Install the software

This chapter includes these sections:

Install a software

Installing software on the router involves installing a consolidated package (bootable image). This consists of a bundle of subpackages (modular software units), with each subpackage controlling a different set of functions.

These are the two main methods to install the software:

- Manage and Configure a device to run using a consolidated package, on page 5—This method allows for individual upgrade of subpackages and generally has reduced boot times compared to the method below. Use this method if you want to individually upgrade a module's software.
- Manage and Configure a device to run using individual packages, on page 39—This a simple method that is similar to a typical Cisco router image installation and management that is supported across Cisco routers.

It is better to upgrade software in a planned period of maintenance when an interruption in service is acceptable. The router needs to be rebooted for a software upgrade to take effect.

ROMMON images

A ROMMON image is a software package used by ROM Monitor (ROMMON) software on a router. The software package is separate from the consolidated package normally used to boot the router. For more information on ROMMON, see Hardware Installation Guide for the Cisco 8300 Series Secure Routers.

An independent ROMMON image (software package) may occasionally be released and the router can be upgraded with the new ROMMON software. For detailed instructions, see the documentation that accompanies the ROMMON image.

Note A new version of the ROMMON image is not necessarily released at the same time as a consolidated package for a router.

Provisioning files

This section provides background information about the files and processes used in Manage and Configure a device to run using individual packages, on page 39.

The consolidated package on a device consists of a collection of subpackages and a provisioning file titled `packages.conf`. To run the software, the usual method used is to boot the consolidated package, which is copied into memory, expanded, mounted, and run within memory. The provisioning file's name can be renamed but subpackage file's names cannot be renamed. The provisioning file and subpackage files must be kept in the same directory. The provisioning file does not work properly if any individual subpackage file is contained within a different directory.

Note An exception to this is that if a new or upgraded module firmware package is subsequently installed, it need not be in the same directory as the provisioning file.

Configuring a device to boot, using the provisioning file packages.conf, is beneficial because no changes have to be made to the boot statement after the Cisco IOS XE software is upgraded.

File systems

The table provides a list of file systems that can be seen on the Cisco 8300 Series Secure Routers.

Table 1: Device file systems

File System	Description
bootflash:	Boot flash memory file system.
flash:	Alias to the boot flash memory file system above.

File System	Description
harddisk:	Hard disk file system (NVME-M2-600G or USB-M2-16G or USB-M2-32G with the CLI command harddisk).
cns:	Cisco Networking Services file directory.
nvram:	Device NVRAM. You can copy the startup configuration to NVRAM or from NVRAM.
obfl:	File system for Onboard Failure Logging (OBFL) files.
system:	System memory file system, which includes the running configuration.
tar:	Archive file system.
tmpsys:	Temporary system files file system.
USB Type C	The Universal Serial Bus (USB) flash drive file systems. **Note** The USB flash drive file system is visible only if a USB drive is installed in usb0: or usb1: ports.

Use the **?** help option, or use the **copy** command in command reference guides, if you find a file system that is not listed in the table above.

Autogenerated file directories and files

This section discusses the autogenerated files and directories that can be created, and how the files in these directories can be managed.

Table 2: Autogenerated files

File or Directory	Description
crashinfo files	Crashinfo files may appear in the bootflash: file system. These files provide descriptive information of a crash and may be useful for tuning or troubleshooting purposes. However, the files are not part of device operations, and can be erased without impacting the functioning of the device.
core directory	The storage area for .core files. If this directory is erased, it will automatically regenerate itself at bootup. The .core files in this directory can be erased without impacting any device functionality, but the directory itself should not be erased.
lost+found directory	This directory is created on bootup if a system check is performed. Its appearance is completely normal and does not indicate any issues with the device.

File or Directory	Description
tracelogs directory	The storage area for trace files. Trace files are useful for troubleshooting. If the Cisco IOS process fails, for instance, users or troubleshooting personnel can access trace files using diagnostic mode to gather information related to the Cisco IOS failure. Trace files, however, are not a part of device operations, and can be erased without impacting the device's performance.

Important notes about autogenerated directories

Important information about autogenerated directories include:

- Autogenerated files on the bootflash: directory should not be deleted, renamed, moved, or altered in any way unless directed by Cisco customer support.

Note Altering autogenerating files on the bootflash: may have unpredictable consequences for system performance.

- Crashinfo, core, and trace files can be deleted.

Flash storage

Subpackages are installed to local media storage, such as flash. For flash storage, use the **dir bootflash:** command to list the file names.

Note Flash storage is required for successful operation of a device.

Configure the configuration register for autoboot

The configuration register can be used to change behavior. This includes controlling how the device boots. Set the configuration register to 0x0 to boot into ROM, by using one of the following commands:

- In Cisco IOS configuration mode, use the **config-reg** 0x0 command.
- From the ROMMON prompt, use the **confreg** 0x0 command.

For more information about the configuration register, see Use of the Configuration Register on All Cisco Routers.

Note Setting the configuration register to 0x2102 will set the device to autoboot the Cisco IOS XE software.

Note The console baud rate is set to 9600 after changing the **confreg** to 0x2102 or 0x0. If you cannot establish a console session after setting **confreg**, or garbage output appears, change the setting on your terminal emulation software to 9600.

How to install and upgrade the software

To install or upgrade the software, use one of thse methods to use the software from a consolidated package or an individual package. Also see the Install a software section.

- Manage and Configure a device to run using a consolidated package, on page 5
- Manage and Configure a device to run using individual packages, on page 39

Manage and Configure a device to run using a consolidated package

Note Do not use these procedures if you also need to install any optional subpackages or plan to upgrade individual subpackages. See Manage and Configure a device to run using individual packages, on page 39.

- Manage and configure a consolidated package using copy and boot Commands, on page 5
- Configure a device to boot the consolidated package via TFTP using the boot command: Example, on page 11

Manage and configure a consolidated package using copy and boot Commands

To upgrade a consolidated package, copy the consolidated package to the **bootflash:** directory on the router using the **copy** command. After making this copy of the consolidated package, configure the router to boot using the consolidated package file.

The example shows the consolidated package file being copied to the **bootflash:** file system via 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:/
23      -rw-                0   Jun 5 2025 09:50:37 +00:00  iox_alt_hdd.dsk

784897  drwx          3358720   Jun 5 2025 09:23:28 +00:00  tracelogs

392449  drwx             4096  May 21 2025 09:22:30 +00:00  .rollback_timer

11      -rw-              422  May 21 2025 09:12:33 +00:00  .iox_dir_list

915713  drwx             4096  May 21 2025 09:12:13 +00:00  SHARED-IOX

21      -rw-               30  May 21 2025 09:12:12 +00:00  throughput_monitor_params
```

```
15      -rw-           143041  May 21 2025 09:12:04 +00:00  memleak.tcl

1046531  drwx            73728  May 21 2025 09:12:00 +00:00  license_evlog

1046529  drwx             4096  May 21 2025 09:11:53 +00:00  .prst_sync

12      -rwx           261921  May 21 2025 09:11:47 +00:00  mode_event_log

59      -rw-             7762  May 21 2025 09:09:09 +00:00  packages.conf

48      -rw-             7762  May 21 2025 09:04:42 +00:00
c8kg2be-universalk9.17.15.03a.SPA.conf
1047801  -rw-        59995452  May 21 2025 09:04:39 +00:00  c8kg2be-rpboot.17.15.03a.SPA.pkg

1046537  drwx             4096  May 21 2025 09:04:38 +00:00  .images

130817  drwx             4096  May 21 2025 09:01:56 +00:00  sysboot

47      -rw-             9391  May 21 2025 08:59:39 +00:00
c8kg2be-universalk9.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.conf
1047773  -rw-         59995512  May 21 2025 08:59:38 +00:00
c8kg2be-rpboot.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg
785553  drwx             4096  May 21 2025 06:27:34 +00:00  memaudit_log
13      drwx             4096  May 19 2025 03:58:14 +00:00  core
46      -rw-       1003589796  May 14 2025 11:21:03 +00:00
c8kg2be-universalk9.BLD_V1718_THROTTLE_LATEST_20250423_010128.SSA.bin
45      -rw-              396  May 14 2025 05:39:34 +00:00  ct_persistent.txt
44      -rw-             7711   May 6 2025 08:36:06 +00:00
c8kg2be-universalk9.17.15.03.SPA.conf
1047740  -rw-        59987868   May 6 2025 08:36:03 +00:00  c8kg2be-rpboot.17.15.03.SPA.pkg

24      -rw-        953199576   May 6 2025 07:02:50 +00:00
c8kg2be-universalk9.17.15.03.SPA.bin
43      -rw-            16464   May 6 2025 05:38:49 +00:00  dizeng-crestone-confg

39      -rw-        957518956   May 5 2025 12:04:02 +00:00
c8kg2be-universalk9_npe.17.15.03a.SPA.bin
38      -rw-        953231736   May 4 2025 08:39:53 +00:00
c8kg2be-universalk9.17.15.03a.SPA.bin
1047812  -rw-        891244544   May 2 2025 19:08:25 +00:00
c8kg2be-mono-universalk9.17.15.03a.SPA.pkg
1047807  -rw-          5677056   May 2 2025 19:07:15 +00:00
c8kg2be-firmware_nim_xdsl.17.15.03a.SPA.pkg
1047809  -rw-         13889536   May 2 2025 19:07:15 +00:00
c8kg2be-firmware_sm_1t3e3.17.15.03a.SPA.pkg
1047808  -rw-         10444800   May 2 2025 19:07:15 +00:00
c8kg2be-firmware_prince.17.15.03a.SPA.pkg
1047810  -rw-         14671872   May 2 2025 19:07:15 +00:00
c8kg2be-firmware_sm_async.17.15.03a.SPA.pkg
1047804  -rw-         11956224   May 2 2025 19:07:14 +00:00
c8kg2be-firmware_ngwic_t1e1.17.15.03a.SPA.pkg
1047806  -rw-         11804672   May 2 2025 19:07:14 +00:00
c8kg2be-firmware_nim_shdsl.17.15.03a.SPA.pkg
1047805  -rw-         13254656   May 2 2025 19:07:14 +00:00
c8kg2be-firmware_nim_async.17.15.03a.SPA.pkg
1047811  -rw-           204800   May 2 2025 19:07:14 +00:00
c8kg2be-firmware_sm_nim_adpt.17.15.03a.SPA.pkg
29      -rw-        953227220  Apr 22 2025 12:40:25 +00:00
c8kg2be-universalk9.BLD_V1715_3_THROTTLE_LATEST_20250421_200058.SSA.bin
28      -rw-          5813308  Apr 22 2025 12:03:54 +00:00
SDK112312-Prod-SoC2-v17.15.3_1r-cp.pkg
26      -rw-           763701  Apr 17 2025 08:58:31 +00:00  wilson-running-cfg.txt
```

