:
Primary Rommon Image

Last reset cause: SoftwareResetTrig
C9400-SUP-1 platform with 16777216 Kbytes of main memory

Preparing to autoboot. [Press Ctrl-C to interrupt] 0
attempting to boot from [bootflash:packages.conf]

Located file packages.conf

#

=====

Warning: ignoring ROMMON var "BOOT_PARAM"
Warning: ignoring ROMMON var "USER_BOOT_PARAM"

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170 West Tasman Drive
San Jose, California 95134-1706
Cisco IOS XE Software, Version 17.08.01
Cisco IOS Software [Cupertino], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.08.1,
RELEASE SOFTWARE (fc1)
Technical Support: <http://www.cisco.com/techsupport>
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Compiled Fri 1-Apr-22 23:25 by mcpre

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FIPS: Flash Key Check : Begin
FIPS: Flash Key Check : End, Not Found, FIPS Mode Not Enabled

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A summary of U.S. laws governing Cisco cryptographic products may be found at:


```
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
```

If you require further assistance please contact us by sending email to export@cisco.com.

```
cisco C9410R (X86) processor (revision V00) with 868521K/6147K bytes of memory.  
Processor board ID FXS2118Q1GM  
312 Gigabit Ethernet interfaces  
40 Ten Gigabit Ethernet interfaces  
4 Forty Gigabit Ethernet interfaces  
32768K bytes of non-volatile configuration memory.  
15958516K bytes of physical memory.  
11161600K bytes of Bootflash at bootflash:.  
1638400K bytes of Crash Files at crashinfo:.  
0K bytes of WebUI ODM Files at webui:.
```

```
%INIT: waited 0 seconds for NVRAM to be available
```

```
Press RETURN to get started!
```

Step 5 Verify version

show version

After the image boots up, use this command to verify the version of the new image.

Note When you downgrade the software image, the ROMMON version does not downgrade. It remains updated.

The following sample output of the **show version** command displays the Cisco IOS XE Cupertino 17.8.1 image on the device:

```
Switch# show version  
Cisco IOS XE Software, Version 17.08.01  
Cisco IOS Software [Cupertino], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.8.1,  
  RELEASE SOFTWARE (fcl)  
Technical Support: http://www.cisco.com/techsupport  
Copyright (c) 1986-2022 by Cisco Systems, Inc.  
<output truncated>
```

In Service Software Upgrade (ISSU) with Cisco StackWise Virtual and Dual Supervisor Module Configuration

Follow the instructions described here to perform an In Service Software Upgrade (ISSU) upgrade. Use the procedure described here, only for the releases indicated in the table below. For more general information about ISSU release support and recommended releases, see this technical reference document: [In-Service Software Upgrade \(ISSU\)](#).

Before you begin

Note that you can use this ISSU procedure only for the following scenarios:

When upgrading from...	Use these commands...	To...
Cisco IOS XE Bengaluru 17.6.x	install add file activate issu commit	Cisco IOS XE Cupertino 17.9.x
Not applicable	ISSU does not support downgrade. To downgrade, see Downgrading in Install Mode, on page 9 .	Not applicable

Procedure

Step 1 enable

Enables privileged EXEC mode. Enter your password if prompted.

```
Switch# enable
```

Step 2 install add file activate issu commit

Use this command to automate the sequence of all the upgrade procedures, including downloading the images to both the switches, expanding the images into packages, and upgrading each switch as per the procedures.

```
Switch# install add file tftp://172.27.18.5//cat9k_iosxe.17.09.01.SPA.bin activate issu commit
```

