



## 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 17.13.1	CAT9K_IOSXE	cat9k_iosxe.17.13.01.SPA.
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.13.01.

# Upgrading the ROMMON

To know the ROMMON or bootloader version that applies to every major and maintenance release, see [ROMMON 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. The manual upgrade applies to all models in the series. Enter the **upgrade rom-monitor capsule golden switch** command in privileged EXEC mode.



## Note

- In case of a Cisco StackWise Virtual setup, upgrade the active and standby switch.

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	
Supported starting from Cisco IOS XE Everest 16.6.2 and later releases	
To install and activate the specified file, and to commit changes to be persistent across reloads: <b>install add file</b> <i>filename</i> [ <b>activate commit</b> ]	
To separately install, activate, commit, cancel, or remove the installation file: <b>install ?</b>	
<b>add file tftp:</b> <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.
<b>activate</b> [ <b>auto-abort-timer</b> ]	Activates the file, and reloads the device. The <b>auto-abort-timer</b> keyword automatically rolls back image activation.
<b>commit</b>	Makes changes persistent over reloads.
<b>rollback to committed</b>	Rolls back the update to the last committed version.
<b>abort</b>	Cancels file activation, and rolls back to the version that was running before the current installation procedure started.

**Summary of Software Installation Commands****Supported starting from Cisco IOS XE Everest 16.6.2 and later releases**

<b>remove</b>	Deletes all unused and inactive software installation files.
---------------	--



**Note** The **request platform software** commands are deprecated starting from Cisco IOS XE Gibraltar 16.10.1. The commands are visible on the CLI in this release and you can configure them, but we recommend that you use the **install** commands to upgrade or downgrade.

**Summary of request platform software Commands**

**Note** This table of commands is not supported on Cisco Catalyst 9500 Series Switches - High Performance.

Device# `request platform software package ?`

<b>clean</b>	Cleans unnecessary package files from media
<b>copy</b>	Copies package to media
<b>describe</b>	Describes package content
<b>expand</b>	Expands all-in-one package to media
<b>install</b>	Installs the package
<b>uninstall</b>	Uninstalls the package
<b>verify</b>	Verifies In Service Software Upgrade (ISSU) software package compatibility

## Upgrading in Install Mode

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

**Before you begin**

When upgrading from ...	Use these commands...	To upgrade to...
Cisco IOS XE Everest 16.5.1a or Cisco IOS XE Everest 16.6.1	Only <b>request platform software</b> commands	Cisco IOS XE 17.13.x
Cisco IOS XE Everest 16.6.2 and all later releases	On Cisco Catalyst 9500 Series Switches, either <b>install</b> commands or <b>request platform software</b> commands <sup>1</sup> .  On Cisco Catalyst 9500 Series Switches - High Performance, only <b>install</b> commands <sup>2</sup> .	

<sup>1</sup> The **request platform software** commands are deprecated. So although they are still visible on the CLI, we recommend that you use **install** commands.

<sup>2</sup> Introduced in Cisco IOS XE Fuji 16.8.1a.

The sample output in this section displays upgrade from Cisco IOS XE Dublin 17.12.1 to Cisco IOS XE 17.13.1 using **install** commands only.

**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 Mon Nov 27 19:51:48 UTC 2023
Cleaning up unnecessary package files
Scanning boot directory for packages ... done.
Preparing packages list to delete ...
  cat9k-cc_srdriver.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-espbase.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-guestshell.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-rpbase.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-rpboot.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-sipbase.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-sipspa.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-srdriver.17.12.01.SPA.pkg
    File is in use, will not delete.
  cat9k-webui.17.12.01.SPA.pkg
    File is in use, will not delete.
```

```

cat9k-wlc.17.12.01.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:
[RO]:
/flash/cat9k-cc_srdriver.17.12.01.SPA.pkg
/flash/cat9k-espbase.17.12.01.SPA.pkg
/flash/cat9k-guestshell.17.12.01.SPA.pkg
/flash/cat9k-rpbase.17.12.01.SPA.pkg
/flash/cat9k-rpboot.17.12.01.SPA.pkg
/flash/cat9k-sipbase.17.12.01.SPA.pkg
/flash/cat9k-sipsa.17.12.01.SPA.pkg
/flash/cat9k-srdriver.17.12.01.SPA.pkg
/flash/cat9k-webui.17.12.01.SPA.pkg
/flash/cat9k-wlc.17.12.01.SPA.pkg
/flash/packages.conf