```
25      -rw-          8630272  Apr 11 2025 11:28:20 +00:00
c8kg2be-hw-programmables.C0x25033132_W0x25033132.pkg
14      -rw-         56012800   Apr 3 2025 08:56:15 +00:00
secapp-utd.17.15.03.1.0.8_SV3.1.81.0_XE17.15.aarch64.tar
75      -rw-       1002810808   Apr 1 2025 07:21:54 +00:00
c8kg2be-universalk9.BLD_POLARIS_DEV_LATEST_20250325_181737.SSA.bin
1047751  -rw-        891219968  Mar 26 2025 06:51:11 +00:00
c8kg2be-mono-universalk9.17.15.03.SPA.pkg
1047747  -rw-         10444800  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_prince.17.15.03.SPA.pkg
1047745  -rw-         11804672  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg
1047750  -rw-           204800  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg
1047744  -rw-         13254656  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_nim_async.17.15.03.SPA.pkg
1047743  -rw-         11956224  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg
1047748  -rw-         13889536  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg
1047746  -rw-          5677056  Mar 26 2025 06:50:09 +00:00
c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg
1047749  -rw-         14671872  Mar 26 2025 06:50:08 +00:00
c8kg2be-firmware_sm_async.17.15.03.SPA.pkg
74      -rw-          2510307  Mar 19 2025 07:08:14 +00:00  redirect.out

72      -rw-        953199060  Mar 12 2025 07:00:51 +00:00
c8kg2be-universalk9.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.bin

1047784  -rw-        891203584  Mar 10 2025 20:59:47 +00:00
c8kg2be-mono-universalk9.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047781  -rw-         13889536  Mar 10 2025 20:58:37 +00:00
c8kg2be-firmware_sm_1t3e3.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047779  -rw-          5677056  Mar 10 2025 20:58:37 +00:00
c8kg2be-firmware_nim_xdsl.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047780  -rw-         10444800  Mar 10 2025 20:58:37 +00:00
c8kg2be-firmware_prince.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047782  -rw-         14671872  Mar 10 2025 20:58:36 +00:00
c8kg2be-firmware_sm_async.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047778  -rw-         11804672  Mar 10 2025 20:58:36 +00:00
c8kg2be-firmware_nim_shdsl.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047776  -rw-         11956224  Mar 10 2025 20:58:36 +00:00
c8kg2be-firmware_ngwic_t1e1.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

1047783  -rw-           204800  Mar 10 2025 20:58:36 +00:00
c8kg2be-firmware_sm_nim_adpt.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg
1047777  -rw-         13254656  Mar 10 2025 20:58:36 +00:00
c8kg2be-firmware_nim_async.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

62      -rw-          5823548  Feb 25 2025 12:53:04 +00:00  C8000-NG-S2-17-15-1_17r.pkg

1046534  drwx             4096   Feb 3 2025 10:28:42 +00:00  pnp-tech

392450  drwx             4096  Jan 28 2025 07:20:24 +00:00  .dbpersist

71      -rw-           261214  Jan 28 2025 07:16:04 +00:00  ajay_backup.cfg

70      -rw-          5821500  Jan 24 2025 02:54:43 +00:00
```

```
SDK112312-Prod-SoC2-v17.15.1_14r-cp.pkg
68      -rw-          9754990  Jan 20 2025 05:17:19 +00:00  show-tech1717

69      -rw-           846347  Jan 20 2025 05:16:14 +00:00
CRFT_Admintech_C8375EG2_2025-01-20_05-16-14.tar.gz
66      -rw-             6928  Jan 13 2025 07:39:59 +00:00  ciscortr.cfg

65      -rw-             6928  Jan 13 2025 07:39:04 +00:00  C8375-E-G2.cfg

64      -rw-           301992   Jan 9 2025 09:08:37 +00:00  dual-public-ip.cfg

63      -rw-       1015740420   Jan 8 2025 07:33:57 +00:00
c8kg2be-universalk9.BLD_POLARIS_DEV_LATEST_20250106_030447.SSA.bin

60      -rw-          4653056  Dec 25 2024 03:50:16 +00:00
c8k30be-hw-programmables.C0x2408272B.pkg
37      -rw-        969660392  Dec 11 2024 05:40:52 +00:00
c8k30be-universalk9.BLD_POLARIS_DEV_LATEST_20241209_180254_V17_17_0_27.SSA.bin

32      -rw-        958470964   Dec 5 2024 05:25:07 +00:00
mira_rom_17.15_1.8r.s2.RelDebug.bin
50      -rw-           301239  Nov 22 2024 11:01:52 +00:00  rc_22_11_24

49      -rw-        952760408  Nov 21 2024 03:53:44 +00:00
c8k30be-universalk9.17.15.02.SPA.bin
42      -rw-          5733436   Nov 6 2024 06:19:35 +00:00
SDK112312-Prod-SoC2-v17.15.1_7d_RSA4K.pkg
41      -rw-             9044  Oct 30 2024 09:26:50 +00:00  cessna-snake.cfg

34      -rwx         39490752  Oct 23 2024 20:15:10 +00:00  mirabile_diag.14er.v0.1.6.0826

33      -rw-         14934016  Oct 23 2024 14:42:04 +00:00  mirabile_diag.zb.v1.0.0_qr3

36      drwx             4096  Oct 19 2024 11:42:32 +00:00  .geo

35      -rw-         56002560  Oct 10 2024 06:32:32 +00:00
secapp-utd.BLD_POLARIS_DEV_LATEST_20241007_181057.1.15.2_SV3.1.81.0_XEmain.aarch64.tar

1046539  -rw-         56309176  Aug 13 2024 09:04:49 +00:00
c8k30be-rpboot.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

20      drwx             4096  Aug 13 2024 09:01:06 +00:00  guest-share

785011  drwx             4096  Aug 13 2024 09:01:04 +00:00  pnp-info

915715  drwx             4096  Aug 13 2024 09:01:04 +00:00  onep

915714  drwx             4096  Aug 13 2024 09:00:58 +00:00  virtual-instance

19      -rw-             1939  Aug 13 2024 09:00:57 +00:00  trustidrootx3_ca_062035.ca

18      -rw-             1826  Aug 13 2024 09:00:57 +00:00  trustidrootx3_ca_092025.ca

1046550  -rw-        885977088  Jul 13 2024 06:13:59 +00:00
c8k30be-mono-universalk9.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046548  -rw-         14675968  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_sm_async.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046544  -rw-         11804672  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_nim_shdsl.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046547  -rw-         13889536  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_sm_1t3e3.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg
```

```
1046549  -rw-           204800  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_sm_nim_adpt.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046545  -rw-          5677056  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_nim_xdsl.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046543  -rw-         13258752  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_nim_async.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046542  -rw-         11956224  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_ngwic_t1e1.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

1046546  -rw-         10444800  Jul 13 2024 06:12:52 +00:00
c8k30be-firmware_prince.BLD_POLARIS_DEV_LATEST_20240713_033504_V17_16_0_22.SSA.pkg

27       -rw-          5788732  Feb 29 2024 18:42:07 +00:00
SDK112312-Prod-SoC2-v17.15.1_13d-cp.pkg
786101   -rw-         67728148  Feb 27 2024 17:30:28 +00:00
c8kg2be-rpboot.2024-12-12_16.42_sukhoo.SSA.pkg
31       -rw-          5784636  Feb 27 2024 17:30:19 +00:00
SDK112312-Prod-SoC2-v17.15.1_13r-cp.pkg
786100   -rw-        899686400  Feb 27 2024 17:28:58 +00:00
c8kg2be-mono-universalk9.2024-12-12_16.42_sukhoo.SSA.pkg
786095   -rw-         10444800  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_prince.2024-12-12_16.42_sukhoo.SSA.pkg
786096   -rw-            53248  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_pse_si3470a.2024-12-12_16.42_sukhoo.SSA.pkg
786097   -rw-         13889536  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_sm_1t3e3.2024-12-12_16.42_sukhoo.SSA.pkg
786099   -rw-           204800  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_sm_nim_adpt.2024-12-12_16.42_sukhoo.SSA.pkg
786098   -rw-         14675968  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_sm_async.2024-12-12_16.42_sukhoo.SSA.pkg
786091   -rw-         11956224  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_ngwic_t1e1.2024-12-12_16.42_sukhoo.SSA.pkg
786093   -rw-         11804672  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_nim_shdsl.2024-12-12_16.42_sukhoo.SSA.pkg
786094   -rw-          5677056  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_nim_xdsl.2024-12-12_16.42_sukhoo.SSA.pkg
786092   -rw-         13258752  Feb 27 2024 17:28:57 +00:00
c8kg2be-firmware_nim_async.2024-12-12_16.42_sukhoo.SSA.pkg
57       -rw-             9840  Feb 27 2024 17:28:56 +00:00  prev_packages.conf

40       -rw-           301569  Feb 27 2024 17:28:49 +00:00  original-xe-config

53       -rw-           301569  Feb 27 2024 17:28:31 +00:00  241213.cfg

523273   drwx             4096  Feb 27 2024 17:28:03 +00:00  dbgd

58       -rw-              107  Feb 27 2024 17:27:55 +00:00  pki_certificates

56       -rw-              147  Feb 27 2024 17:27:20 +00:00  utm_pf_filtered_luids.json

523266   drwx             4096  Feb 27 2024 17:26:56 +00:00  vmanage-admin

523265   drwx             4096  Feb 27 2024 17:26:55 +00:00  admin_tech

130830   drwx             4096  Feb 27 2024 17:26:55 +00:00  .sdwaninternal

130831   drwx             4096  Feb 27 2024 17:26:48 +00:00  sdwan

30       drwx             4096  Feb 27 2024 17:26:04 +00:00  lost+found
```

```
                                                            20237881344 bytes total
(1147678720 bytes free)

Router# copy tftp: bootflash:Address or name of remote host []? 203.0.113.2
Source filename []? /auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin
Destination filename [c8kg2be-universalk9.17.15.03prd1.SPA.bin]?
Accessing tftp://203.0.113.2//auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin...
%Error opening
tftp://203.0.113.2//auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin (Timed
out)
C8300-Router#
C8300-Router#copy tftp bootflash
Address or name of remote host [203.0.113.2]? 203.0.113.2
Source filename [/auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin]?
Destination filename [c8kg2be-universalk9.17.15.03prd1.SPA.bin]?
Accessing tftp://203.0.113.2//auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin...
Loading /auto/tftp-ngio/test/c8kg2be-universalk9.17.15.03prd1.SPA.bin from 203.0.113.2 (via
 GigabitEthernet0/0/0):
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!!!!!!!
[OK - 696368193 bytes]

696368193 bytes copied in 478.600 secs (1455011 bytes/sec)

Router# dir bootflash:
Directory of bootflash:/

106497  drwx             4096   Jul 8 2020 11:38:27 -07:00  tracelogs
11      -rw-        696368193   Jul 8 2020 11:34:28 -07:00
c8kg2be-universalk9.17.15.03prd1.SPA.bin
458753  drwx             4096  Jun 24 2020 17:25:47 -07:00  sysboot

7693897728 bytes total (5950341120 bytes free)
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# boot system flash bootflash:c8kg2be-universalk9.17.15.03prd1.SPA.bin
Router(config)# config-reg 0x2102
Router(config)# exit
Router# show run | include boot
boot-start-marker
boot system flash bootflash:c8kg2be-universalk9.17.15.03prd1.SPA.bin
boot-end-marker
diagnostic bootup level minimal
Router# copy run start
Destination filename [startup-config]?
Building configuration...
[OK]
Router# reload
```

Configure a device to boot the consolidated package via TFTP using the boot command: Example

```
Router#configure t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#boot system tftp://10.124.19.169/c8kg2be-universalk9.17.15.03a.SPA.bin
Router(config)#end
Router#wr
Building configuration...
[OK]
Router#show bootvar
BOOT variable = tftp://10.124.19.169/c8kg2be-universalk9.17.15.03a.SPA.bin,12;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x2102

Standby not ready to show bootvar

Router#reload
Proceed with reload? [confirm]

System integrity status: 0x32042000
Rom image verified correctly

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
Copyright (c) 1994-2025 by cisco Systems, Inc.


