

Consolidated Package Management

This chapter discusses how consolidated packages are managed and are used to run the Cisco 8500 Series Secure Routers.

It contains the following sections:

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- Software file management using command sets, on page 2
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Running the Cisco 8500 Series Secure Routers: an overview

The Cisco 8500 Series Secure Routers can be run using a complete consolidated package.

This section covers the following topics:

Running the Cisco 8500 Series Secure Routers using a consolidated package: an overview

The Cisco 8500 Series Secure Routers can be configured to run using a consolidated package.

When the router is configured to run using a consolidated package, the entire consolidated package file is copied onto the router or accessed by the router via TFTP or another network transport method. The router runs using the consolidated package file.

When a Cisco 8500 Series Secure Routers is configured to run using the consolidated package file, more memory is required to process router requests because the router has to search one larger file for every request. The peak amount of memory available for passing network traffic is therefore lower when the router is configured to run using a consolidated package.

A Cisco 8500 Series Secure Routers configured to run using a consolidated package is booted by booting the consolidated package file.

A consolidated package can be booted and utilized using TFTP or another network transport method.Running the router using a consolidated package may be the right method of running the router in certain networking environments.

The consolidated package should be stored on bootflash:, usb[0]:, or a remote file system when this method is used to run the router.

Running the Cisco 8500 Series Secure Routers: a summary

This section summarizes the advantages and disadvantages of each method of running your Cisco 8500 Series Secure Routers.

The advantages of running your router using a consolidated package include:

- Simplified installation—Only one software file needs to be managed instead of several separate images.
- Storage—A consolidated package can be used to run the router while being stored in bootflash:, on a USB Flash disk, or on a network server. A consolidated package can be booted and utilized using TFTP or another network transport method.

Software file management using command sets

Software files can be managed on the Cisco 8500 Series Secure Routers: using three distinct command sets. This section provides overviews of the following command sets:

The request platform Command Set

The **request platform software package** command is part of the larger **request platform** command set being introduced on the isco 8500 Series Secure Routers. For additional information on each **request platform** command and the options available with each command, see the *Cisco IOS Configuration Fundamentals Command Reference* .

The **request platform software package** command, which can be used to upgrade individual subpackages and a complete consolidated package, is used to upgrade software on the Cisco 8500 Series Secure Routers. Notably, the **request platform software package** command is the recommended way of performing an individual subpackage upgrade, and also provides the only method of no-downtime upgrades of individual subpackages on the router when the router is running individual subpackages.

The **request platform software package** command requires that the destination device or process be specified in the command line, so the commands can be used to upgrade software on both an active or a standby processor. The **request platform software package** command allows for no downtime software upgrades in many scenarios.

The basic syntax of the command is **request platform software package install rp** *rp-slot-number* **file** *file-URL*, where *rp-slot-number* is the number of the RP slot and *file-URL* is the path to the file being used to upgrade the Cisco 8500 Series Secure Routers. The command has other options; see the **request platform software package** command references for information on all of the options available with this command set.

The copy command

To upgrade a consolidated package on the isco 8500 Series Secure Routers, copy the consolidated package onto a file system, usually bootflash: or usb[0-1]: on the router, using the **copy** command as you would on most other Cisco routers. After making this copy, configure the router to boot using the consolidated package file.

See the **copy** command reference for a list of the options that are available with the **copy** command.

Managing and configuring the router to run using consolidated packages

This section discusses the following topics:

Quick start software upgrade

The following instructions provide a quick start version of upgrading the software running the Cisco 8500 Series Secure Routers. These instructions assume you have access to the consolidated package and that the files will be stored in a bootflash: file system and has enough room for the file or files.

For more detailed installation examples, see the other sections of this chapter.

To upgrade the software using a quick start version, perform the following steps:

SUMMARY STEPS

1. Copy the consolidated package into bootflash: using the **copy** *URL-to-image* **bootflash:** command.
2. Enter the **dir bootflash:** command to verify your consolidated package in the directory.
3. Set up the boot parameters for your boot. Set the configuration register to 0x2 by entering the **config-register 0x2102** global configuration command, and enter the **boot system flash bootflash:***image-name*
4. Enter **copy running-config startup-config** to save your configuration.
5. Enter the **reload** command to reload the router and finish the boot. The upgraded software should be running when the reload completes.

DETAILED STEPS

Procedure

Step 1	Copy the consolidated package into bootflash: using the **copy** *URL-to-image* **bootflash:** command.
Step 2	Enter the **dir bootflash:** command to verify your consolidated package in the directory.
Step 3	Set up the boot parameters for your boot. Set the configuration register to 0x2 by entering the **config-register 0x2102** global configuration command, and enter the **boot system flash bootflash:***image-name*
Step 4	Enter **copy running-config startup-config** to save your configuration.
Step 5	Enter the **reload** command to reload the router and finish the boot. The upgraded software should be running when the reload completes.

Managing and configuring a router to run using a consolidated package

This section documents the following procedures:

Managing and configuring a consolidated package using the copy command

To upgrade a consolidated package on the Cisco 8500 Series Secure Routers using the **copy** command, copy the consolidated package into the bootflash: directory on the router using the **copy** command as you would on most other Cisco routers. After making this copy, configure the router to boot using the consolidated package file.