Do you want to remove the above files? [y/n]y
[RO]:
Deleting file flash:cat9k-cc_srdriver.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-espbase.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-guestshell.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpbase.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpboot.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipbase.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipsa.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-srdriver.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-webui.17.12.01.SPA.pkg ... done.
Deleting file flash:cat9k-wlc.17.12.01.SPA.pkg ... done.
Deleting file flash:packages.conf ... done.
SUCCESS: Files deleted.
--- 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 Mon Nov 27 19:52:25 UTC 2023
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.17.13.01.SPA.bin flash:
destination filename [cat9k_iosxe.17.13.01.SPA.bin]?
Accessing tftp://10.8.0.6/image/cat9k_iosxe.17.13.01.SPA.bin...
Loading /cat9k_iosxe.17.13.01.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   Nov 27 2023 10:18:11 -07:00 cat9k_iosxe.17.13.01.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 or show boot

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

```
Switch# show bootvar                                     <<on the C9500-24Y4C,C9500-32C, C9500-32QC, and
C9500-48Y4C models
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 =

Switch# show boot                                       <<on the C9500-12Q,C9500-16X C9500-24Q, and
C9500-40X models
Current Boot Variables:
BOOT variable = flash:packages.conf;

Boot Variables on next reload:
BOOT variable = flash:packages.conf;
Manual Boot = no
Enable Break = yes
Boot Mode = DEVICE
iPXE Timeout = 0
```

**Step 4** Install image to flash**install add file activate commit**

Use this command to install the image.

We recommend that you point to the source image on your TFTP server or the flash drive of the *active* switch, if you have copied the image to flash memory. If you point to an image on the flash or USB drive of a member switch (instead of the active), you must specify the exact flash or USB drive - otherwise installation fails. For example, if the image is on the flash drive of member switch 3 (flash-3): Switch# **install add file flash-3:cat9k\_iosxe.17.13.01.SPA.bin activate commit**.

The following sample output displays installation of the Cisco IOS XE 17.13.1 software image in the flash memory:

```
Switch# install add file flash:cat9k_iosxe.17.13.01.SPA.bin activate commit
install_add_activate_commit: Adding PACKAGE
install_add_activate_commit: Checking whether new add is allowed ....
--- Starting Add ---
Performing Add on Active/Standby
 [1] Add package(s) on R0
 [1] Finished Add on R0

Checking status of Add on [R0]
Add: Passed on [R0]
Finished Add

Image added. Version: 17.13.01

install_add_activate_commit: Activating PACKAGE
Following packages shall be activated:
/flash/cat9k-wlc.17.13.01.SPA.pkg
/flash/cat9k-webui.17.13.01.SPA.pkg
/flash/cat9k-srdriver.17.13.01.SPA.pkg
/flash/cat9k-sipspa.17.13.01.SPA.pkg
/flash/cat9k-sipbase.17.13.01.SPA.pkg
/flash/cat9k-rpboot.17.13.01.SPA.pkg
/flash/cat9k-rpbase.17.13.01.SPA.pkg
/flash/cat9k-guestshell.17.13.01.SPA.pkg
/flash/cat9k-espbase.17.13.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.13.01.SPA.pkg
```