Current image running: Boot ROM0

Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory

........

h/w (environment):
 interface : eth0
 mac       : 48:74:10:4A:EF:1F
n/w (environment):
 ip        : 192.168.22.10
 mask      : 255.255.255.0
 gateway   : 192.168.22.1

h/w:
 interface : eth0 (Ethernet)
 status    : connected
 mac       : 48:74:10:4A:EF:1F
n/w (ip v4):
 ip        : 192.168.22.10
 mask      : 255.255.255.0
 route(s)  : 0.0.0.0 -> 192.168.22.0/255.255.255.0
           : 192.168.22.1 -> 0.0.0.0/0.0.0.0

tftp v4:
 server    : 10.124.19.169
 file      : c8kg2be-universalk9.17.15.03a.SPA.bin
 blocksize : 1460
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
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Performing Signature Verification of OS image...
Image validated

Jun  6 06:52:50.787: %SYS-4-ROUTER_RUNNING_BUNDLE_BOOT_MODE: R0/0: Warning: Booting with
bundle mode will be deprecated in the near future. Migration to install mode is required.
Jun  6 06:53:13.468: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode

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           170 West Tasman Drive
           San Jose, California 95134-1706



Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Version
17.15.3a, RELEASE SOFTWARE (fc4)
Technical Support: http://www.cisco.com/techsupport
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Jun  6 06:53:16.982: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 166800 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
cisco C8375-E-G2 (1RU) processor with 11906881K/6147K bytes of memory.
Processor board ID FDO2833M01A
Router operating mode: Autonomous
1 Virtual Ethernet interface
12 2.5 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

Warning: When Cisco determines that a fault or defect can be traced to
the use of third-party transceivers installed by a customer or reseller,
then, at Cisco's discretion, Cisco may withhold support under warranty or
a Cisco support program. In the course of providing support for a Cisco
networking product Cisco may require that the end user install Cisco
transceivers if Cisco determines that removing third-party parts will
assist Cisco in diagnosing the cause of a support issue.
No processes could be found for the command

 WARNING: Command has been added to the configuration using a type 0 password. However,
recommended to migrate to strong type-6 encryption

 WARNING: ** NOTICE **  The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
 Please consider using SIP for multimedia applications.


Press RETURN to get started!
```

Install the software using install commands

From Cisco IOS XE 17.15.3a, Cisco 8300 Series Secure Routers are shipped in install mode by default. Users can boot the platform, and upgrade to Cisco IOS XE software versions using a set of **install** commands.

Restrictions

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

Information about installing the software using install commands

From Cisco IOS XE 17.15.3a release, for routers shipped in install mode, a set of **install** commands can be used for starting, upgrading and downgrading of platforms in install mode. This update is applicable to the Cisco 8300 Series Secure Routers.

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

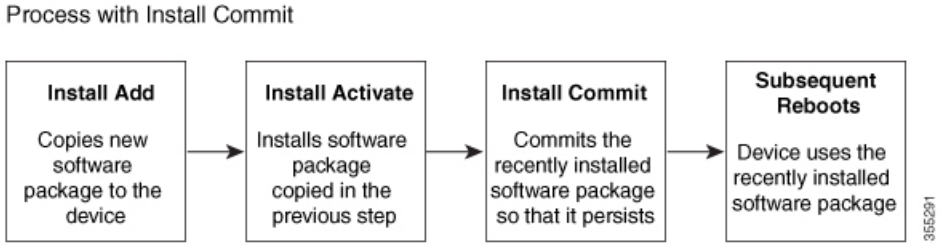
Table 3: Bundle mode vs Install mode

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.
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 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.

A list install commands available:

Table 4: 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.

Command	Syntax	Purpose
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.
(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.

Command	Syntax	Purpose
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.
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.

Command	Syntax	Purpose
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.
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 5: 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.

Command	Syntax	Purpose
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.
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.

Command	Syntax	Purpose
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.

Boot 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.

Procedure

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:c8kg2be-universalk9.17.15.03prd1.SPA.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.

Procedure

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:c8kg2be-universalk9.17.15.03prd1.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.

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.

Upgrade in install mode

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

Downgrade 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.

Terminate 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

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

```
Router# install add file bootflash:c8kg2be-universalk9.17.15.03.SPA.bin activate commit

May  6 08:35:19.308: %INSTALL-5-INSTALL_START_INFO: R0/0: install_mgr: Started install
add_activate_commit bootflash:c8kg2be-universalk9.17.15.03.SPA.bininstall_add_activate_commit:
 START Tue May 06 08:35:19 UTC 2025
install_add: START Tue May 06 08:35:19 UTC 2025
install_add: Adding IMG
--- Starting initial file syncing ---
Copying bootflash:c8kg2be-universalk9.17.15.03.SPA.bin from  R0 to  R0
Info: Finished copying to the selected
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
Checking status of Add on [R0]
Add: Passed on [R0]
Image added. Version: 17.15.03.0.5635

Finished Add

install_activate: START Tue May 06 08:36:08 UTC 2025
install_activate: Activating IMG
Following packages shall be activated:
/bootflash/c8kg2be-rpboot.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg
/bootflash/c8kg2be-mono-universalk9.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_sm_async.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_nim_async.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg
/bootflash/c8kg2be-firmware_prince.17.15.03.SPA.pkg

This operation may require a reload of the system. Do you want to proceed? [y/n]
May  6 08:36:08.538: %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

May  6 08:37:37.284: %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

--- 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 Tue May 06 08:37:59 UTC 2025

Router#
May  6 08:37:59.818: %INSTALL-5-INSTALL_COMPLETED_INFO: R0/0: install_mgr: Completed install
 add_activate_commitMay  6 0


System integrity status: 0x32042000
Rom image verified correctly

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
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Current image running: Boot ROM0

Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory

........
boot: reading file c8kg2be-universalk9.17.15.03.SPA.bin
```

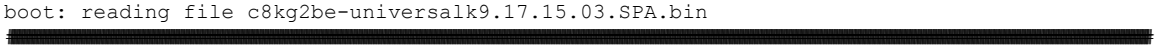

```


Performing Signature Verification of OS image...
Image validated
May  6 08:40:59.347: %SYS-4-ROUTER_RUNNING_BUNDLE_BOOT_MODE: R0/0: Warning: Booting with
bundle mode will be deprecated in the near future. Migration to install mode is required.
May  6 08:41:21.936: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode

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           170 West Tasman Drive
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Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Version
17.15.3, RELEASE SOFTWARE (fc1)
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May  6 08:41:25.397: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 3172248 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
cisco C8375-E-G2 (1RU) processor with 11906887K/6147K bytes of memory.
Processor board ID FDO2833M01A
Router operating mode: Autonomous
1 Virtual Ethernet interface
12 2.5 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

Warning: When Cisco determines that a fault or defect can be traced to
the use of third-party transceivers installed by a customer or reseller,
then, at Cisco's discretion, Cisco may withhold support under warranty or
a Cisco support program. In the course of providing support for a Cisco
networking product Cisco may require that the end user install Cisco
transceivers if Cisco determines that removing third-party parts will
assist Cisco in diagnosing the cause of a support issue.

WARNING: Command has been added to the configuration using a type 0 password. However,
recommended to migrate to strong type-6 encryption

WARNING: ** NOTICE **  The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
 Please consider using SIP for multimedia applications.



Press RETURN to get started!


*May  6 08:41:23.620: %CRYPTO-5-SELF_TEST_START: Crypto algorithms release (Rel5a), Entropy
 release (3.4.1)
       begin Crypto Module self-tests
*May  6 08:41:23.620: %CRYPTO-5-SELF_TEST_START: Crypto algorithms release (Rel5a), Entropy
 release (3.4.1)
       begin Crypto Module Integrity Test
*May  6 08:41:23.625: %CRYPTO-5-SELF_TEST_END: Crypto Integrity self-test completed
successfully
       All tests passed.
*May  6 08:41:23.808: %CRYPTO-5-SELF_TEST_END: Crypto Algorithm self-test completed
successfully
       All tests passed.
*May  6 08:41:24.426: %ISR_THROUGHPUT-6-LEVEL: Throughput level has been set to 3000000
kbps
*May  6 08:41:24.691: %SMART_LIC-6-AGENT_ENABLED: Smart Agent for Licensing is enabled
```

```
ESG-PM-ACL:[subsys-init] Init ESG-ACL subsystem starting

*May  6 08:41:27.684: ESG-PM-ACL:[subsys-init] Init ESG-ACL platform API reg

*May  6 08:41:27.684: ESG-PM-ACL:[subsys-init] Init ESG-ACL subsystem ended

*May  6 08:41:27.684: NGIOLite module C-NIM-8M success read extended attr from conf file