In the following example, the consolidated package file is copied onto the bootflash: file system from TFTP. The config-register is then set to boot using **boot system** commands, and the **boot system** commands instruct the router to boot using the consolidated package stored in the bootflash: file system. The new configuration is then saved using the **copy running-config startup-config** command, and the system is then reloaded to complete the process.

```
Router# dir bootflash:
Directory of bootflash:/

2203649  drwx            40960   Jul 7 2025 14:06:44 +05:30  tracelogs
1630209  drwx             4096   Jul 7 2025 13:28:19 +05:30  memaudit_log
90113   drwx             8192   Jul 7 2025 10:29:48 +05:30  license_evlog
17506305  drwx             4096   Jul 7 2025 10:28:06 +05:30  sdavc
13      -rw-           144302   Jul 7 2025 10:27:43 +05:30  memleak.tcl
7946241  drwx             4096   Jul 7 2025 10:27:29 +05:30  .inv
12      -rwx            32397   Jul 7 2025 10:27:27 +05:30  mode_event_log
12558337  drwx             4096   Jul 6 2025 19:49:31 +05:30  sysboot
9609217  drwx             4096   Jul 4 2025 10:12:42 +05:30  .sdp_install
11886593  drwx             4096   Jul 3 2025 13:41:56 +05:30  core
4890625  drwx             4096   Jul 2 2025 11:48:30 +05:30  system_report_stage
11206657  drwx             4096   Jul 2 2025 11:48:26 +05:30  .prst_sync
13099009  drwx             4096   Jul 2 2025 08:35:30 +05:30  .rollback_timer
28      -rw-             1376   Jul 2 2025 08:35:28 +05:30  packages.conf
30      -rw-             1376   Jul 2 2025 08:35:23 +05:30
c8500x_COMPUTE_ASR1K.image.BLD_LUX_DEV_S2C_20250629_135017-2-g6d472f6332eb.SSA.conf
15990792  -rw-         66959470   Jul 2 2025 08:35:22 +05:30
c8500x_COMPUTE_ASR1K.rpboot.BLD_LUX_DEV_S2C_20250629_135017-2-g6d472f6332eb.SSA.pkg
15990785  drwx             4096   Jul 2 2025 08:35:21 +05:30  .images
29      -rw-        947406255   Jul 2 2025 08:34:33 +05:30  c8000aep.bin
21      -rw-       1232501326   Jul 2 2025 08:33:11 +05:30
c8500x_COMPUTE_ASR1K.image.BLD_LUX_DEV_S2C_20250629_135017-2-g6d472f6332eb.SSA.bin
15990805  -rw-             5284   Jul 1 2025 23:09:02 +05:30
c8500x_COMPUTE_ASR1K.empty.BLD_LUX_DEV_S2C_20250629_135017-2-g6d472f6332eb.SSA.pkg
32      -rw-         945615620   Jul 1 2025 11:22:38 +05:30
c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.bin
15589377  drwx             4096  Jun 26 2025 19:40:17 +05:30  core_temp
17      -rw-           583287  Jun 26 2025 15:58:31 +05:30
CRFT__uut__000001__C8570-G2_2025-06-26_10-28-31.tar.gz
73750   -rwx            64520  Jun 20 2025 16:19:02 +05:30  tam_util_tool
4923393  drwx             4096  Jun 16 2025 20:38:50 +05:30  EFI
26656769  drwx             4096  May 21 2025 23:08:19 +05:30  orch_test_logs
73744   -rw-        145309462  May 20 2025 21:22:55 +05:30  IOSD_start.undo
73743   -rw-             6526  May 20 2025 19:56:45 +05:30  undo-engine.json
73742   -rwx         21387416  May 20 2025 14:15:44 +05:30  live-record_x64
73741   -rwx            10645  May 20 2025 14:14:54 +05:30  live-record_polaris
73733   -rw-            98614   May 6 2025 09:49:32 +05:30  collated_log_20250506-041923
73736   -rw-          1207993   May 5 2025 15:18:45 +05:30  mcp_diag.image
24      -rw-            16319  Apr 29 2025 09:58:52 +05:30  test_rumack.txt
31      -rw-             3566  Apr 23 2025 10:44:06 +05:30  Rum-Report-v0010.txt
73731   -rw-             4785   Apr 2 2025 13:53:10 +05:30  backup_config.cfg
73730   -rw-             2689  Mar 17 2025 14:06:29 +05:30  ipconfig.config
28147713  drwx             4096   Mar 8 2025 14:58:59 +05:30  pnp-tech
18      -rw-              257   Mar 8 2025 14:58:16 +05:30  .iox_dir_list
14516225  drwx             4096  Jan 30 2025 15:04:49 +05:30  pcap
```

```
27074561  drwx             4096  Jan 30 2025 15:04:49 +05:30  SHARED-IOX
11      drwx             4096  Jan 30 2025 15:04:32 +05:30  lost+found
1998849  drwx             4096   Dec 4 2024 13:55:50 +05:30  .geo

468237697024 bytes total (434919051264 bytes free)

Router#copy tftp: bootflash:
Address or name of remote host []? 172.18.5.151
Source filename []? $cpprtp/efg/c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin
Destination filename [c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin]?
Accessing
tftp://172.18.5.151//auto/tftp-cpprtp/efg/c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin...
Loading /auto/tftp-cpprtp/efg/c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin from
172.18.5.151 (via GigabitEthernet0):
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[OK - 947877424 bytes]

947877424 bytes copied in 576.308 secs (1644741 bytes/sec)
Router#
Router#
Router#dir bootflash:
Directory of bootflash:/

29      -rw-        947877424   Nov 7 2025 07:44:40 +00:00
c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin
873121  drwx             4096   Nov 7 2025 03:40:36 +00:00  .installer
28      -rw-           379569   Nov 7 2025 03:32:10 +00:00
threshold_lowmem_info_20251107-033207-UTC
1109761  drwx             8192   Nov 7 2025 03:32:07 +00:00  license_evlog
22      -rw-           144588   Nov 7 2025 03:32:02 +00:00  memleak.tcl
1591201  drwx             4096   Nov 7 2025 03:31:54 +00:00  .prst_sync
16      -rwx            30662   Nov 7 2025 03:31:46 +00:00  mode_event_log
25      -rw-              219   Nov 7 2025 03:31:14 +00:00  harddisk_info_history
122401  drwx             8192   Nov 7 2025 03:27:20 +00:00  tracelogs
24      -rw-           376820   Nov 7 2025 03:26:49 +00:00
threshold_lowmem_info_20251107-032647-UTC
987361  drwx             4096   Nov 7 2025 03:25:18 +00:00  sysboot
1052653  -r--              706   Nov 7 2025 03:25:15 +00:00  debug.conf
17      -rw-        213923558   Nov 7 2025 03:22:00 +00:00  mcpcc00_recording.19592.undo
15      -rw-        172239006   Nov 7 2025 03:21:54 +00:00  mcpcc01_recording.19592.undo
14      -rw-         71206936   Nov 9 2021 12:02:46 +00:00  castor_top_SMAP.bin
12      -rw-        730948780   Nov 9 2021 12:02:15 +00:00  10g_p2a.bin
11      drwx            16384   Nov 9 2021 12:01:39 +00:00  lost+found

26975526912 bytes total (7310331904 bytes free)
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#no boot system
```

```
Router(config)#
Warning: Booting with bundle mode will be deprecated in the near future. Migration to install
 mode is required.
Router(config)#confi
Router(config)#config-reg
Router(config)#config-register 0x1822
Router(config)#exit
Router#
Router#
Router#sho
Router#show run
Router#show running-config | inc boot
boot-start-marker
boot system flash bootflash:c8000aep-universalk9.2025-11-06_15.11_abc.SSA.bin
boot-end-marker
diagnostic bootup level minimal
exception crashinfo file bootflash:threshold_lowmem_info
Router#
Router#
Router#wr
Building configuration...
[OK]
Router#
Router#
Router#reload
Proceed with reload? [confirm]
Nov  7 07:47:09.14
```