The following sample output displays installation of Cisco IOS XE Cupertino 17.9.1 software image with ISSU procedure.

```
Switch# install add file tftp://172.27.18.5//cat9k_iosxe.17.09.01.SPA.bin activate issu commit
install_add_activate_commit: START Thu Jul 19 06:16:32 UTC 2021
Downloading file tftp://172.27.18.5//cat9k_iosxe.17.09.01.SPA.bin

*Jul 19 06:16:34.064: %INSTALL-5-INSTALL_START_INFO: Switch 1 R0/0: install_engine: Started
  install one-shot ISSU tftp://172.27.18.5//cat9k_iosxe.17.09.01.SPA.bin
Finished downloading file tftp://172.27.18.5//cat9k_iosxe.17.09.01.SPA.bin to
flash:cat9k_iosxe.17.09.01.SPA.bin
install_add_activate_commit: Adding ISSU

--- Starting initial file syncing ---
[1]: Copying flash:cat9k_iosxe.17.09.01.SPA.bin from switch 1 to switch 2
[2]: Finished copying to switch 2
Info: Finished copying flash:cat9k_iosxe.17.09.01.SPA.bin to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
  [1] Add package(s) on switch 1
  [1] Finished Add on switch 1
  [2] Add package(s) on switch 2
  [2] Finished Add on switch 2
Checking status of Add on [1 2]
Add: Passed on [1 2]
Finished Add

install_add_activate_commit: Activating ISSU

NOTE: Going to start Oneshot ISSU install process

STAGE 0: Initial System Level Sanity Check before starting ISSU
=====
--- Verifying install_issu supported ---
```

```

--- Verifying standby is in Standby Hot state ---
--- Verifying booted from the valid media ---
--- Verifying AutoBoot mode is enabled ---
Finished Initial System Level Sanity Check

STAGE 1: Installing software on Standby
=====
--- Starting install_remote ---
Performing install_remote on Chassis remote
[2] install_remote package(s) on switch 2
[2] Finished install_remote on switch 2
install_remote: Passed on [2]
Finished install_remote

STAGE 2: Restarting Standby
=====
--- Starting standby reload ---
Finished standby reload

--- Starting wait for Standby to reach terminal redundancy state ---

*Jul 19 06:24:16.426: %SMART_LIC-5-EVAL_START: Entering evaluation period
*Jul 19 06:24:16.426: %SMART_LIC-5-EVAL_START: Entering evaluation period
*Jul 19 06:24:16.466: %HMANRP-5-CHASSIS_DOWN_EVENT: Chassis 2 gone DOWN!
*Jul 19 06:24:16.497: %REDUNDANCY-3-STANDBY_LOST: Standby processor fault (PEER_NOT_PRESENT)
*Jul 19 06:24:16.498: %REDUNDANCY-3-STANDBY_LOST: Standby processor fault (PEER_DOWN)
*Jul 19 06:24:16.498: %REDUNDANCY-3-STANDBY_LOST: Standby processor fault
(P_EER_REDUNDANCY_STATE_CHANGE)
*Jul 19 06:24:16.674: %RF-5-RF_RELOAD: Peer reload. Reason: EHS_A standby down
*Jul 19 06:24:16.679: %IOSXE_REDUNDANCY-6-PEER_LOST: Active detected switch 2 is no longer
standby
*Jul 19 06:24:16.416: %NIF_MGR-6-PORT_LINK_DOWN: Switch 1 R0/0: nif_mgr: Port 1 on front
side stack link 0 is DOWN.
*Jul 19 06:24:16.416: %NIF_MGR-6-PORT_CONN_DISCONNECTED: Switch 1 R0/0: nif_mgr: Port 1 on
front side stack link 0 connection has DISCONNECTED: CONN_ERR_PORT_LINK_DOWN_EVENT
*Jul 19 06:24:16.416: %NIF_MGR-6-STACK_LINK_DOWN: Switch 1 R0/0: nif_mgr: Front side stack
link 0 is DOWN.
*Jul 19 06:24:16.416: %STACKMGR-6-STACK_LINK_CHANGE: Switch 1 R0/0: stack_mgr: Stack port
1 on Switch 1 is down

<output truncated>

*Jul 19 06:29:36.393: %IOSXE_REDUNDANCY-6-PEER: Active detected switch 2 as standby.
*Jul 19 06:29:36.392: %STACKMGR-6-STANDBY_ELECTED: Switch 1 R0/0: stack_mgr: Switch 2 has
been elected STANDBY.
*Jul 19 06:29:41.397: %REDUNDANCY-5-PEER_MONITOR_EVENT: Active detected a standby insertion
(raw-event=PEER_FOUND(4))
*Jul 19 06:29:41.397: %REDUNDANCY-5-PEER_MONITOR_EVENT: Active detected a standby insertion
(raw-event=PEER_REDUNDANCY_STATE_CHANGE(5))
*Jul 19 06:29:42.257: %REDUNDANCY-3-IPC: IOS versions do not match.
*Jul 19 06:30:24.323: %HA_CONFIG_SYNC-6-BULK_CFGSYNC_SUCCEED: Bulk Sync succeededFinished
wait for Standby to reach terminal redundancy state

*Jul 19 06:30:25.325: %RF-5-RF_TERMINAL_STATE: Terminal state reached for (SSO)
STAGE 3: Installing software on Active
=====
--- Starting install_active ---
Performing install_active on Chassis 1

<output truncated>

```

```

[1] install_active package(s) on switch 1
[1] Finished install_active on switch 1
install_active: Passed on [1]
Finished install_active

STAGE 4: Restarting Active (switchover to standby)
=====
--- Starting active reload ---
New software will load after reboot process is completed
SUCCESS: install_add_activate_commit Thu Jul 19 23:06:45 UTC 2021
Jul 19 23:06:45.731: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_engine: Completed
install one-shot ISSU flash:cat9k_iosxe.17.09.01.SPA.bin
Jul 19 23:06:47.509: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload fp
action requested
Jul 19 23:06:48.776: %PM

Initializing Hardware...

System Bootstrap, Version 17.9.1r[FC2], RELEASE SOFTWARE (P)
Compiled Fri 07/19/2022 10:48:42.68 by rel

Current ROMMON image : Primary
Last reset cause      : PowerOn
C9500-40X platform with 16777216 Kbytes of main memory

boot: attempting to boot from [flash:packages.conf]
boot: reading file packages.conf
#
#####

Jul 19 23:08:30.238: %PMAN-5-EXITACTION: C0/0: pvp: Process manager is exiting:

Waiting for 120 seconds for other switches to boot
#####
Switch number is 1
All switches in the stack have been discovered. Accelerating discovery

Switch console is now available

Press RETURN to get started.

Jul 19 23:14:17.080: %INSTALL-5-INSTALL_START_INFO: R0/0: install_engine: Started install
commit
Jul 19 23:15:48.445: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_engine: Completed
install commit ISSU

```

Step 3 show version

Use this command to verify the version of the new image.