*May  6 08:41:29.186: %TLSCLIENT-5-TLSCLIENT_IOS: TLS Client is IOS based
*May  6 08:41:29.203: %SPANTREE-5-EXTENDED_SYSID: Extended SysId enabled for type vlan
*May  6 08:41:29.252: %CRYPTO_ENGINE-5-CSDL_COMPLIANCE_ENFORCED: Cisco PSB security compliance
 is being enforced
*May  6 08:41:29.267: %CUBE-3-LICENSING:  SIP trunking (CUBE) licensing is now based on
dynamic sessions counting, static license capacity configuration through 'mode border-element
 license capacity' would be ignored.
*May  6 08:41:29.268: %SIP-5-LICENSING: CUBE license reporting period has been set to the
minimum value of 8 hours.
*May  6 08:41:29.286: %VOICE_HA-7-STATUS: CUBE HA-supported platform detected.
*May  6 08:41:30.029: %CRYPTO_SL_TP_LEVELS-6-PLATFORM_BASED_LIC: Platform Based License
Support, throughput is un-throttled
*May  6 08:41:30.061: %LINK-3-UPDOWN: Interface EOBC0, changed state to up
*May  6 08:41:30.069: %LINK-3-UPDOWN: Interface Lsmpi0, changed state to up
*May  6 08:41:30.069: %LINEPROTO-5-UPDOWN: Line protocol on Interface LI-Null0, changed
state to up
*May  6 08:41:30.069: %LINEPROTO-5-UPDOWN: Line protocol on Interface VoIP-Null0, changed
state to up
*May  6 08:41:30.069: %LINK-3-UPDOWN: Interface LIIN0, changed state to up
*May  6 08:41:30.070: %LINK-3-UPDOWN: Interface GigabitEthernet0, changed state to down
*May  6 08:41:30.071: %IOSXE_RP_ALARM-6-INFO: ASSERT CRITICAL GigabitEthernet0 Physical
Port Link Down
*May  6 08:41:30.243: %PNP-6-PNP_DISCOVERY_STARTED: PnP Discovery started
*May  6 08:40:41.171: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: MPCCE: Failed to read
 idprom cookie; error code: 100
*May  6 08:40:41.184: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: Error logging in to
tam device, rc=0x64-TAM_LIB_ERR_MANDATORY_BUS_ENCRYPT_ENABLED
*May  6 08:40:41.184: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: Error initializing
tam device. PCR8 will not be extended.
*May  6 08:40:46.480: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: MPCCE: Failed to read
 idprom cookie; error code: 100
*May  6 08:40:46.493: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: Error logging in to
tam device, rc=0x64-TAM_LIB_ERR_MANDATORY_BUS_ENCRYPT_ENABLED
*May  6 08:40:46.493: %IOSXE-3-PLATFORM: R0/0: /usr/sbin/updatepcr8d: Error initializing
tam device. PCR8 will not be extended.
*May  6 08:40:59.263: %SERVICES-2-NORESOLVE_ACTIVE: C0/0: cmcc: Error resolving active FRU:
 BINOS_FRU_RP
*May  6 08:40:59.346: %SYS-4-ROUTER_RUNNING_BUNDLE_BOOT_MODE: R0/0: Warning: Booting with
bundle mode will be deprecated in the near future. Migration to install mode is required.
*May  6 08:41:21.935: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode
*May  6 08:41:25.396: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 3172248 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
*May  6 08:41:25.952: %CMRP_PFU-6-PEM_INSERTED: R0/0: cmand: Power Supply in slot 0 not
operational.
*May  6 08:41:26.077: %CMRP_PFU-6-FANASSY_INSERTED: R0/0: cmand: Fan Assembly is inserted.
*May  6 08:41:30.313: %SYS-5-CONFIG_P: Configured programmatically by process MGMT VRF
Process from console as vty0
*May  6 08:41:30.519: %IOSXE_MGMTVRF-6-CREATE_SUCCESS_INFO: Management vrf Mgmt-intf created
 with ID 1, ipv4 table-id 0x1, ipv6 table-id 0x1E000001
*May  6 08:41:30.519: %SYS-5-CONFIG_P: Configured programmatically by process MGMT VRF
Process from console as vty0
*May  6 08:41:30.688: %IOSXE_RP_ALARM-2-PEM: ASSERT CRITICAL Power Supply Module 0 Power
Supply Failure
*May  6 08:41:30.688: %IOSXE_RP_ALARM-6-INFO: ASSERT CRITICAL POE Module 0 Power Supply
Failure
```

```
*May  6 08:41:30.714: %ONEP_BASE-6-SS_ENABLED: ONEP: Service set Base was enabled by Default
*May  6 08:41:31.046: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state
 to down
*May  6 08:41:31.058: %LINEPROTO-5-UPDOWN: Line protocol on Interface EOBC0, changed state
 to up
*May  6 08:41:31.066: %LINEPROTO-5-UPDOWN: Line protocol on Interface Lsmpi0, changed state
 to up
*May  6 08:41:31.066: %LINEPROTO-5-UPDOWN: Line protocol on Interface LIIN0, changed state
 to up
*May  6 08:41:31.066: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0,
changed state to down
*May  6 08:41:31.262: %SMART_LIC-6-USAGE_NO_ACK: A Usage report acknowledgement has not
been received in the last 0 days.
*May  6 08:41:31.263: %SIP-5-LICENSING: smart license report is not acknowledged.
*May  6 08:41:31.773: %SYS-7-NVRAM_INIT_WAIT_TIME: Waited 0 seconds for NVRAM to be available
*May  6 08:41:31.944: %SYS-6-PRIVCFG_DECRYPT_SUCCESS: Successfully apply the private config
 file
*May  6 08:41:32.030: %PKI-6-TRUSTPOINT_CREATE: Trustpoint: TP-self-signed-2220840378 created
 succesfully
*May  6 08:41:32.031: %PKI-6-TRUSTPOINT_CREATE: Trustpoint: SLA-TrustPoint created succesfully
*May  6 08:41:32.034: %PKI-3-KEY_CMP_MISMATCH: Key in the certificate and stored key does
not match for Trustpoint-TP-self-signed-2220840378.
*May  6 08:41:32.041: %AAA-6-USERNAME_CONFIGURATION: user with username: admin configured
*May  6 08:41:32.041: %AAAA-4-CLI_DEPRECATED: WARNING: Command has been added to the
configuration using a type 0 password. However, recommended to migrate to strong type-6
encryption
*May  6 08:41:32.041: %AAA-6-USER_PRIVILEGE_UPDATE: username: admin privilege updated with
 priv-15
*May  6 08:41:32.259: %SYS-5-CONFIG_I: Configured from memory by console
*May  6 08:41:32.268: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 0/0, interfaces disabled
*May  6 08:41:32.268: %IOSXE_OIR-6-REMSPA: SPA removed from subslot 0/1, interfaces disabled
*May  6 08:41:32.275: %SPA_OIR-6-OFFLINECARD: SPA (4M-2xSFP+) offline in subslot 0/0
*May  6 08:41:32.278: %SPA_OIR-6-OFFLINECARD: SPA (C-NIM-8M) offline in subslot 0/1
*May  6 08:41:32.306: %IOSXE_RP_ALARM-2-ESP: ASSERT CRITICAL module R0 No Working ESP
*May  6 08:41:32.309: %IOSXE_OIR-6-INSCARD: Card (fp) inserted in slot F0
*May  6 08:41:32.309: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 0
*May  6 08:41:32.309: %IOSXE_OIR-6-INSCARD: Card (cc) inserted in slot 1
*May  6 08:41:32.325: %CRYPTO-5-SELF_TEST_START: Crypto algorithms release (Rel5a), Entropy
 release (3.4.1)
       begin Crypto Module self-tests
*May  6 08:41:32.329: %CRYPTO-5-SELF_TEST_END: Crypto Algorithm self-test completed
successfully
       All tests passed.
*May  6 08:41:32.712: %UICFGEXP-6-SERVER_NOTIFIED_START: R0/0: psd: Server iox has been
notified to start
*May  6 08:41:33.077: %SYS-5-RESTART: System restarted --
Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Version
17.15.3, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
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Compiled Tue 25-Mar-25 23:37 by mcpre
*May  6 08:41:33.084: %SNMP-5-COLDSTART: SNMP agent on host Router is undergoing a cold
start
*May  6 08:41:33.084: %SYS-5-CONFIG_I: Configured from console by console
*May  6 08:41:33.759: %IOSXE_OIR-6-ONLINECARD: Card (fp) online in slot F0
*May  6 08:41:34.091: %SYS-6-BOOTTIME: Time taken to reboot after reload =  215 seconds
*May  6 08:41:35.051: %LINEPROTO-5-UPDOWN: Line protocol on Interface VirtualPortGroup0,
changed state to up
*May  6 08:41:35.063: %LINEPROTO-5-UPDOWN: Line protocol on Interface VirtualPortGroup1,
changed state to up
*May  6 08:41:35.063: %LINEPROTO-5-UPDOWN: Line protocol on Interface VirtualPortGroup10,
changed state to up
*May  6 08:41:38.437: %PNP-6-PNP_BEST_UDI_UPDATE: Best UDI
[PID:C8375-E-G2,VID:V01,SN:FDO2833M01A] identified via (entity-mibs)
```

```
*May  6 08:41:38.437: %PNP-6-PNP_CDP_UPDATE: Device UDI
[PID:C8375-E-G2,VID:V01,SN:FDO2833M01A] identified for CDP
*May  6 08:41:38.437: %PNP-6-PNP_DISCOVERY_STOPPED: PnP Discovery stopped (Startup Config
Present)
*May  6 08:41:39.699: %LINK-3-UPDOWN: Interface GigabitEthernet0, changed state to up
*May  6 08:41:40.707: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0,
changed state to up
*May  6 08:41:42.333: %SYS-5-CONFIG_P: Configured programmatically by process EPM CREATE
DEFAULT CWA URL ACL from console as console
*May  6 08:41:46.197: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 0
*May  6 08:41:46.230: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 0/0
*May  6 08:41:46.587: %IOSXE_OIR-6-ONLINECARD: Card (cc) online in slot 1
*May  6 08:41:47.126: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*May  6 08:41:47.126: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*May  6 08:41:48.779: %IOSXE_OIR-6-INSSPA: SPA inserted in subslot 0/1
*May  6 08:41:49.452: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is OFF
*May  6 08:41:49.452: %CRYPTO-6-GDOI_ON_OFF: GDOI is OFF
*May  6 08:41:49.571: %PKI-6-TRUSTPOINT_CREATE: Trustpoint: CISCO_IDEVID_SUDI created
succesfully
*May  6 08:41:49.573: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named CISCO_IDEVID_SUDI has been
 generated or imported by pki-sudi
*May  6 08:41:49.609: %PKI-6-TRUSTPOINT_CREATE: Trustpoint: CISCO_IDEVID_SUDI0 created
succesfully
*May  6 08:41:49.610: %PKI-2-NON_AUTHORITATIVE_CLOCK: PKI functions can not be initialized
 until an authoritative time source, like NTP, can be obtained.
*May  6 08:41:53.146: %IOX-3-PD_PARTITION_CREATE: R0/0: run_ioxn_caf: IOX may take upto 3
mins to be ready. Wait for iox to be ready before installing the apps
*May  6 08:41:53.429: %IOX-3-PD_PARTITION_CREATE: R0/0: run_ioxn_caf: Successfully allocated
 4.0G in flash for hosting ApplicationsNGIOLite module C-NIM-8M success read extended attr
 from conf file

*May  6 08:42:15.679: %SPA_OIR-6-ONLINECARD: SPA (C-NIM-8M) online in subslot 0/1
*May  6 08:42:16.292: %ENVIRONMENTAL-6-NOTICE: V: PEM Out, Location: P0, State: Minor_Low,
 Reading: 0 mV
*May  6 08:42:20.701: %ONEP_BASE-3-AUTHEN_ERR: [Element]: Authentication/authorization
failed. Application (utd_snort-utd): Username (*INVALID*)
*May  6 08:42:22.179: %TRANSCEIVER-6-INSERTED: C0/0: iomd: transceiver module inserted in
Te0/0/4
*May  6 08:42:22.255: %TRANSCEIVER-6-INSERTED: C0/0: iomd: transceiver module inserted in
Te0/0/5
*May  6 08:42:22.643: %LINK-3-UPDOWN: Interface TwoGigabitEthernet0/1/6, changed state to
up
*May  6 08:42:23.345: %SPA_OIR-6-ONLINECARD: SPA (4M-2xSFP+) online in subslot 0/0
*May  6 08:42:23.644: %LINEPROTO-5-UPDOWN: Line protocol on Interface TwoGigabitEthernet0/1/6,
 changed state to up
*May  6 08:42:28.999: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/4, changed state to
up
*May  6 08:42:29.011: %LINK-3-UPDOWN: Interface TenGigabitEthernet0/0/5, changed state to
up
*May  6 08:42:29.975: %LINK-3-UPDOWN: Interface TwoGigabitEthernet0/0/0, changed state to
up
*May  6 08:42:30.004: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabitEthernet0/0/4,
 changed state to up
*May  6 08:42:30.010: %LINEPROTO-5-UPDOWN: Line protocol on Interface TenGigabitEthernet0/0/5,
 changed state to up
*May  6 08:42:29.901: %IM-6-IOX_INST_INFO: R0/0: ioxman: IOX SERVICE guestshell LOG:
Guestshell is up at 04/06/2025 08:42:29
*May  6 08:42:30.974: %LINK-3-UPDOWN: Interface TwoGigabitEthernet0/0/1, changed state to
up
*May  6 08:42:30.976: %LINEPROTO-5-UPDOWN: Line protocol on Interface TwoGigabitEthernet0/0/0,
 changed state to up
*May  6 08:42:31.975: %LINEPROTO-5-UPDOWN: Line protocol on Interface TwoGigabitEthernet0/0/1,
 changed state to up
*May  6 08:42:31.983: %LINK-3-UPDOWN: Interface TwoGigabitEthernet0/0/3, changed state to
```