Installing the software using install commands

Cisco 8500 Series Secure Routers are shipped in install mode by default. Users can boot the platform, and upgrade or downgrade to Cisco IOS XE software versions using a set of **install** commands.

Restrictions for Installing the Software Using install Commands

- ISSU is not covered in this feature.
- Install mode requires a reboot of the system.

Information about installing the software using install commands

This table describes the differences between Bundle mode and Install mode:

Table 1: Bundle Mode vs Install Mode

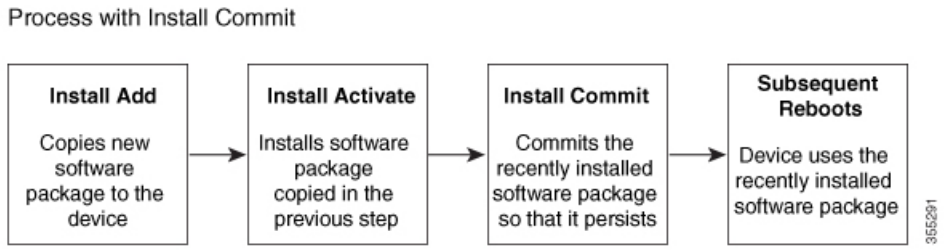
Bundle Mode	Install Mode
This mode provides a consolidated boot process, using local (hard disk, flash) or remote (TFTP) .bin image. **Note** Bundle boot from USB and TFTP Boot is not supported.	This mode uses the local (bootflash) packages.conf file for the boot process.

Bundle Mode	Install Mode
This mode uses a single .bin file.	.bin file is replaced with expanded .pkg files in this mode.
CLI: `#boot system file <filename>`	CLI: `#install add file bootflash: [activate commit]`
To upgrade in this mode, point the boot system to the new image.	To upgrade in this mode, use the **install** commands.
Image Auto-Upgrade: When a new Field-Replaceable Unit (FRU) is inserted in a modular chassis, manual intervention is required to get the new FRU running with the same version as the active FRUs.	Image Auto-Upgrade: When a new FRU is inserted in a modular chassis, the joining FRU is auto-upgraded to the image version in sync with the active FRUs.
Rollback: Rollback to the previous image with multiple Software Maintenance Updates (SMUs) may require multiple reloads.	Rollback: Enables rollback to an earlier version of Cisco IOS XE software, including multiple patches in single reload.