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

```
--- Starting Activate ---

Performing Activate on Active/Standby
[1] Activate package(s) on R0
--- Starting list of software package changes ---
Old files list:
  Removed cat9k-cc_srdriver.17.12.01.SPA.pkg
  Removed cat9k-espbase.17.12.01.SPA.pkg
  Removed cat9k-guestshell.17.12.01.SPA.pkg
  Removed cat9k-rpbase.17.12.01.SPA.pkg
  Removed cat9k-rpboot.17.12.01.SPA.pkg
  Removed cat9k-sipbase.17.12.01.SPA.pkg
  Removed cat9k-sipspa.17.12.01.SPA.pkg
  Removed cat9k-srdriver.17.12.01.SPA.pkg
  Removed cat9k-webui.17.12.01.SPA.pkg
  Removed cat9k-wlc.17.12.01.SPA.pkg
New files list:
  Added cat9k-cc_srdriver.17.13.01.SSA.pkg
  Added cat9k-espbase.17.13.01.SSA.pkg
  Added cat9k-guestshell.17.13.01.SSA.pkg
```

```

    Added cat9k-lni.17.13.01.SSA.pkg
    Added cat9k-rpbase.17.13.01.SSA.pkg
    Added cat9k-rpboot.17.13.01.SSA.pkg
    Added cat9k-sipbase.17.13.01.SSA.pkg
    Added cat9k-sipspa.17.13.01.SSA.pkg
    Added cat9k-srdriver.17.13.01.SSA.pkg
    Added cat9k-webui.17.13.01.SSA.pkg
    Added cat9k-wlc.17.13.01.SSA.pkg
    Finished list of software package changes
[1] Finished Activate on R0
Checking status of Activate on [R0]
Activate: Passed on [R0]
Finished Activate

--- Starting Commit ---
Performing Commit on Active/Standby
  [1] Commit package(s) on R0
  [1] Finished Commit on R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
Finished Commit
Send model notification for install_add_activate_commit before reload
Install will reload the system now!
SUCCESS: install_add_activate_commit  Mon Nov 27 12:13:05 IST 2023

Switch#Nov 27 12:13:11.023: %PMANTACTION: F0/0vp: Process manager is exiting: n requested
Nov 27 12:13:11.028: %PMAN-5-EXITACTION: C1/0: pvp: Process manager is exiting: reload fru
  action requested
Nov 27 12:13:11.825: %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: reload
  action requested

Initializing Hardware...
System Bootstrap, Version 17.4.1r[FC2], RELEASE SOFTWARE (P)

Compiled 11-27-2023 12:00:00.00 by rel
Current ROMMON image : Primary Rommon Image
Last reset cause:LocalSoft
C9500-32QC platform with 16777216 Kbytes of main memory
Preparing to autoboot. [Press Ctrl-C to interrupt] 5      5      /-\\|/-\\|/-4      \\|/-\\|/-\\|3
      /-\\|/-\\|/-2      \\|/-\\|/-\\|1      /-\\|/-\\|/-0

boot: attempting to boot from [bootflash:packages.conf]

boot: reading file packages.conf
<output truncated>

```

**Note** The system reloads automatically after executing the **install add file activate commit** command. You do not have to manually reload the system.

## Step 5 Verify installation

After the software has been successfully installed, use the **dir flash:** command to verify that the flash partition has ten new **.pkg** files and two **.conf** files.

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

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

```

Switch# dir flash:*.pkg

Directory of flash:/
475140 -rw- 2012104 Jul 9 2023 09:52:41 -07:00 cat9k-cc_srdriver.17.12.01.SPA.pkg
475141 -rw- 70333380 Jul 9 2023 09:52:44 -07:00 cat9k-espbase.17.12.01.SPA.pkg
475142 -rw- 13256 Jul 9 2023 09:52:44 -07:00 cat9k-guestshell.17.12.01.SPA.pkg

```



```

475143 -rw- 349635524 Jul 9 2023 09:52:54 -07:00 cat9k-rpbase.17.12.01.SPA.pkg
475149 -rw- 24248187 Jul 9 2023 09:53:02 -07:00 cat9k-rpboot.17.12.01.SPA.pkg
475144 -rw- 25285572 Jul 9 2023 09:52:55 -07:00 cat9k-sipbase.17.12.01.SPA.pkg
475145 -rw- 20947908 Jul 9 2023 09:52:55 -07:00 cat9k-sipspa.17.12.01.SPA.pkg
475146 -rw- 2962372 Jul 9 2023 09:52:56 -07:00 cat9k-srdriver.17.12.01.SPA.pkg
475147 -rw- 13284288 Jul 9 2023 09:52:56 -07:00 cat9k-webui.17.12.01.SPA.pkg
475148 -rw- 13248 Jul 9 2023 09:52:56 -07:00 cat9k-wlc.17.12.01.SPA.pkg

491524 -rw- 25711568 Nov 27 2023 11:49:33 -07:00 cat9k-cc_srdriver.17.13.01.SPA.pkg
491525 -rw- 78484428 Nov 27 2023 11:49:35 -07:00 cat9k-espbase.17.13.01.SPA.pkg
491526 -rw- 1598412 Nov 27 2023 11:49:35 -07:00 cat9k-guestshell.17.13.01.SPA.pkg
491527 -rw- 404153288 Nov 27 2023 11:49:47 -07:00 cat9k-rpbase.17.13.01.SPA.pkg
491533 -rw- 31657374 Nov 27 2023 11:50:09 -07:00 cat9k-rpboot.17.13.01.SPA.pkg
491528 -rw- 27681740 Nov 27 2023 11:49:48 -07:00 cat9k-sipbase.17.13.01.SPA.pkg
491529 -rw- 52224968 Nov 27 2023 11:49:49 -07:00 cat9k-sipspa.17.13.01.SPA.pkg
491530 -rw- 31130572 Nov 27 2023 11:49:50 -07:00 cat9k-srdriver.17.13.01.SPA.pkg
491531 -rw- 14783432 Nov 27 2023 11:49:51 -07:00 cat9k-webui.17.13.01.SPA.pkg
491532 -rw- 9160 Nov 27 2023 11:49:51 -07:00 cat9k-wlc.17.13.01.SPA.pkg
11353194496 bytes total (9544245248 bytes free)
Switch#