```
up
*May  6 08:42:32.644: %LINK-3-UPDOWN: Interface TwoGigabitEthernet0/1/7, changed state to
up
*May  6 08:42:32.366: %CMRP-5-CHASSIS_MONITOR_BOOT_TIME_PRINT: R0/0: cmand: Card F0 took
59 secs to boot
*May  6 08:42:32.367: %CMRP-5-CHASSIS_MONITOR_BOOT_TIME_PRINT: R0/0: cmand: Card 0 took 54
 secs to boot
*May  6 08:42:32.367: %CMRP-5-CHASSIS_MONITOR_BOOT_TIME_PRINT: R0/0: cmand: Card 1 took 54
 secs to boot
*May  6 08:42:32.984: %LINEPROTO-5-UPDOWN: Line protocol on Interface TwoGigabitEthernet0/0/3,
 changed state to up
*May  6 08:42:33.642: %LINEPROTO-5-UPDOWN: Line protocol on Interface TwoGigabitEthernet0/1/7,
 changed state to up
*May  6 08:42:34.003: ALL modules are online!
*May  6 08:42:34.765: %IM-6-IOX_ENABLEMENT: R0/0: ioxman: IOX is ready.
*May  6 08:42:34.766: %IM-6-START_MSG: R0/0: ioxman: app-hosting: Start succeeded: utd is
started Current is in RUNNING
May  6 08:42:36.712: %PKI-6-AUTHORITATIVE_CLOCK: The system clock has been set.
May  6 08:42:38.080: %SMART_LIC-6-REPORTING_REQUIRED: A Usage report acknowledgement will
be required in 0 days.
May  6 08:42:38.081: ALL modules are online!
May  6 08:42:41.695: %SMART_LIC-6-REPORTING_REQUIRED: A Usage report acknowledgement will
be required in 0 days.
Router>
May  6 08:42:51.407: %ONEP_BASE-6-CONNECT: [Element]: ONEP session Application:utd_snort
Host:utd ID:3545 User: has connected.
```

This is an example of the three-step installation:

```
Router#install add file bootflash:c8kg2be-universalk9.17.15.03a.SPA.bin
install_add: START Wed May 21 09:03:39 UTC 2025
install_add: Adding IMG
% UTD: Received appnav notification from LXC for   (src 192.0.2.5, dst 192.0.2.6)
% UTD successfully registered with Appnav (src 192.0.2.5, dst 192.0.2.6)
% UTD redirect interface set to VirtualPortGroup1 internally
--- Starting initial file syncing ---
Copying bootflash:c8kg2be-universalk9.17.15.03a.SPA.bin from  R0 to  R0
Info: Finished copying to the selected
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
Checking status of Add on [R0]
Add: Passed on [R0]
Image added. Version: 17.15.03a.0.176

Finished Add

SUCCESS: install_add /bootflash/c8kg2be-universalk9.17.15.03a.SPA.bin Wed May 21 09:04:43
UTC 2025

Router#show install log
[0|install_op_boot]: START Wed May 21 09:02:03 Universal 2025
[0|install_op_boot(INFO, )]: Mount IMG INI state base image
[0|install_op_boot]: END SUCCESS  Wed May 21 09:02:03 Universal 2025
[0|install_op_boot(INFO, )]: cleanup_trap  remote_invocation 0 operation install_op_boot
.. 0 .. 0
[remote|COMP_CHECK]: START Wed May 21 09:04:42 UTC 2025
[remote|COMP_CHECK]: END FAILED exit(1)  Wed May 21 09:04:43 UTC 2025

Router#
Router#install activate
```

```
install_activate: START Wed May 21 09:07:21 UTC 2025
install_activate: Activating IMG
Following packages shall be activated:
/bootflash/c8kg2be-rpboot.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_sm_nim_adpt.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_nim_async.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_sm_async.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_prince.17.15.03a.SPA.pkg
/bootflash/c8kg2be-mono-universalk9.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_nim_shdsl.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_ngwic_t1e1.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_sm_1t3e3.17.15.03a.SPA.pkg
/bootflash/c8kg2be-firmware_nim_xdsl.17.15.03a.SPA.pkg

This operation may require 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  R0

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

SUCCESS: install_activate Wed May 21 09:09:31 UTC 2025
Router#May 21 09:

System integrity status: 0x32042000
Rom image verified correctly

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
Copyright (c) 1994-2025 by cisco Systems, Inc.


Current image running: Boot ROM0

Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory


........

boot: reading file packages.conf
#

############################################################

Performing Signature Verification of OS image...
Image validated

May 21 09:11:47.581: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode

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           Cisco Systems, Inc.
           170 West Tasman Drive
```

```
            San Jose, California 95134-1706


Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Version
17.15.3a, RELEASE SOFTWARE (fc4)
Technical Support: http://www.cisco.com/techsupport
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Compiled Fri 02-May-25 11:27 by mcpre


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May 21 09:11:51.161: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 1111072 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
cisco C8375-E-G2 (1RU) processor with 11906881K/6147K bytes of memory.
Processor board ID FDO2833M01A
Router operating mode: Autonomous
1 Virtual Ethernet interface
12 2.5 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

Warning: When Cisco determines that a fault or defect can be traced to
the use of third-party transceivers installed by a customer or reseller,
then, at Cisco's discretion, Cisco may withhold support under warranty or
a Cisco support program. In the course of providing support for a Cisco
networking product Cisco may require that the end user install Cisco
transceivers if Cisco determines that removing third-party parts will
assist Cisco in diagnosing the cause of a support issue.
The process for the command is not responding or is otherwise unavailable

 WARNING: Command has been added to the configuration using a type 0 password. However,
recommended to migrate to strong type-6 encryption

 WARNING: ** NOTICE **  The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
```

```
 Please consider using SIP for multimedia applications.


Press RETURN to get started!

% UTD: Received appnav notification from LXC for   (src 192.0.2.5, dst 192.0.2.6)
% UTD successfully registered with Appnav (src 192.0.2.5, dst 192.0.2.6)
% UTD redirect interface set to VirtualPortGroup1 internally

Router>
Router>en
Router#
Router#install commit
install_commit: START Wed May 21 09:22:28 UTC 2025
--- Starting Commit ---
Performing Commit on all members
 [1] Commit packages(s) on  R0
 [1] Finished Commit packages(s) on  R0
Checking status of Commit on [R0]
Commit: Passed on [R0]
Finished Commit operation

SUCCESS: install_commit Wed May 21 09:22:31 UTC 2025
```

These 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    17.15.03a.0.176


--------------------------------------------------------------------------------

Auto abort timer: inactive

--------------------------------------------------------------------------------
```

show install package *filesystem: filename*

```
Device# show install package bootflash:c8kg2be-universalk9.17.15.03a.SPA.bin
  Package: c8kg2be-universalk9.17.15.03a.SPA.bin
```

```
  Size: 953231736
  Timestamp:
Canonical path: /bootflash/c8kg2be-universalk9.17.15.03a.SPA.bin

  Raw disk-file SHA1sum:
    d358592ccd2dd626889ef091401d06fae5458ff1
Header size:     1084 bytes
Package type:    30000
Package flags:   0
Header version:  3

Internal package information:
  Name: rp_super
  BuildTime: 2025-05-02_11.57
  ReleaseDate: 2025-05-02_16.50
  BootArchitecture: arm64
  RouteProcessor: mirabile
  Platform: C8KG2BE
  User: mcpre
  PackageName: universalk9
  Build: 17.15.03a
  CardTypes:

Package is bootable from media and tftp.
Package contents:

Package: c8kg2be-firmware_prince.17.15.03a.SPA.pkg
  Size: 10444800
  Timestamp:

  Raw disk-file SHA1sum:
    fa82bed30d349686d1d9700892076a3d66375698
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_prince
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_prince
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-mono-universalk9.17.15.03a.SPA.pkg
  Size: 891244544
  Timestamp:

  Raw disk-file SHA1sum:
    af7ba58491731d788d9f4528d74b5bfef9dfc7f2
  Header size:     4096 bytes
  Package type:    30000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: mono
    BuildTime: 2025-05-02_11.57
```

```
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: arm64
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: mono-universalk9
    Build: 17.15.03a
    CardTypes:

  Package is bootable from media and tftp.
  Package contents:

Package: c8kg2be-firmware_nim_xdsl.17.15.03a.SPA.pkg
  Size: 5677056
  Timestamp:

  Raw disk-file SHA1sum:
    4af7a8764651253c73c7fadebeba6f3a8f0a133d
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_nim_xdsl
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_nim_xdsl
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_sm_1t3e3.17.15.03a.SPA.pkg
  Size: 13889536
  Timestamp:

  Raw disk-file SHA1sum:
    526aa41ccd8398e7691d316ca24289801e0417a8
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_sm_1t3e3
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_sm_1t3e3
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_sm_async.17.15.03a.SPA.pkg
  Size: 14671872
  Timestamp:
```

```
  Raw disk-file SHA1sum:
    7c7f4c06da5b3b0e1db879e074998130db22298f
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_sm_async
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_sm_async
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_nim_async.17.15.03a.SPA.pkg
  Size: 13254656
  Timestamp:

  Raw disk-file SHA1sum:
    27132c3a41c79991d1f71488ad325ad05cc7b0bb
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_nim_async
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_nim_async
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_nim_shdsl.17.15.03a.SPA.pkg
  Size: 11804672
  Timestamp:

  Raw disk-file SHA1sum:
    51da21dffb39d2ef6b266b7ffab083b3fb339651
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_nim_shdsl
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_nim_shdsl
```

```
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_ngwic_t1e1.17.15.03a.SPA.pkg
  Size: 11956224
  Timestamp:

  Raw disk-file SHA1sum:
    19376efa2ed616672c0d488b628a768e262bd8e6
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_ngwic_t1e1
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_ngwic_t1e1
    Build: 17.15.03a
    CardTypes:

  Package is not bootable.
Package: c8kg2be-firmware_sm_nim_adpt.17.15.03a.SPA.pkg
  Size: 204800
  Timestamp:

  Raw disk-file SHA1sum:
    b3a7ddd80df900d6217bb8db36ff8bdbc6241fa3
  Header size:     4096 bytes
  Package type:    40000
  Package flags:   0
  Header version:  3

  Internal package information:
    Name: firmware_sm_nim_adpt
    BuildTime: 2025-05-02_11.57
    ReleaseDate: 2025-05-02_16.50
    BootArchitecture: none
    RouteProcessor: mirabile
    Platform: C8KG2BE
    User: mcpre
    PackageName: firmware_sm_nim_adpt
    Build: 17.15.03a
    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  17.15.03a.0.158
--------------------------------------------------------------------------------
```

```
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   17.15.03a.0.158
--------------------------------------------------------------------------------



--------------------------------------------------------------------------------

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
```

Troubleshoot software installation using install commands

Problem Troubleshooting the software installation

Solution Use these 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 these 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.