Install Mode Process Flow

The install mode process flow comprises three commands to perform installation and upgrade of software on platforms–**install add**, **install activate**, and **install commit**.

The following flow chart explains the install process with **install** commands:



The **install add** command copies the software package from a local or remote location to the platform. The location can be FTP, HTTP, HTTPs, or TFTP. The command extracts individual components of the .package file into subpackages and packages.conf files. It also validates the file to ensure that the image file is specific to the platform on which it is being installed.

The **install activate** command performs the required validations and provisions the packages previously added using the **install add** command. It also triggers a system reload.

The **install commit** command confirms the packages previously activated using the **install activate** command, and makes the updates persistent over reloads.

Note Installing an update replaces any previously installed software image. At any time, only one image can be installed in a device.

The following set of install commands is available:

Table 2: List of install Commands

Command	Syntax	Purpose
install add	**install add file** *location:filename.bin*	Copies the contents of the image, package, and SMUs to the software repository. File location may be local or remote. This command does the following: • Validates the file–checksum, platform compatibility checks, and so on. • Extracts individual components of the package into subpackages and packages.conf • Copies the image into the local inventory and makes it available for the next steps.
install activate	**install activate**	Activates the package added using the **install add** command. • Use the **show install summary** command to see which image is inactive. This image will get activated. • System reloads on executing this command. Confirm if you want to proceed with the activation. Use this command with the **prompt-level none** keyword to automatically ignore any confirmation prompts.

Command	Syntax	Purpose
(install activate) auto abort-timer	**install activate auto-abort timer** *<30-1200>*	The **auto-abort timer** starts automatically, with a default value of 120 minutes. If the **install commit** command is not executed within the time provided, the activation process is terminated, and the system returns to the last-committed state. • You can change the time value while executing the **install activate** command. • The **install commit** command stops the timer, and continues the installation process. • The **install activate auto-abort timer stop** command stops the timer without committing the package. • Use this command with the **prompt-level none** keyword to automatically ignore any confirmation prompts. • This command is valid only in the three-step install variant.
install commit	**install commit**	Commits the package activated using the **install activate** command, and makes it persistent over reloads. • Use the **show install summary** command to see which image is uncommitted. This image will get committed.

Command	Syntax	Purpose
install abort	**install abort**	Terminates the installation and returns the system to the last-committed state. • This command is applicable only when the package is in activated status (uncommitted state). • If you have already committed the image using the **install commit** command, use the **install rollback to** command to return to the preferred version.
install remove	**install remove {file** <*filename*> **| inactive}**	Deletes inactive packages from the platform repository. Use this command to free up space. • **file**: Removes specified files. • **inactive**: Removes all the inactive files.
install rollback to	**install rollback to {base | label | committed | id}**	Rolls back the software set to a saved installation point or to the last-committed installation point. The following are the characteristics of this command: • Requires reload. • Is applicable only when the package is in committed state. • Use this command with the **prompt-level none** keyword to automatically ignore any confirmation prompts. **Note** If you are performing install rollback to a previous image, the previous image must be installed in install mode. Only SMU rollback is possible in bundle mode.

Command	Syntax	Purpose
install deactivate	**install deactivate file** <*filename*>	Removes a package from the platform repository. This command is supported only for SMUs. • Use this command with the **prompt-level none** keyword to automatically ignore any confirmation prompts.

The following show commands are also available:

Table 3: List of show Commands

Command	Syntax	Purpose
show install log	**show install log**	Provides the history and details of all install operations that have been performed since the platform was booted.
show install package	**show install package** <*filename*>	Provides details about the .pkg/.bin file that is specified.
show install summary	**show install summary**	Provides an overview of the image versions and their corresponding install states for all the FRUs. • The table that is displayed will state for which FRUs this information is applicable. • If all the FRUs are in sync in terms of the images present and their state, only one table is displayed. • If, however, there is a difference in the image or state information among the FRUs, each FRU that differs from the rest of the stack is listed in a separate table.
show install active	**show install active**	Provides information about the active packages for all the FRUs. If there is a difference in the information among the FRUs, each FRU that differs from the rest of the stack is listed in a separate table.

Command	Syntax	Purpose
show install inactive	**show install inactive**	Provides information about the inactive packages, if any, for all the FRUs. If there is a difference in the information among the FRUs, each FRU that differs from the rest of the stack is listed in a separate table.
show install committed	**show install committed**	Provides information about the committed packages for all the FRUs. If there is a difference in the information among the FRUs, each FRU that differs from the rest of the stack is listed in a separate table.
show install uncommitted	**show install uncommitted**	Provides information about uncommitted packages, if any, for all the FRUs. If there is a difference in the information among the FRUs, each FRU that differs from the rest of the stack is listed in a separate table.
show install rollback	**show install rollback {point-id | label}**	Displays the package associated with a saved installation point.
show version	**show version [rp-slot] [installed [user-interface] | provisioned | running]**	Displays information about the current package, along with hardware and platform information.