```

#### 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:

- `packages.conf`—the file that has been re-written with the newly installed .pkg files
- `cat9k_iosxe.17.13.01.SPA.conf`—a backup copy of the newly installed `packages.conf` file

```

Switch# dir flash:*.conf

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

434197 -rw- 7406 Nov 27 2023 10:59:16 -07:00 packages.conf
516098 -rw- 7406 Nov 27 2023 10:58:08 -07:00 cat9k_iosxe.17.13.01.SPA.conf
11353194496 bytes total (8963174400 bytes free)

```

### Step 6 **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 17.13.1 image on the device:

```

Switch# show version

Cisco IOS XE Software, Version 17.13.01
Cisco IOS Software, Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.13.1, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2023 by Cisco Systems, Inc.
<output truncated>

```

# Downgrading in Install Mode

Follow these instructions to downgrade from one release to another, in install mode.

## Before you begin

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

When downgrading from ...	Use these commands...	To downgrade to...
Cisco IOS XE 17.13.x	<ul style="list-style-type: none"> <li>On Cisco Catalyst 9500 Series Switches, either <b>install</b> commands or <b>request platform software</b> commands<sup>3</sup>.</li> <li>On Cisco Catalyst 9500 Series Switches - High Performance, only <b>install</b> commands</li> </ul>	Cisco IOS XE Dublin 17.12.x or earlier releases.

<sup>3</sup> The **request platform software** commands are deprecated. So although they are still visible on the CLI, we recommend that you use **install** commands.



**Note** New switch models that are introduced in a release cannot be downgraded. The release in which a switch model is introduced is the minimum software version for that model.

The sample output in this section shows downgrade from Cisco IOS XE 17.13.1 to Cisco IOS XE Dublin 17.12.1, 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 Mon Jul 24 11:42:27 IST 2023

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.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-espbases.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-guestshell.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-rpbase.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-rpboot.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-sipbase.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-sipspace.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-srdriver.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-webui.17.13.01.SSA.pkg
  File is in use, will not delete.
cat9k-wlc.17.13.01.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 Mon Jul 24 11:42:39 IST 2023

```

## 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.17.12.01.SPA.bin flash:
Destination filename [cat9k_iosxe.17.12.01.SPA.bin]?
Accessing tftp://10.8.0.6//cat9k_iosxe.17.12.01.SPA.bin...
Loading /cat9k_iosxe.17.12.01.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 24 2023 13:35:16 -07:00 cat9k_iosxe.17.12.01.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** or **show boot**

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

```
Switch# show bootvar <<on the C9500-24Y4C,C9500-32C, C9500-32QC, and
C9500-48Y4C models
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 =

Switch# show boot <<on the C9500-12Q,C9500-16X C9500-24Q, and
C9500-40X models
Current Boot Variables:
BOOT variable = flash:packages.conf;

Boot Variables on next reload:
BOOT variable = flash:packages.conf;
Manual Boot = no
Enable Break = yes
Boot Mode = DEVICE
iPXE Timeout = 0
```

**Step 4** Downgrade software image**install add file activate commit**

Use this command to install the image.

We recommend that you point to the source image on your TFTP server or the flash drive of the *active* switch, if you have copied the image to flash memory. If you point to an image on the flash or USB drive of a member switch (instead of the active), you must specify the exact flash or USB drive - otherwise installation fails. For example, if the image is on the flash drive of member switch 3 (flash-3): Switch# **install add file flash-3:cat9k\_iosxe.17.12.01.SPA.bin activate commit**.

The following example displays the installation of the Cisco IOS XE Dublin 17.12.1 software image to flash, by using the **install add file activate commit** command.