The following sample output of the **show version** command displays the Cisco IOS XE Cupertino 17.9.1 image on the device:

```
Switch# show version
Cisco IOS XE Software, Version 17.09.01
Cisco IOS Software [Amsterdam], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.9.1,
  RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2022 by Cisco Systems, Inc.
<output truncated>
```

Step 4 **show issu state** [*detail*]

Use this command to verify that no ISSU process is in pending state.

```
Switch# show issu state detail
--- Starting local lock acquisition on chassis 2 ---
Finished local lock acquisition on chassis 2

No ISSU operation is in progress

Switch#
```

Step 5 **exit**

Exits privileged EXEC mode and returns to user EXEC mode.

Upgrading the Complex Programmable Logic Device Version

You can trigger a CPLD version upgrade after upgrading the software image. During CPLD upgrade, the supervisor module automatically power cycles. This completes the CPLD upgrade process for the supervisor module but also causes traffic disruption. Therefore, auto-upgrade of CPLD is not supported. You must manually perform CPLD upgrade.

Upgrading the CPLD Version: High Availability Setup

Beginning in the privileged EXEC mode, complete the following steps:

Before you begin

When performing the CPLD version upgrade as shown, the **show platform** command can be used to confirm the CPLD version after the upgrade. This command output shows the CPLD version on all modules. However, the CPLD upgrade only applies to the supervisors, not the line cards. The line cards CPLD version is a cosmetic display. After the upgrade is completed in a high availability setup, the supervisors will be upgraded, but the line cards will still show the old CPLD version. The version mismatch between the supervisors and line cards is expected until a chassis reload.

Procedure

Step 1 Upgrade the CPLD Version of the standby supervisor module

Enter the following commands on the active supervisor:

- a) Device# **configure terminal**
- b) Device(config)# **service internal**

- c) Device(config)# **exit**
- d) Device# **upgrade hw-programmable cpld filename bootflash: rp standby**

The standby supervisor module reloads automatically and the upgrade occurs in ROMMON. During the upgrade, the supervisor module automatically power cycles and remains inactive for approximately 5 minutes.

Wait until the standby supervisor module boots up and the SSO has formed (HOT) before you proceed to the next step; this takes approximately 17 minutes.

Step 2 Perform a switch over

- a) Device# **redundancy force-switchover**

This causes the standby supervisor (on which you have completed the CPLD upgrade in Step 1) to become the active supervisor module

Step 3 Upgrade the CPLD Version of the new standby supervisor module

Repeat Step 1 and all its substeps.

Note Do not operate an HA system with mismatched FPGA versions. FPGA version should be upgraded on both the supervisors one at a time.

Upgrading the CPLD Version: Cisco StackWise Virtual Setup

Beginning in the privileged EXEC mode, complete the following steps:

Procedure

Step 1 Upgrade the CPLD version of the standby supervisor module

Enter the following commands on the active supervisor:

- a) Device# **configure terminal**
- b) Device(config)# **service internal**
- c) Device(config)# **exit**
- d) Device# **upgrade hw-programmable cpld filename bootflash: switch standby r1**

Note For the **upgrade hw-programmable cpld filename bootflash** command, configure with the **switch** keyword only. The other available keywords are not applicable when upgrading with Cisco StackWise Virtual.

Step 2 Reload the standby supervisor module

- a) Device# **redundancy reload peer**

The upgrade occurs in ROMMON. During the upgrade, the supervisor module automatically power cycles and remains inactive for approximately 5 minutes.

Wait until the standby supervisor module boots up and the SSO has formed (HOT) before you proceed to the next step; this takes approximately 17 minutes.

Step 3 Perform a switch over

a) Device# **redundancy force-switchover**

This causes the standby supervisor (on which you have completed the CPLD upgrade in step 1) to become the active supervisor module

- Step 4** Upgrade the CPLD version of the new standby supervisor module
Perform Steps 1 and 2, including all substeps, on the new standby supervisor module
-

Upgrading the CPLD Version: Single Supervisor Module Setup

Beginning in the privileged EXEC mode, complete the following steps:

Procedure

Upgrade the CPLD version of the active supervisor module

Enter the following commands on the active supervisor:

- a) Device# **configure terminal**
- b) Device(config)# **service internal**
- c) Device(config)# **exit**
- d) Device# **upgrade hw-programmable cpld filename bootflash: rp active**

The supervisor module reloads automatically and the upgrade occurs in ROMMON. During the upgrade, the supervisor module automatically power cycles and remains inactive for approximately 5 minutes.