Booting the Platform in Install Mode

You can install, activate, and commit a software package using a single command (one-step install) or multiple separate commands (three-step install).

If the platform is working in bundle mode, the one-step install procedure must be used to initially convert the platform from bundle mode to install mode. Subsequent installs and upgrades on the platform can be done with either one-step or three-step variants.

One-Step Installation or Converting from Bundle Mode to Install Mode

Note

- All the CLI actions (for example, add, activate, and so on) are executed on all the available FRUs.
- The configuration save prompt will appear if an unsaved configuration is detected.
- The reload prompt will appear after the second step in this workflow. Use the **prompt-level none** keyword to automatically ignore the confirmation prompts.
- If the prompt-level is set to None, and there is an unsaved configuration, the install fails. You must save the configuration before reissuing the command.

Use the one-step install procedure described below to convert a platform running in bundle boot mode to install mode. After the command is executed, the platform reboots in install boot mode.

Later, the one-step install procedure can also be used to upgrade the platform.

This procedure uses the **install add file activate commit** command in privileged EXEC mode to install a software package, and to upgrade the platform to a new version.

SUMMARY STEPS

1. **enable**
2. **install add file location:** *filename* [**activate commit**]
3. **exit**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device>enable`	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	**install add file location:** *filename* [**activate commit**] **Example:** `Device#install add file bootflash:c8000be-universalk9.EDV177_THROTTLE_LATEST_20211021_031123_V17_15_4o_117.SSA.bin activate commit`	Copies the software install package from a local or remote location (through FTP, HTTP, HTTPs, or TFTP) to the platform and extracts the individual components of the .package file into subpackages and packages.conf files. It also performs a validation and compatibility check for the platform and image versions, activates the package, and commits the package to make it persistent across reloads. The platform reloads after this command is run.
Step 3	**exit** **Example:** `Device#exit`	Exits privileged EXEC mode and returns to user EXEC mode.

Three-Step Installation

Note

- All the CLI actions (for example, add, activate, and so on) are executed on all the available FRUs.
- The configuration save prompt will appear if an unsaved configuration is detected.
- The reload prompt will appear after the install activate step in this workflow. Use the **prompt-level none** keyword to automatically ignore the confirmation prompts.

The three-step installation procedure can be used only after the platform is in install mode. This option provides more flexibility and control to the customer during installation.

This procedure uses individual **install add**, **install activate**, and **install commit** commands for installing a software package, and to upgrade the platform to a new version.

SUMMARY STEPS

1. **enable**
2. **install add file location:** *filename*
3. **show install summary**
4. **install activate** [**auto-abort-timer** <*time*>]
5. **install abort**
6. **install commit**
7. **install rollback to committed**
8. **install remove** {**file** *filesystem: filename* | **inactive**}
9. **show install summary**
10. **exit**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device>enable`	Enables privileged EXEC mode. Enter your password, if prompted.
Step 2	**install add file location:** *filename* **Example:** `Device#install add file bootflash:c8000aep-universalk9.17.15.04a.SPA.bin`	Copies the software install package from a remote location (through FTP, HTTP, HTTPs, or TFTP) to the platform, and extracts the individual components of the .package file into subpackages and packages.conf files.
Step 3	**show install summary** **Example:** `Device#show install summary`	(Optional) Provides an overview of the image versions and their corresponding install state for all the FRUs.

	Command or Action	Purpose
Step 4	**install activate** [**auto-abort-timer** <*time*>] **Example:** `Device# install activate auto-abort-timer 120`	Activates the previously added package and reloads the platform. • When doing a full software install, do not provide a package filename. • In the three-step variant, **auto-abort-timer** starts automatically with the **install activate** command; the default for the timer is 120 minutes. If the **install commit** command is not run before the timer expires, the install process is automatically terminated. The platform reloads and boots up with the last committed version.
Step 5	**install abort** **Example:** `Device#install abort`	(Optional) Terminates the software install activation and returns the platform to the last committed version. • Use this command only when the image is in activated state, and not when the image is in committed state.
Step 6	**install commit** **Example:** `Device#install commit`	Commits the new package installation and makes the changes persistent over reloads.
Step 7	**install rollback to committed** **Example:** `Device#install rollback to committed`	(Optional) Rolls back the platform to the last committed state.
Step 8	**install remove** {**file** *filesystem: filename* | **inactive**} **Example:** `Device#install remove inactive`	(Optional) Deletes software installation files. • **file**: Deletes a specific file • **inactive**: Deletes all the unused and inactive installation files.
Step 9	**show install summary** **Example:** `Device#show install summary`	(Optional) Displays information about the current state of the system. The output of this command varies according to the **install** commands run prior to this command.
Step 10	**exit** **Example:** `Device#exit`	Exits privileged EXEC mode and returns to user EXEC mode.

Upgrading in Install Mode

Use either the one-step installation or the three-step installation to upgrade the platform in install mode.

Downgrading in Install Mode

Use the **install rollback** command to downgrade the platform to a previous version by pointing it to the appropriate image, provided the image you are downgrading to was installed in install mode.

The **install rollback** command reloads the platform and boots it with the previous image.



Note The **install rollback** command succeeds only if you have not removed the previous file using the **install remove inactive** command.