Manage and Configure a device to run using individual packages

To choose between running individual packages or a consolidated package, see Overview section.

These topics are included in this section:

- Installing subpackages from a consolidated package, on page 39
- Installing a firmware subpackage, on page 50
- Installing subpackages from a consolidated package on a flash drive, on page 49

Installing subpackages from a consolidated package

Perform this procedure to obtain the consolidated package from a TFTP server.

Another variation of this procedure obtains the consolidated package from a USB flash drive. This is described in Installing Subpackages from a Consolidated Package on a Flash Drive.

Before you begin

Copy the consolidated package to the TFTP server.

Procedure

Step 1 **show version**

Example:

```
Router# show version
```

Shows the version of software running on the router. This can later be compared with the version of software to be installed.

Step 2 **dir bootflash:**

Example:

```
Router# dir bootflash:
```

Displays the previous version of software and that a package is present.

Step 3 **show platform**

Example:

```
Router# show platform
Chassis type:: C8375-E-G2
```

Displays the inventory.

Step 4 **mkdir bootflash:** *URL-to-directory-name*

Example:

```
Router# mkdir bootflash:mydir
```

Creates a directory to save the expanded software image.

You can use the same name as the image to name the directory.

Step 5 **request platform software package expand file** *URL-to-consolidated-package* **to** *URL-to-directory-name*

Example:

```
Router#  request platform software package expand file
c8kg2be-universalk9.17.15.03prd1.SPA.bin to bootflash:mydir
```

Expands the software image from the TFTP server (*URL-to-consolidated-package*) into the directory used to save the image (*URL-to-directory-name*), which was created in Step 4.

Step 6 **reload**

Example:

```
Router# reload
rommon >
```

Enables ROMMON mode, which allows the software in the consolidated file to be activated.

Step 7 **boot** *URL-to-directory-name*/**packages.conf**

Example:

```
rommon 1 > boot bootflash:mydir/packages.conf
```

Boots the consolidated package, by specifying the path and name of the provisioning file: packages.conf.

Step 8 **show version installed**

Example:

```
Router# show version installed
Package: Provisioning File, version: n/a, status: active
```

Displays the version of the newly installed software.

Examples

The initial part of the example shows the consolidated package, c8kg2be-universalk9.17.15.03.SPA.bin , being copied to the TFTP server. This is a prerequisite step. The remaining part of the example shows the consolidated file, packages.conf, being booted.

```
Router# copy tftp:c8kg2be-universalk9.17.15.03.SPA.bin bootflash:
address or name of remote host []? 203.0.113.6
```

```
Destination filename [c8kg2be-universalk9.17.15.03.SPA.bin]
Accessing tftp://10.124.19.169/c8kg2be-universalk9.17.15.03a.SPA.bin...
Loading
Router# show version
Cisco IOS XE Software, Version BLD_V1718_THROTTLE_LATEST_20250513_033132_V17_18_0_38
Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Experimental
 Version 17.18.20250513:042531
[BLD_V1718_THROTTLE_LATEST_20250513_033132:/nobackup/mcpre/s2c-build-ws 101]
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Compiled Mon 12-May-25 21:26 by mcpre


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software.


ROM: v17.15(1.19d).s2.cp.RSA2K
Crestone-1 uptime is 4 minutes
Uptime for this control processor is 5 minutes
System returned to ROM by Reload Command
System image file is "bootflash:c8kg2be-universalk9.17.18.01.0.700_V17_18_0_38.SSA.bin"
Last reload reason: Reload Command



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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  Subscription advantage          advantage

The current crypto throughput level is 10000 kbps (Aggregate)


Smart Licensing Status: Smart Licensing Using Policy

cisco C8375-E-G2 (1RU) processor with 3703488K/6147K bytes of memory.
Processor board ID FDO2721M02R
Router operating mode: Autonomous
```

```
1 Virtual Ethernet interface
4 Gigabit Ethernet interfaces
4 2.5 Gigabit Ethernet interfaces
8 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

Configuration register is 0x3922


Router# dir bootflash:
Directory of bootflash:/
23      -rw-               0  May 25 2025 18:20:03 +00:00  iox_alt_hdd.dsk

784897  drwx         3358720  May 25 2025 18:10:38 +00:00  tracelogs

392449  drwx            4096  May 21 2025 09:22:30 +00:00  .rollback_timer

11      -rw-             422  May 21 2025 09:12:33 +00:00  .iox_dir_list

915713  drwx            4096  May 21 2025 09:12:13 +00:00  SHARED-IOX

21      -rw-              30  May 21 2025 09:12:12 +00:00  throughput_monitor_params

15      -rw-          143041  May 21 2025 09:12:04 +00:00  memleak.tcl

1046531  drwx           73728  May 21 2025 09:12:00 +00:00  license_evlog

1046529  drwx            4096  May 21 2025 09:11:53 +00:00  .prst_sync

12      -rwx          261921  May 21 2025 09:11:47 +00:00  mode_event_log

59      -rw-            7762  May 21 2025 09:09:09 +00:00  packages.conf

48      -rw-            7762  May 21 2025 09:04:42 +00:00
c8kg2be-universalk9.17.15.03a.SPA.conf
1047801  -rw-       59995452  May 21 2025 09:04:39 +00:00  c8kg2be-rpboot.17.15.03a.SPA.pkg

1046537  drwx            4096  May 21 2025 09:04:38 +00:00  .images

130817  drwx            4096  May 21 2025 09:01:56 +00:00  sysboot

47      -rw-            9391  May 21 2025 08:59:39 +00:00
c8kg2be-universalk9.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.conf

1047773  -rw-        59995512  May 21 2025 08:59:38 +00:00
c8kg2be-rpboot.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg

785553  drwx            4096  May 21 2025 06:27:34 +00:00  memaudit_log

13      drwx            4096  May 19 2025 03:58:14 +00:00  core

46      -rw-      1003589796  May 14 2025 11:21:03 +00:00
c8kg2be-universalk9.BLD_V1718_THROTTLE_LATEST_20250423_010128.SSA.bin

45      -rw-             396  May 14 2025 05:39:34 +00:00  ct_persistent.txt

44      -rw-            7711   May 6 2025 08:36:06 +00:00
c8kg2be-universalk9.17.15.03.SPA.conf
1047740  -rw-       59987868   May 6 2025 08:36:03 +00:00  c8kg2be-rpboot.17.15.03.SPA.pkg

24      -rw-       953199576   May 6 2025 07:02:50 +00:00
c8kg2be-universalk9.17.15.03.SPA.bin
```

```
Router# show platformChassis type: C8375-E-G2

Slot      Type                State                 Insert time (ago)
--------- ------------------- --------------------- -----------------
0         C8375-E-G2          ok                    00:05:25
 0/0      4M-2xSFP+           ok                    00:04:20
 0/1      C-NIM-4X            ok                    00:04:20
1         C-SM-NIM-ADPT       ok                    00:04:24
 1/0      C-NIM-WAN-2X        ok                    00:04:10
 1/1      C-NIM-WAN-4S        ok                    00:04:09
R0        C8375-E-G2          ok, active            00:05:25
F0        C8375-E-G2          ok, active            00:05:25
P0        PWR-CC1-400WAC      ok                    00:04:42
P1        Unknown             empty                 never
P2        C8300-FAN-1R        ok                    00:04:41

Slot      CPLD Version        Firmware Version
--------- ------------------- ------------------------------------
0         2408272B            v17.15(1.19d).s2.cp.RSA2K
1         2408272B            v17.15(1.19d).s2.cp.RSA2K
R0        2408272B            v17.15(1.19d).s2.cp.RSA2K
F0        2408272B            v17.15(1.19d).s2.cp.RSA2K
```

```
Router# mkdir bootflash:c8kg2be-universalk9.17.15.03.dir1
Create directory filename [c8kg2be-universalk9.17.15.03.dir1]?
Created dir bootflash:/c8kg2be-universalk9.17.15.03.dir1
Router# request platform software package expand file
bootflash:c8kg2be-universalk9.17.15.03.SPA.bin
to c8kg2be-universalk9.17.15.03.dir1
Verifying parameters
Validating package type
Copying package files
SUCCESS: Finished expanding all-in-one software package.

Router# reload
Proceed with reload? [confirm]

*Jul 13 19:39:06.354: %SYS-5-RELOAD: Reload requested by console.Reload Reason: Reload
Command.

rommon 1 > boot bootflash:c8kg2be-universalk9.17.15.03.dir1/packages.conf

File size is 0x00002836
Located c8kg2be-universalk9.17.15.03.dir1/packages.conf
Image size 10294 inode num 324484, bks cnt 3 blk size 8*512
#
File is comprised of 1 fragments (33%)

is_valid_sha1hash: SHA-1 hash:
calculated 62f6235a:fc98eb3a:85ce183e:834f1cb3:8a1f71d1
expected 62f6235a:fc98eb3a:85ce183e:834f1cb3:8a1f71d1
File size is 0x04b3dc00
Located
c8kg2be-universalk9.17.15.03.dir1/c8kg2be-rpboot.BLD_V1715_THROTTLE_LATEST_20250310_183113.SSA.pkg
Image size 78896128 inode num 324491, bks cnt 19262 blk size 8*512
################################################################################################
File is comprised of 21 fragments (0%)
.....
```

```
Router# show version installedPackage: Provisioning File, version: n/a, status: active
```

```
  Role: provisioning file
  File: bootflash:sysboot/packages.conf, on: RP0
  Built: n/a, by: n/a
  File SHA1 checksum: 13ee655632f92cd539d7df87a3e2a0a063262948

Package: mono-universalk9, version: 17.15.03, status: active
  Role: rp_base
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: rpboot, version: 17.15.03, status: active
  Role: rp_boot
  File: bootflash:sysboot/c8kg2be-rpboot.17.15.03.SPA.pkg, on: RP0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: n/a

Package: firmware_ngwic_t1e1, version: 17.15.03, status: active
  Role: firmware_ngwic_t1e1
  File: bootflash:sysboot/c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 5d6f62fee606718d1d0fd21ae58172ebe612862c

Package: firmware_nim_async, version: 17.15.03, status: active
  Role: firmware_nim_async
  File: bootflash:sysboot/c8kg2be-firmware_nim_async.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 2e4fdb72b80e6b6899c6b7d534b1fd5694935810

Package: firmware_nim_shdsl, version: 17.15.03, status: active
  Role: firmware_nim_shdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: f828bfa1261d76d3f21ff7d111fe26a3eb945433

Package: firmware_nim_xdsl, version: 17.15.03, status: active
  Role: firmware_nim_xdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 41feadbead77fa101ca313348c71e594b54ff1a8

Package: firmware_prince, version: 17.15.03, status: active
  Role: firmware_prince
  File: bootflash:sysboot/c8kg2be-firmware_prince.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 9a95bbd18f7a9034050cae14106cac63e2ec4fc6

Package: firmware_sm_1t3e3, version: 17.15.03, status: active
  Role: firmware_sm_1t3e3
  File: bootflash:sysboot/c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: cb2d7a6f125023324f62c4ea65927305c0598332

Package: firmware_sm_async, version: 17.15.03, status: active
  Role: firmware_sm_async
  File: bootflash:sysboot/c8kg2be-firmware_sm_async.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 26f7a208998aaf2fdfd505e4c507be9a724560bb

Package: firmware_sm_nim_adpt, version: 17.15.03, status: active
  Role: firmware_sm_nim_adpt
  File: bootflash:sysboot/c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 3027103a036655ea42ae1428e6b854069483d692
```

```
Package: mono-universalk9, version: 17.15.03, status: active
  Role: rp_daemons
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: rp_iosd
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: rp_security
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: rp_webui
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: firmware_ngwic_t1e1, version: 17.15.03, status: n/a
  Role: firmware_ngwic_t1e1
  File: bootflash:sysboot/c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 5d6f62fee606718d1d0fd21ae58172ebe612862c

Package: firmware_nim_async, version: 17.15.03, status: n/a
  Role: firmware_nim_async
  File: bootflash:sysboot/c8kg2be-firmware_nim_async.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 2e4fdb72b80e6b6899c6b7d534b1fd5694935810

Package: firmware_nim_shdsl, version: 17.15.03, status: n/a
  Role: firmware_nim_shdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: f828bfa1261d76d3f21ff7d111fe26a3eb945433

Package: firmware_nim_xdsl, version: 17.15.03, status: n/a
  Role: firmware_nim_xdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 41feadbead77fa101ca313348c71e594b54ff1a8

Package: firmware_prince, version: 17.15.03, status: n/a
  Role: firmware_prince
  File: bootflash:sysboot/c8kg2be-firmware_prince.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 9a95bbd18f7a9034050cae14106cac63e2ec4fc6

Package: firmware_sm_1t3e3, version: 17.15.03, status: n/a
  Role: firmware_sm_1t3e3
  File: bootflash:sysboot/c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: cb2d7a6f125023324f62c4ea65927305c0598332

Package: firmware_sm_async, version: 17.15.03, status: n/a
  Role: firmware_sm_async
  File: bootflash:sysboot/c8kg2be-firmware_sm_async.17.15.03.SPA.pkg, on: RP0/1
```

```
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 26f7a208998aaf2fdfd505e4c507be9a724560bb

Package: firmware_sm_nim_adpt, version: 17.15.03, status: n/a
  Role: firmware_sm_nim_adpt
  File: bootflash:sysboot/c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 3027103a036655ea42ae1428e6b854069483d692

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_daemons
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_iosd
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_security
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_webui
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_base
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: rpboot, version: 17.15.03, status: n/a
  Role: rp_boot
  File: bootflash:sysboot/c8kg2be-rpboot.17.15.03.SPA.pkg, on: RP1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: n/a

Package: firmware_ngwic_t1e1, version: 17.15.03, status: n/a
  Role: firmware_ngwic_t1e1
  File: bootflash:sysboot/c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 5d6f62fee606718d1d0fd21ae58172ebe612862c

Package: firmware_nim_async, version: 17.15.03, status: n/a
  Role: firmware_nim_async
  File: bootflash:sysboot/c8kg2be-firmware_nim_async.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 2e4fdb72b80e6b6899c6b7d534b1fd5694935810

Package: firmware_nim_shdsl, version: 17.15.03, status: n/a
  Role: firmware_nim_shdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: f828bfa1261d76d3f21ff7d111fe26a3eb945433

Package: firmware_nim_xdsl, version: 17.15.03, status: n/a
```

```
  Role: firmware_nim_xdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 41feadbead77fa101ca313348c71e594b54ff1a8

Package: firmware_prince, version: 17.15.03, status: n/a
  Role: firmware_prince
  File: bootflash:sysboot/c8kg2be-firmware_prince.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 9a95bbd18f7a9034050cae14106cac63e2ec4fc6

Package: firmware_sm_1t3e3, version: 17.15.03, status: n/a
  Role: firmware_sm_1t3e3
  File: bootflash:sysboot/c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: cb2d7a6f125023324f62c4ea65927305c0598332

Package: firmware_sm_async, version: 17.15.03, status: n/a
  Role: firmware_sm_async
  File: bootflash:sysboot/c8kg2be-firmware_sm_async.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 26f7a208998aaf2fdfd505e4c507be9a724560bb

Package: firmware_sm_nim_adpt, version: 17.15.03, status: n/a
  Role: firmware_sm_nim_adpt
  File: bootflash:sysboot/c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 3027103a036655ea42ae1428e6b854069483d692

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_daemons
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_iosd
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_security
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_webui
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: firmware_ngwic_t1e1, version: 17.15.03, status: n/a
  Role: firmware_ngwic_t1e1
  File: bootflash:sysboot/c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 5d6f62fee606718d1d0fd21ae58172ebe612862c

Package: firmware_nim_async, version: 17.15.03, status: n/a
  Role: firmware_nim_async
  File: bootflash:sysboot/c8kg2be-firmware_nim_async.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 2e4fdb72b80e6b6899c6b7d534b1fd5694935810
```

```
Package: firmware_nim_shdsl, version: 17.15.03, status: n/a
  Role: firmware_nim_shdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: f828bfa1261d76d3f21ff7d111fe26a3eb945433

Package: firmware_nim_xdsl, version: 17.15.03, status: n/a
  Role: firmware_nim_xdsl
  File: bootflash:sysboot/c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 41feadbead77fa101ca313348c71e594b54ff1a8

Package: firmware_prince, version: 17.15.03, status: n/a
  Role: firmware_prince
  File: bootflash:sysboot/c8kg2be-firmware_prince.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 9a95bbd18f7a9034050cae14106cac63e2ec4fc6

Package: firmware_sm_1t3e3, version: 17.15.03, status: n/a
  Role: firmware_sm_1t3e3
  File: bootflash:sysboot/c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: cb2d7a6f125023324f62c4ea65927305c0598332

Package: firmware_sm_async, version: 17.15.03, status: n/a
  Role: firmware_sm_async
  File: bootflash:sysboot/c8kg2be-firmware_sm_async.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 26f7a208998aaf2fdfd505e4c507be9a724560bb

Package: firmware_sm_nim_adpt, version: 17.15.03, status: n/a
  Role: firmware_sm_nim_adpt
  File: bootflash:sysboot/c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: 3027103a036655ea42ae1428e6b854069483d692

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_daemons
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_iosd
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_security
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: n/a
  Role: rp_webui
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: RP1/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: fp
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: ESP0
```

```
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: fp, version: unknown, status: n/a
  Role: fp
  File: unknown, on: ESP1
  Built: unknown, by: unknown
  File SHA1 checksum: unknown

Package: mono-universalk9, version: 17.15.03, status: active
  Role: cc_spa
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: SIP0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: cc
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: SIP0/0
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: mono-universalk9, version: 17.15.03, status: active
  Role: cc
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: SIP0/1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec

Package: cc, version: unknown, status: n/a
  Role: cc
  File: unknown, on: SIP0/2
  Built: unknown, by: unknown
  File SHA1 checksum: unknown

Package: cc, version: unknown, status: n/a
  Role: cc
  File: unknown, on: SIP0/3
  Built: unknown, by: unknown
  File SHA1 checksum: unknown

Package: cc, version: unknown, status: n/a
  Role: cc
  File: unknown, on: SIP0/4
  Built: unknown, by: unknown
  File SHA1 checksum: unknown

Package: cc, version: unknown, status: n/a
  Role: cc
  File: unknown, on: SIP0/5
  Built: unknown, by: unknown
  File SHA1 checksum: unknown

Package: mono-universalk9, version: 17.15.03, status: active
  Role: cc_spa
  File: bootflash:sysboot/c8kg2be-mono-universalk9.17.15.03.SPA.pkg, on: SIP1
  Built: 2025-03-25_23.43, by: mcpre
  File SHA1 checksum: d03cbeaae0843eeb59138276c67627521e9ffaec
```

