

Upgrade Cisco IOS from 15.X to 17.9.X in Voice Gateway and CUBE

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Introduction

This document describes the general procedure, prerequisites, and best practices for upgrading Cisco IOS® XE software.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Other

- **Backup Configuration:** Always back up the current device configuration before starting the upgrade.
- **Console Access:** Establish a console session to the router for direct access during the upgrade.
- **Remote Access:** If you are planning to upgrade the voice gateway/CUBE remotely, verify SSH connection in advance.
- **Verify Hardware Compatibility:** Confirm that your device supports Cisco IOS 17.9.x or higher.
- **ROMMON Upgrade:** Minimum ROMMON for 17.9.x or higher is 16.12(2r). ROMMON needs to be upgraded to support the new Cisco IOS version.
- **Sufficient Flash Memory:** Ensure enough flash memory is available to store the new Cisco IOS image.
- **TFTP or Other File Transfer Server:** Have a reachable TFTP, FTP, or USB server with the new Cisco IOS image available.

Upgrade Path Considerations

- Direct upgrades from 15.X to 17.9.X or higher require intermediate steps depending on the device and current software version.
- Devices require upgrading first to 16.6.2 release before moving to 17.9.X or higher.
- Source IOS 15.X > ROMMON upgrade to 6.12(2r) > Reload > Cisco IOS Upgrade to 16.6.2 > Reload > Cisco IOS Upgrade to 17.9.X > Reload.

Upgrade Procedure

Step 1. Establish console connection.

- Connect to the device console port using a terminal emulator with settings:
 - Speed: 9600 bps
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None



Note: In case you are accessing the voice gateway/CUBE remotely, ignore Step 1.

Step 2. Verify connectivity to file server.

Ping the TFTP or FTP server from the device to ensure network connectivity.

Step 3. Copy the new Cisco IOS and ROMMON image.

- Use the command to copy the new Cisco IOS XE image from the server to the device flash memory:
Router# copy tftp: flash: or copy scp: flash:
- Provide the IP address of the server, filename, and other details when prompted.

Step 4. Verify the image.

- After copying, verify the image integrity using MD5 checksum if available.
- In privilege mode, use **verify bootflash:<imagename.bin>**.

Step 5. Upgrade ROMMON.

- Upgrade rom-monitor filename **bootflash:<name_of_rommon_file>** all:
 - Router# write memory
 - Router# reload
- Use **show rom-monitor** or **show platform** command in order to check current ROMMON version.

```
#####
#sh rom-monitor r0
=====
System Bootstrap, Version 17.6.1, RELEASE SOFTWARE
Copyright (c) 1994-2021 by cisco Systems, Inc.
#####
```

```
#####
#sho platform
Chassis type: ISR4451-X/K9

Slot          Type                State                Insert time (ago)
-----
0             ISR4451-X/K9        ok                   6w4d
 0/0          ISR4451-X-4x1GE     ok                   6w4d
1             ISR4451-X/K9        ok                   6w4d
2             ISR4451-X/K9        ok                   6w4d
R0            ISR4451-X/K9        ok, active           6w4d
F0            ISR4451-X/K9        ok, active           6w4d
P0            PWR-4450-AC         ok                   6w4d
P1            Unknown              empty                never
P2            ACS-4450-FANASSY    ok                   6w4d

Slot          CPLD Version        Firmware Version
-----
0             19042950            17.6.1
1             19042950            17.6.1
2             19042950            17.6.1
R0            19042950            17.6.1
F0            19042950            17.6.1
```

Step 6: Configure boot variable to intermediate Cisco IOS XE 16.6.2.

- Set the device to boot from the new image:
 - Router(config)#no boot system
 - Router(config)# boot system flash:<new-image-filename>
 - Router(config)# boot system flash:<current-image-filename>
- Save the configuration:
 - Router# write memory

Step 7. Reload the device.

- Reload the device to boot with the new Cisco IOS XE version:
 - Router# reload

Step 8. Verify upgrade.

- After reload, verify the running version:

- Router# show version

Step 9: Configure boot variable to target Cisco IOS 17.9.X XE or higher.

- Set the device to boot from the new image:
 - Router(config)#no boot system
 - Router(config)# boot system flash:<new-image-filename>
 - Router(config)# boot system flash:<current-image-filename>
- Save the configuration:
 - Router# write memory

Step 10. Reload the device.

- Reload the device to boot with the new Cisco IOS XE version:
 - Router# reload

Step 11. Verify upgrade.

- After reload, verify the running version:
 - Router# show version

```

#sh ver
Cisco IOS XE Software, Version V179_3A_MTH_ESM5_1
Cisco IOS Software [Cupertino], ISR Software (X86_64_LINUX_IOSD-UNIVERSALK9-M), Version 17.9.3a, CUST-SPECIAL:V179_3A_MTH_ESM5_1
This software is supported for a limited time under special agreement with Cisco Systems, Inc.
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documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.

ROM: 17.6.1

BGL-Voice-02ECFA9 uptime is 6 weeks, 4 days, 21 hours, 39 minutes
Uptime for this control processor is 6 weeks, 4 days, 21 hours, 40 minutes
System returned to ROM by PowerOn
System image file is "bootflash:packages.conf"
Last reload reason: PowerOn

```

Summary

- Always check device-specific upgrade paths and prerequisites.
- Ensure you use the model specific Cisco IOS image and ROMMON image.
- Backup configurations and verify connectivity before starting.
- Use the appropriate commands to copy, verify, and activate the new Cisco IOS XE image.
- Verify the upgrade by checking the running Cisco IOS XE version after reloading.
- Please check the bug Cisco bug ID [CSCvm54595](#): SSH connection loss after reloading. Make prearrangements considering this bug.
- Bug Cisco bug ID [CSCwj23735](#): The 'rtp port range' configuration was lost after a CUBE reload. The workaround is to either manually re-enter this command after reloading the CUBE or upgrade the router to a fixed release, such as version 17.12.X.

Workaround: Implementation of EEM script.

- Bug Cisco bug ID [CSCwm32946](#): This bug causes the CUBE to fail to relay or pass the 488 Media Unacceptable response between call legs for FAX (T.38) Re-invites.