Alternatively, you can downgrade by installing the older image using the **install** commands.

Terminating a Software Installation

You can terminate the activation of a software package in the following ways:

- When the platform reloads after activating a new image, the auto-abort-timer is triggered (in the three-step install variant). If the timer expires before issuing the **install commit** command, the installation process is terminated, and the platform reloads and boots with the last committed version of the software image.

  Alternatively, use the **install auto-abort-timer stop** command to stop this timer, without using the **install commit** command. The new image remains uncommitted in this process.

- Using the **install abort** command returns the platform to the version that was running before installing the new software. Use this command before issuing the **install commit** command.

Configuration Examples for Installing the Software Using install Commands

The following is an example of the one-step installation or converting from bundle mode to install mode:

```
Router #install add file
bootflash:c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.bin
activate commit
install_add_activate_commit: START Mon Jul 07 14:22:07 IST 2025
install_add: START Mon Jul 07 14:22:07 IST 2025
install_add: Adding IMG
--- Starting initial file syncing ---
Copying
bootflash:c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.bin
from  R0 to  R0
Info: Finished copying to the selected
Finished initial file syncing

--- Starting Add ---
Performing Add on all members

*Jul  7 08:52:07.326: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install
add_activate_commit
bootflash:c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.binChecking
 status of Add on [R0]
Add: Passed on [R0]
Image added. Version: 17.19.01.0.224220
```

```
Finished Add

install_activate: START Mon Jul 07 14:22:16 IST 2025
install_activate: Activating IMG
Following packages shall be activated:
/bootflash/c8000aep-firmware_ngwic_t1e1.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.pkg
/bootflash/c8000aep-firmware_nim_ssd.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.pkg
/bootflash/c8000aep-mono-universalk9.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.pkg
/bootflash/c8000aep-rpboot.BLD_POLARIS_DEV_LATEST_20250628_033228_V17_19_0_21.SSA.pkg

This operation may require a reload of the system. Do you want to proceed? [y/n]
*Jul  7 08:52:16.603: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install
activate NONEy

--- Starting Activate ---
Performing Activate on all members
 [1] Activate package(s) on  R0
Checking status of Activate on [R0]
Activate: Passed on [R0]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
 [1] Commit package(s) on  R0
 [1] Finished Commit on  R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
Finished Commit operation

SUCCESS: install_add_activate_commit Mon Jul 07 14:22:41 IST 2025
Encore#
*Jul  7 08:52:41.750: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_mgr: Completed install
 add_activate_commitJul  7 14:22:48.332: %PMAN-5-E




Initializing Hardware ...


System integrity status: 90170200  21030106
Procyon RSM done


System Bootstrap, Version Private [sajjha-blue_pqc 109], DEVELOPMENT SOFTWARE
Copyright (c) 1994-2025 by cisco Systems, Inc.
Compiled Fri Jun 13 14:17:01 2025 by sajjha

Current image running: Boot ROM0
Last reset cause: LocalSoft

Disk ID:#0,MSA281400HY-Micron_7450_MTFDKBA480TFR    - Disk already unlocked
C8570-G2 platform with 33554432 Kbytes of main memory

Enc_5_P2B 1 >
```

The following is an example of the three-step installation:

```
Router #install add file boo
Encore#$rsalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.bin
install_add: START Mon Jul 07 14:53:11 IST 2025
install_add: Adding IMG
```

```
--- Starting initial file syncing ---
Copying
bootflash:c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.bin
from  R0 to  R0
Info: Finished copying to the selected
Finished initial file syncing

--- Starting Add ---
Performing Add on all members

*Jul  7 09:23:11.416: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install add

bootflash:c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.binChecking
 status of Add on [R0]
Add: Passed on [R0]
Image added. Version: 17.19.01.0.223976

Finished Add

SUCCESS: install_add
/bootflash/c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.bin
 Mon Jul 07 14:53:19 IST 2025

Encore#
*Jul  7 09:23:19.987: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_mgr: Completed install
 add
bootflash:/c8000aep-universalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.bin
Encore#
Encore#install activate
install_activate: START Mon Jul 07 14:54:14 IST 2025
install_activate: Activating IMG
Following packages shall be activated:
/bootflash/c8000aep-firmware_ngwic_t1e1.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.pkg
/bootflash/c8000aep-firmware_nim_ssd.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.pkg
/bootflash/c8000aep-mono-universalk9.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.pkg
/bootflash/c8000aep-rpboot.BLD_POLARIS_DEV_LATEST_20250625_033136_V17_19_0_20.SSA.pkg

This operation may require a reload of the system. Do you want to proceed? [y/n]
                                                                                *Jul  7
09:24:14.874: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install activate
NONEy

--- Starting Activate ---
Performing Activate on all members
 [1] Activate package(s) on  R0

*Jul  7 09:25:18.674: %INSTALL-5-INSTALL_AUTO_ABORT_TIMER_PROGRESS: R0/0: rollback_timer:
Install auto abort timer will expire in 7200 seconds [1] Finished Activate on  R0
Checking status of Activate on [R0]
Activate: Passed on [R0]
Finished Activate

SUCCESS: install_activate Mon Jul 07 14:55:25 IST 2025

Encore#
*Jul  7 09:25:25.208: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_mgr: Completed install
 activateJul  7 14:55:31.791: %PMAN-5-EXITAC
Encore#install commit
install_commit: START Mon Jul 07 14:59:12 IST 2025
--- Starting Commit ---
Performing Commit on all members
 [1] Commit packages(s) on  R0

*Jul  7 09:29:12.013: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install
```

```
commit [1] Finished Commit packages(s) on  R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
Finished Commit operation

SUCCESS: install_commit Mon Jul 07 14:59:13 IST 2025

Encore#
*Jul  7 09:29:13.749: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_mgr: Completed install
 commit
```