```
Switch# install add file flash:cat9k_iosxe.17.12.01.SPA.bin activate commit
install_add_activate_commit: Adding PACKAGE
```

```
install_add_activate_commit: Checking whether new add is allowed ....
--- Starting Add ---
Performing Add on Active/Standby
[1] Add package(s) on R0
[1] Finished Add on R0
Checking status of Add on [R0]
Add: Passed on [R0]
Finished Add
Image added. Version: 17.12.01.0.269
install_add_activate_commit: Activating PACKAGE
```

```
Following packages shall be activated:
/flash/cat9k-wlc.17.12.01.SPA.pkg
/flash/cat9k-webui.17.12.01.SPA.pkg
/flash/cat9k-srdriver.17.12.01.SPA.pkg
/flash/cat9k-sipspa.17.12.01.SPA.pkg
/flash/cat9k-sipbase.17.12.01.SPA.pkg
/flash/cat9k-rpboot.17.12.01.SPA.pkg
/flash/cat9k-rpbase.17.12.01.SPA.pkg
/flash/cat9k-guestshell.17.12.01.SPA.pkg
/flash/cat9k-espbase.17.12.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.12.01.SPA.pkg
```

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

```
Performing Activate on Active/Standby
1) Activate package(s) on R0
--- Starting list of software package changes ---
Old files list:
  Removed cat9k-cc_srdriver.17.13.01.SSA.pkg
  Removed cat9k-espbase.17.13.01.SSA.pkg
  Removed cat9k-guestshell.17.13.01.SSA.pkg
  Removed cat9k-lni.17.13.01.SSA.pkg
  Removed cat9k-rpbase.17.13.01.SSA.pkg
  Removed cat9k-rpboot.17.13.01.SSA.pkg
  Removed cat9k-sipbase.17.13.01.SSA.pkg
  Removed cat9k-sipspa.17.13.01.SSA.pkg
  Removed cat9k-srdriver.17.13.01.SSA.pkg
  Removed cat9k-webui.17.13.01.SSA.pkg
  Removed cat9k-wlc.17.13.01.SSA.pkg
New files list:
  Added cat9k-cc_srdriver.17.12.01.SPA.pkg
  Added cat9k-espbase.17.12.01.SPA.pkg
  Added cat9k-guestshell.17.12.01.SPA.pkg
  Added cat9k-rpbase.17.12.01.SPA.pkg
  Added cat9k-rpboot.17.12.01.SPA.pkg
  Added cat9k-sipbase.17.12.01.SPA.pkg
  Added cat9k-sipspa.17.12.01.SPA.pkg
  Added cat9k-srdriver.17.12.01.SPA.pkg
  Added cat9k-webui.17.12.01.SPA.pkg
  Added cat9k-wlc.17.12.01.SPA.pkg
Finished list of software package changes
[1] Finished Activate on R0
Checking status of Activate on [R0]
Activate: Passed on [R0]
Finished Activate

--- Starting Commit ---
Performing Commit on Active/Standby
[1] Commit package(s) on R0
[1] Finished Commit on R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
```

```

Finished Commit

Send model notification for install_add_activate_commit before reload
Install will reload the system now!
SUCCESS: install_add_activate_commit Mon Jul 24 11:51:01 IST 2023

Jul 24 11:51:07.505: %PMANTvp: Process manager is exiting: ren requested
Jul 24 11:51:07.505: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload fru
action requested
Jul 24 11:51:07.834: %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: reload
action requested

Initializing Hardware...

System Bootstrap, Version 17.3.1r[FC2], RELEASE SOFTWARE (P)
Compiled 30-03-2023 12:00:00.00 by rel
Current ROMMON image : Primary Rommon Image

Last reset cause:LocalSoft
C9500-32QC platform with 16777216 Kbytes of main memory
Preparing to autoboot. [Press Ctrl-C to interrupt] 5 5 /-\\/-\\/-4 \\/-\\/-\\|3
/\\/-\\/-2 \\/-\\/-\\|1 /-\\/-\\/-0
boot: attempting to boot from [bootflash:packages.conf]
boot: reading file packages.conf

<output truncated>

```

**Note** The system reloads automatically after executing the **install add file activate commit** command. You do not have to manually reload the system.

#### 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 Dublin 17.12.1 image on the device:

```

Switch# show version
Cisco IOS XE Software, Version 17.12.01
Cisco IOS Software [Dublin], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.12.1,
RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2023 by Cisco Systems, Inc.
<output truncated>

```

## Field-Programmable Gate Array Version Upgrade

A field-programmable gate array (FPGA) is a type of programmable memory device that exists on Cisco switches. They are re-configurable logic circuits that enable the creation of specific and dedicated functions.

To check the current FPGA version, enter the **version -v** command in ROMMON mode. For Cisco Catalyst 9500X Series Switches, enter the **show firmware version all** command in privileged EXEC mode.



---

**Note**

- Not every software release has a change in the FPGA version.
  - The version change occurs as part of the regular software upgrade and you do not have to perform any other additional steps.
-