Installing subpackages from a consolidated package on a flash drive

The steps for installing subpackages from a consolidated package on a USB flash drive are similar to those described in Installing Subpackages from a Consolidated Pacakage section .

Procedure

Step 1 **show version**
Step 2 **dir usb***n***:**
Step 3 **show platform**
Step 4 **mkdir bootflash:***URL-to-directory-name*
Step 5 **request platform software package expand fileusb***n***:** ***package-name to URL-to-directory-name***
Step 6 **reload**
Step 7 **boot** *URL-to-directory-name/***packages.conf**
Step 8 **show version installed**

Installing a firmware subpackage

Before you begin

Obtain a consolidated package that contains your required firmware package and expand the package. (See Manage and Configure a device to run using individual packages, on page 39.) Make a note of the location and name of the firmware package and use this information in the steps below for *URL-to-package-name*.

You can install a firmware subpackage if the device has been configured using, for example, Manage and Configure a device to run using individual packages, on page 39.

Firmware subpackages are not released individually. You can select a firmware package from within a consolidated package after expanding the consolidated package. The firmware package can then be installed as shown in the procedure below.

Note Read the Release Notes document pertaining to the consolidated package to verify that the firmware within the consolidated package is compatible with the version of Cisco IOS XE software that is currently installed on a device.

Procedure

Step 1 **show version**

Example:

```
Router# show version
Cisco IOS Software, IOS-XE Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Experimental Version
15.3(20120627:221639) [build_151722 111]
Copyright (c) 1986-2012 by Cisco Systems, Inc.
Compiled Thu 28-Jun-12 15:17 by mcpre
.
```

.
.

Shows the version of software running on the device. This can later be compared with the version of software to be installed.

Step 2 **dir bootflash:**

Example:

```
Router# dir bootflash:
```

Displays the previous version of software and that a package is present.

Step 3 **show platform**

Example:

```
Router# show platform
Chassis type: C8375-E-G2
```

Checks the inventory.

Also see the example in Installing Subpackages from a Consolidated Package section.

Step 4 **mkdir bootflash:** *URL-to-directory-name*

Example:

```
Router# mkdir bootflash:mydir
```

Creates a directory to save the expanded software image.

You can use the same name as the image to name the directory.

Step 5 **request platform software package expand file** *URL-to-consolidated-package* **to** *URL-to-directory-name*

Example:

```
Router#   request platform software package expand file
bootflash:c8kg2be-universalk9.17.15.03.SPA.bin:mydir
```

Expands the software image from the TFTP server (*URL-to-consolidated-package*) into the directory used to save the image (*URL-to-directory-name*), which was created in the Step 4.

Step 6 **reload**

Example:

```
Router# reload
rommon >
```

Enables ROMMON mode, which allows the software in the consolidated file to be activated.

Step 7 **boot** *URL-to-directory-name* **/packages.conf**

Example:

```
rommon 1 > boot bootflash:mydir/packages.conf
```

Boots the consolidated package by specifying the path and name of the provisioning file: packages.conf.