The following is an example of downgrading in install mode:

```
Router# install activate file bootflash:c8000be-universalk9.17.06.01a.SPA.bin activate
commit

install_add_activate_commit: START Fri Dec 10 18:07:17 GMT 2021

*Dec 10 18:07:18.405 GMT: %INSTALL-5-INSTALL_START_INFO: R0/0: install_engine: Started
install one-shot bootflash:c8000be-universalk9.17.06.01a.SPA.bininstall_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: 17.06.01a.0.298
install_add_activate_commit: Activating PACKAGE
Following packages shall be activated:
/bootflash/c8000be-rpboot.17.06.01a.SPA.pkg
/bootflash/c8000be-mono-universalk9.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_sm_nim_adpt.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_sm_dsp_sp2700.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_sm_async.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_sm_1t3e3.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_sm_10g.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_prince.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_xdsl.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_ssd.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_shdsl.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_ge.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_cwan.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_bri_st_fw.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_nim_async.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_ngwic_t1e1.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_dsp_tilegx.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_dsp_sp2700.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_dsp_analogbri.17.06.01a.SPA.pkg
/bootflash/c8000be-firmware_dreamliner.17.06.01a.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
  [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
Building configuration...

  [1] Finished Commit on R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
Finished Commit

[OK]
*Dec 10 18:14:57.782 GMT: %SYS-6-PRIVCFG_ENCRYPT_SUCCESS: Successfully encrypted private
config fileSend model notification for install_add_activate_commit before reload
/usr/binos/conf/install_util.sh: line 164: /bootflash/.prst_sync/reload_info: No such file
 or directory
/usr/binos/conf/install_util.sh: line 168: /bootflash/.prst_sync/reload_info: No such file
 or directory
cat: /bootflash/.prst_sync/reload_info: No such file or directory
Install will reload the system now!
SUCCESS: install_add_activate_commit  Fri Dec 10 18:15:23 GMT 2021

ROUTER#
*Dec 10 18:15:23.955 GMT: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_engine: Completed
 install one-shot PACKAGE bootflash:c8000be-universalk9.17.06.01a.SPA.binDec 10 18:15:27.708:
 %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: reload action requested

Initializing Hardware ...

Checking for PCIe device presence...done
System integrity status: 0x610
Rom image verified correctly

System Bootstrap, Version 17.3(5r), RELEASE SOFTWARE
Copyright (c) 1994-2021 by cisco Systems, Inc.

Current image running: Boot ROM0

Last reset cause: LocalSoft
ROUTER platform with 8388608 Kbytes of main memory

□

Press RETURN to get started!

□

ROUTER#
ROUTER# show version
Cisco IOS XE Software, Version 17.06.01a
Cisco IOS Software [Bengaluru], c8000be Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version
 17.6.1a, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2021 by Cisco Systems, Inc.
Compiled Sat 21-Aug-21 03:27 by mcpre

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GPL code under the terms of GPL Version 2.0.  For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
```

```
software.

ROM: 17.3(5r)

ROUTER uptime is 0 minutes
Uptime for this control processor is 2 minutes
System returned to ROM by LocalSoft
System image file is "bootflash:packages.conf"
Last reload reason: LocalSoft

This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.

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.

Technology Package License Information:

------------------------------------------------------------------
Technology     Type         Technology-package Technology-package
                            Current            Next Reboot
------------------------------------------------------------------
Smart License  Perpetual    None               None
Smart License  Subscription None               None

The current crypto throughput level is 250000 kbps

Smart Licensing Status: Registration Not Applicable/Not Applicable

cisco ROUTER (1RU) processor with 3747220K/6147K bytes of memory.
Processor board ID FDO2521M27S
Router operating mode: Autonomous
5 Gigabit Ethernet interfaces
2 2.5 Gigabit Ethernet interfaces
2 Cellular interfaces
32768K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
7573503K bytes of flash memory at bootflash:.
1875361792K bytes of NVMe SSD at harddisk:.
16789568K bytes of USB flash at usb0:.

Configuration register is 0x2102
```