Step 8 **show version installed**

Example:

```
Router# show version installed
Package: Provisioning File, version: n/a, status: active
```

Displays the version of the newly installed software.

Examples

The initial part of the following example shows the consolidated package, c8kg2be-universalk9.17.15.03.SPA.bin, being copied to the TFTP server. This is a prerequisite step. The remaining part of the example shows the consolidated file, packages.conf, being booted.

```
Router#request platform software package expand file
bootflash:c8kg2be-universalk9.17.15.03.SPA.bin to bootflash:c8kg2be
Verifying parameters
Expanding superpackage bootflash:c8kg2be-universalk9.17.15.03.SPA.bin
Validating package type
Copying package files
SUCCESS: Finished expanding all-in-one software package.
Router#
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#do dir bootflash:c8kg2be
Directory of bootflash:/c8kg2be/

52      -rw-             7711   Jun 6 2025 07:39:20 +00:00  packages.conf
82      -rw-         59987868   Jun 6 2025 07:39:20 +00:00  c8kg2be-rpboot.17.15.03.SPA.pkg
81      -rw-        891219968   Jun 6 2025 07:38:50 +00:00
c8kg2be-mono-universalk9.17.15.03.SPA.pkg
80      -rw-           204800   Jun 6 2025 07:38:33 +00:00
c8kg2be-firmware_sm_nim_adpt.17.15.03.SPA.pkg
79      -rw-         14671872   Jun 6 2025 07:38:33 +00:00
c8kg2be-firmware_sm_async.17.15.03.SPA.pkg
77      -rw-         10444800   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_prince.17.15.03.SPA.pkg
73      -rw-         11804672   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_nim_shdsl.17.15.03.SPA.pkg
67      -rw-         13254656   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_nim_async.17.15.03.SPA.pkg
61      -rw-         11956224   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_ngwic_t1e1.17.15.03.SPA.pkg
78      -rw-         13889536   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_sm_1t3e3.17.15.03.SPA.pkg
76      -rw-          5677056   Jun 6 2025 07:38:32 +00:00
c8kg2be-firmware_nim_xdsl.17.15.03.SPA.pkg

20237881344 bytes total (0 bytes free)
Router(config)#boot system bootflash:c8kg2be/packages.conf
Router(config)#end
Router#wr
Building configuration...
[OK]
Router#reload
Proceed with reload? [confirm]
Jun  6 07:44:50.27

System integrity status: 0x32042000
Rom image verified correctly

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
Copyright (c) 1994-2025 by cisco Systems, Inc.


Current image running: Boot ROM0
```

```
Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory


........

boot: reading file packages.conf
#

##################################################################

Performing Signature Verification of OS image...
Image validated

Jun  6 07:46:41.428: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode

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```

```
Jun  6 07:46:45.004: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 115824 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
cisco C8375-E-G2 (1RU) processor with 11906887K/6147K bytes of memory.
Processor board ID FDO2833M01A
Router operating mode: Autonomous
1 Virtual Ethernet interface
12 2.5 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

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networking product Cisco may require that the end user install Cisco
transceivers if Cisco determines that removing third-party parts will
assist Cisco in diagnosing the cause of a support issue.
No processes could be found for the command

 WARNING: Command has been added to the configuration using a type 0 password. However,
recommended to migrate to strong type-6 encryption

 WARNING: ** NOTICE **  The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
 Please consider using SIP for multimedia applications.


Press RETURN to get started!
```

Configuring No Service Password-Recovery

The Cisco IOS password recovery procedure allows you to to gain access, using the console, to the ROMMON mode by using the Break key during system startup and reload. When the device software is loaded from ROMMON mode, the configuration is updated with the new password. The password recovery procedure makes anyone with console access have the ability to access the device and its network.

The No Service Password-Recovery feature is designed to prevent the service password-recovery procedure from being used to gain access to the device and network.

Configuration registers and system boot configuration

The lowest four bits of the configuration register (bits 3, 2, 1, and 0) form the boot field. The boot field determines if the device boots manually from ROM or automatically from flash or the network. For example, when the configuration register boot field value is set to any value from 0x2 to 0xF, the device uses the register boot field value to form a default boot filename for autobooting from a network server.

Bit 8, when set to 1, ignores the startup configuration. Bit 6, when set to 1, enables break key detection. You must set the configuration register to autoboot to enable this feature. Any other configuration register setting will prevent the feature from being enabled.

Note By default, the no confirm prompt and messages are not displayed after reloads.

How to enable No Service Password-Recovery

You can enable the No Service Password-Recovery in the following two ways:

- Using the **no service password-recovery** command. This option allows password recovery once it is enabled.
- Using the **no service password-recovery strict** command. This option does not allow for device recovery once it is enabled.

Note As a precaution, a valid Cisco IOS image should reside in the bootflash: before this feature is enabled.

If you plan to enter the no service password-recovery command, Cisco recommends that you save a copy of the system configuration file in a location away from the device.

Befor you beging, ensure that this feature is disabled before making any change to the device regardless of the significance of the change—such as a configuration, module, software version, or ROMMON version change.

The configuration register boot bit must be enabled to load the startup configuration by setting bit-8 to 0, to ignore the break key in Cisco IOS XE by setting bit-6 to 0, and to auto boot a Cisco IOS XE image by setting the lowest four bits 3-0, to any value from 0x2 to 0xF. Changes to the configuration register are not saved after the No Service Password-Recovery feature is enabled.

Note If Bit-8 is set to 1, the startup configuration is ignored. If Bit-6 is set to 1, break key detection is enabled in Cisco IOS XE. If both Bit-6 and Bit-8 are set to 0, the No Service Password-Recovery feature is enabled.

This example shows how to enable the No Service Password-Recovery feature:

```
Router> enable
Router# show version
Router# configure terminal
Router(config)# config-register 0x2012
Router(config)# no service password-recovery
Router(config)# exit
```

Recovering a Device with the No Service Password-Recovery Feature Enabled

To recover a device after the no service password-recovery feature is enabled using the **no service password-recovery** command, look out for the following message that appears during the boot: “PASSWORD RECOVERY FUNCTIONALITY IS DISABLED.” As soon as “.. ” appears, press the Break key. You are then prompted to confirm the Break key action:

- If you confirm the action, the startup configuration is erased and the device boots with the factory default configuration with the No Service Password-Recovery enabled.

- If you do not confirm the Break key action, the device boots normally with the No Service Password-Recovery feature enabled.

Note You cannot recover a device if the No Service Password-Recovery feature was enabled using the **no service password-recovery strict** command.

This example shows a Break key action being entered during boot up, followed by confirmation of the break key action. The startup configuration is erased and the device then boots with the factory default configuration with the No Service Password-Recovery feature enabled.

```
Initializing Hardware ...

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


System Bootstrap, Version 17.3(1r), RELEASE SOFTWARE
Copyright (c) 1994-2020  by cisco Systems, Inc.


Current image running: Boot ROM0

Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory


PASSWORD RECOVERY FUNCTIONALITY IS DISABLED

..

telnet> send brk

..

PASSWORD RECOVERY IS DISABLED.

Do you want to reset the router to the factory default
configuration and proceed [y/n] ? y

Router clearing configuration. Please wait for ROMMON prompt...

File size is 0x17938a80

Located c8kg2be-universalk9.BLD_V1718_THROTTLE_LATEST_20250423_010128.SSA.bin

...
```

This example shows a Break key action being entered during boot up, followed by the non-confirmation of the break key action. The device then boots normally with the No Service Password-Recovery feature enabled.

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

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
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Current image running: Boot ROM0
```

```
Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory

PASSWORD RECOVERY FUNCTIONALITY IS DISABLED

..

telnet> send brk

...

PASSWORD RECOVERY IS DISABLED.

Do you want to reset the router to the factory default
configuration and proceed [y/n] ? n

Router continuing with existing configuration...

File size is 0x17938a80

Located c8kg2be-universalk9.BLD_V1718_THROTTLE_LATEST_20250423_010128.SSA.bin


...

###################################################################### …
```

Configuration Examples for No Service Password-Recovery

The following example shows how to obtain the configuration register setting (which is set to autoboot), disable password recovery capability, and then verify that the configuration persists through a system reload:

```
Router>en
Router#show version
Cisco IOS XE Software, Version 17.15.03
Cisco IOS Software [IOSXE], c8kg2be Software (ARMV8EL_LINUX_IOSD-UNIVERSALK9-M), Version
17.15.3, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2025 by Cisco Systems, Inc.
Compiled Tue 25-Mar-25 23:37 by xxxx

Router(config)#no service password-recovery
WARNING:
Executing this command will disable the password recovery mechanism.
Do not execute this command without another plan for
password recovery.

Are you sure you want to continue? [yes]: yes
Router(config)#end
Router#wr
Building configuration...
[OK]
Router#reload
Proceed with reload? [confirm]
Jun  9

System integrity status: 0x32042000
Rom image verified correctly

System Bootstrap, Version v17.15(3.1r).s2.cp, RELEASE SOFTWARE
Copyright (c) 1994-2025 by cisco Systems, Inc.
```

```
Current image running: Boot ROM0

Last reset cause: LocalSoft
C8375-E-G2 platform with 33554432 Kbytes of main memory

PASSWORD RECOVERY FUNCTIONALITY IS DISABLED

.
telnet> send brk
.....


PASSWORD RECOVERY IS DISABLED.
Do you want to reset the router to the factory default
configuration and proceed  y/n [n]: n

Router continuing with existing configuration...

boot: reading file packages.conf
############################################################

Performing Signature Verification of OS image...
Image validated

Jun  9 05:40:13.287: %BOOT-5-OPMODE_LOG: R0/0: binos: System booted in AUTONOMOUS mode

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Jun  9 05:40:16.793: %FLASH_CHECK-3-DISK_QUOTA: R0/0: flash_check: bootflash quota exceeded
 [free space is 115484 kB] - [recommended free space is 5929066 kB] - Please clean up files
 on bootflash.
cisco C8375-E-G2 (1RU) processor with 11906887K/6147K bytes of memory.
Processor board ID FDO2833M01A
Router operating mode: Autonomous
1 Virtual Ethernet interface
12 2.5 Gigabit Ethernet interfaces
2 Ten Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
33554432K bytes of physical memory.
20257791K bytes of flash memory at bootflash:.

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networking product Cisco may require that the end user install Cisco
transceivers if Cisco determines that removing third-party parts will
assist Cisco in diagnosing the cause of a support issue.
No processes could be found for the command

 WARNING: Command has been added to the configuration using a type 0 password. However,
recommended to migrate to strong type-6 encryption

 WARNING: ** NOTICE **  The H.323 protocol is no longer supported from IOS-XE release 17.6.1.
 Please consider using SIP for multimedia applications.


Press RETURN to get started!
```

The following example shows how to disable password recovery capability using the no service password-recovery strict command:

```
Router# configure terminal

Router(config)# no service password-recovery strict

WARNING:
Executing this command will disable the password recovery mechanism.
Do not execute this command without another plan for
password recovery.

Are you sure you want to continue? [yes]: yes
Router(config)#end
Router#wr
Building configuration...
[OK]
..
```