The following is an example of terminating a software installation:

```
Router# install abort
install_abort: START Fri Oct 29 02:42:51 UTC 2021

This install abort would require a reload. Do you want to proceed? [y/n]
                                                                    *Oct 29 02:42:52.789:
 %INSTALL-5-INSTALL_START_INFO: R0/0: install_engine: Started install aborty
--- Starting Abort ---
Performing Abort on Active/Standby
```

```
  [1] Abort package(s) on R0
  [1] Finished Abort on R0
Checking status of Abort on [R0]
Abort: Passed on [R0]
Finished Abort

Send model notification for install_abort before reload
Install will reload the system now!
SUCCESS: install_abort  Fri Oct 29 02:44:47 UTC 2021

Router#
*Oct 29 02:44:47.866: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_engine: Completed
install abort PACKAGEOct 29 02:44:51.577: %PMAN-5-EXITACTION: R0/0: pvp: Process manager
is exiting: reload action requested

Initializing Hardware ...

Checking for PCIe device presence...done
System integrity status: 0x610

System Bootstrap, Version 17.3(4.1r), RELEASE SOFTWARE
Copyright (c) 1994-2021 by cisco Systems, Inc.

Current image running   : Boot ROM1
Last reset cause        : LocalSoft
C8300-2N2S-6T platform with 8388608 Kbytes of main memory

□

Press RETURN to get started!

□
```

The following are sample outputs for show commands:

show install log

```
Device# show install log
[0|install_op_boot]: START Thu Oct 28 22:09:29 Universal 2021
[0|install_op_boot(INFO, )]: Mount IMG INI state base image
[0|install_op_boot]: END SUCCESS  Thu Oct 28 22:09:30 Universal 2021
```

show install summary

```
Device# 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    17.07.01.0.1515

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

show install package *filesystem: filename*

```
Device# show install package
bootflash:c8000be-universalk9.BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117.SSA.bin
Package: c8000be-universalk9.BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117.SSA.bin
```

```
  Size: 831447859
  Timestamp: 2021-10-23 17:08:14 UTC
  Canonical path:
/bootflash/c8000be-universalk9.BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117.SSA.bin


  Raw disk-file SHA1sum:
    5c4e7617a6c71ffbcc73dcd034ab58bf76605e3f
  Header size:     1192 bytes
  Package type:    30000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: rp_super
    BuildTime: 2021-10-21_13.00
    ReleaseDate: 2021-10-21_03.11
    BootArchitecture: i686
    RouteProcessor: radium
    Platform: C8000BE
    User: mcpre
    PackageName: universalk9
    Build: BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117
    CardTypes:

  Package is bootable from media and tftp.
  Package contents:

  Package:
c8000be-firmware_nim_ge.BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117.SSA.pkg
    Size: 2966620
    Timestamp: 2021-10-21 20:10:44 UTC

    Raw disk-file SHA1sum:
      501d59d5f152ca00084a0da8217bf6f6b95dddb1
    Header size:     1116 bytes
    Package type:    40000
    Package flags:   0
    Header version:  3

    Internal package information:
      Name: firmware_nim_ge
      BuildTime: 2021-10-21_13.00
      ReleaseDate: 2021-10-21_03.11
      BootArchitecture: none
      RouteProcessor: radium
      Platform: C8000BE
      User: mcpre
      PackageName: firmware_nim_ge
      Build: BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117
      CardTypes:

    Package is not bootable.
  Package:
c8000be-firmware_prince.BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117.SSA.pkg
    Size: 10204252
    Timestamp: 2021-10-21 20:10:43 UTC

    Raw disk-file SHA1sum:
      a57bed4ddecfd08af3b456f69d11aaeb962865ea
    Header size:     1116 bytes
    Package type:    40000
    Package flags:   0
    Header version:  3
```

```
    Internal package information:
      Name: firmware_prince
      BuildTime: 2021-10-21_13.00
      ReleaseDate: 2021-10-21_03.11
      BootArchitecture: none
      RouteProcessor: radium
      Platform: C8000BE
      User: mcpre
      PackageName: firmware_prince
      Build: BLD_V177_THROTTLE_LATEST_20211021_031123_V17_7_0_117
      CardTypes:

    Package is not bootable.
```

show install active

```
Device# show install active
[ R0 ] Active Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
            C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------
Type  St   Filename/Version
--------------------------------------------------------------------------
IMG   C    17.07.01.0.1515

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

show install inactive

```
Device# show install inactive
[ R0 ] Inactive Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
            C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------
Type  St   Filename/Version
--------------------------------------------------------------------------
No Inactive Packages
```

show install committed

```
Device# show install committed
[ R0 ] Committed Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
            C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------
Type  St   Filename/Version
--------------------------------------------------------------------------
IMG   C    17.07.01.0.1515

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

show install uncommitted

```
Device# show install uncommitted
[ R0 ] Uncommitted Package(s) Information:
State (St): I - Inactive, U - Activated & Uncommitted,
            C - Activated & Committed, D - Deactivated & Uncommitted
--------------------------------------------------------------------------
Type  St   Filename/Version
--------------------------------------------------------------------------
No Uncommitted Packages
```

Troubleshooting Software Installation Using install Commands

Problem Troubleshooting the software installation

Solution Use the following show commands to view installation summary, logs, and software versions.

- **show install summary**
- **show install log**
- **show version**
- **show version running**

Problem Other installation issues

Solution Use the following commands to resolve installation issue:

- **dir** <*install directory*>
- **more location:***packages.conf*
- **show tech-support install**: this command automatically runs the **show** commands that display information specific to installation.
- **request platform software trace archive target bootflash** <*location*>: this command archives all the trace logs relevant to all the processes running on the system since the last reload, and saves this information in the specified location.