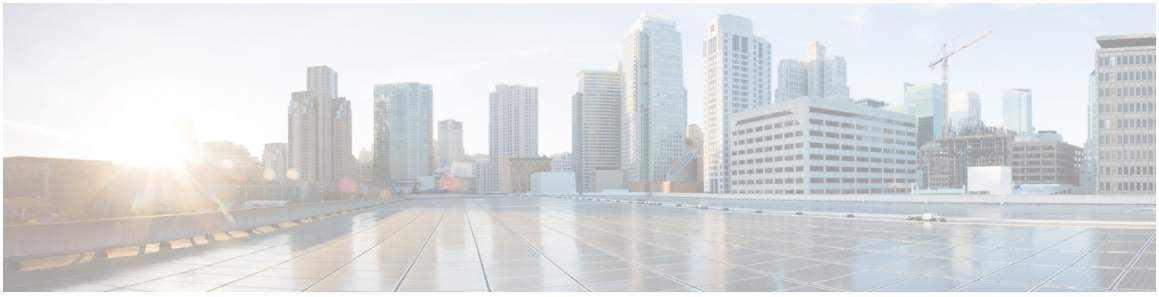


Release Notes for Cisco Catalyst 9300 Series Switches, Cisco IOS XE Cupertino 17.9.x

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Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883



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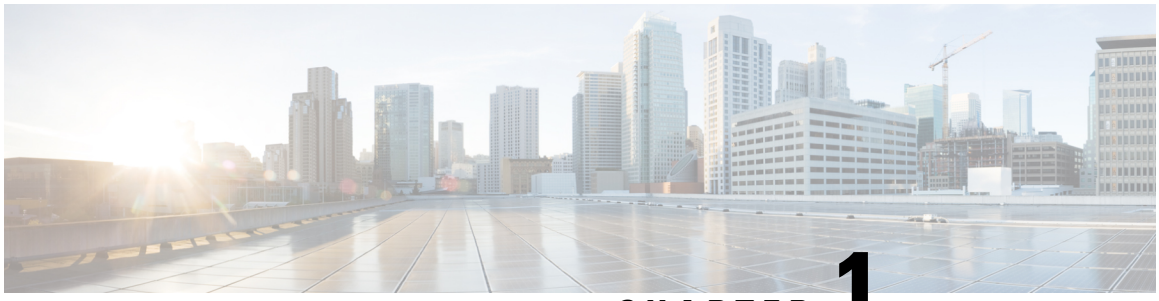
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CHAPTER 1

Introduction

Cisco Catalyst 9300 Series Switches are Cisco's lead stackable access platforms for the next-generation enterprise and have been purpose-built to address emerging trends of Security, IoT, Mobility, and Cloud.

They deliver complete convergence with the rest of the Cisco Catalyst 9000 Series Switches in terms of ASIC architecture with a Unified Access Data Plane (UADP) 2.0. The platform runs an Open Cisco IOS XE that supports model driven programmability, has the capacity to host containers, and run 3rd party applications and scripts natively within the switch (by virtue of x86 CPU architecture, local storage, and a higher memory footprint). This series forms the foundational building block for SD-Access, which is Cisco's lead enterprise architecture.

• Supported Hardware, on page 1

Supported Hardware

Cisco Catalyst 9300 Series Switches—Model Numbers

The following table lists the supported hardware models and the default license levels they are delivered with. For information about the available license levels, see section *License Levels* .

Table 1: Cisco Catalyst 9300 Series Switches

Switch Model	Default License Level	Description
C9300-24H-A	Network Advantage	Stackable 24 10/100/1000 Mbps UPOE+ ports; PoE budget of 830 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-24H-E	Network Essentials	
C9300-24P-A	Network Advantage	Stackable 24 10/100/1000 PoE+ ports; PoE budget of 437W; 715 WAC power supply; supports StackWise-480 and StackPower
C9300-24P-E	Network Essentials	

Switch Model	Default License Level	Description
C9300-24S-A	Network Advantage	Stackable 24 1G SFP ports; two power supply slots with 715 WAC power supply installed by default; supports StackWise-480 and StackPower.
C9300-24S-E	Network Essentials	
C9300-24T-A	Network Advantage	Stackable 24 10/100/1000 Ethernet ports; 350 WAC power supply; supports StackWise-480 and StackPower
C9300-24T-E	Network Essentials	
C9300-24U-A	Network Advantage	Stackable 24 10/100/1000 UPoE ports; PoE budget of 830W; 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-24U-E	Network Essentials	
C9300-24UB-A	Network Advantage	Stackable 24 10/100/1000 Mbps UPOE ports that provide deep buffers and higher scale; PoE budget of 830W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-24UB-E	Network Essentials	
C9300-24UX-A	Network Advantage	Stackable 24 Multigigabit Ethernet 100/1000/2500/5000/10000 UPoE ports; PoE budget of 490 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-24UX-E	Network Essentials	
C9300-24UXB-A	Network Advantage	Stackable 24 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE ports that provide deep buffers and higher scale; PoE budget of 560 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-24UXB-E	Network Essentials	
C9300-48H-A	Network Advantage	Stackable 48 10/100/1000 Mbps UPOE+ ports; PoE budget of 822 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-48H-E	Network Essentials	
C9300-48T-A	Network Advantage	Stackable 48 10/100/1000 Ethernet ports; 350 WAC power supply; supports StackWise-480 and StackPower
C9300-48T-E	Network Essentials	

Switch Model	Default License Level	Description
C9300-48P-A	Network Advantage	Stackable 48 10/100/1000 PoE+ ports; PoE budget of 437W; 715 WAC power supply; supports StackWise-480 and StackPower
C9300-48P-E	Network Essentials	
C9300-48S-A	Network Advantage	Stackable 48 1G SFP ports; two power supply slots with 715 WAC power supply installed by default; supports StackWise-480 and StackPower.
C9300-48S-E	Network Essentials	
C9300-48T-A	Network Advantage	Stackable 48 10/100/1000 Ethernet ports; 350 WAC power supply; supports StackWise-480 and StackPower
C9300-48T-E	Network Essentials	
C9300-48U-A	Network Advantage	Stackable 48 10/100/1000 UPoE ports; PoE budget of 822 W; 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-48U-E	Network Essentials	
C9300-48UB-A	Network Advantage	Stackable 48 10/100/1000 Mbps UPOE ports that provide deep buffers and higher scale; PoE budget of 822 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-48UB-E	Network Essentials	
C9300-48UN-A	Network Advantage	Stackable 48 Multigigabit Ethernet (100 Mbps or 1/2.5/5 Gbps) UPoE ports; PoE budget of 610 W with 1100 WAC power supply; supports StackWise-480 and StackPower
C9300-48UN-E	Network Essentials	
C9300-48UXM-A	Network Advantage	Stackable 48 (36 2.5G Multigigabit Ethernet and 12 10G Multigigabit Ethernet Universal Power Over Ethernet (UPOE) ports)
C9300-48UXM-E	Network Essentials	

Table 2: Cisco Catalyst 9300L Series Switches

Switch Model	Default License Level	Description
C9300L-24T-4G-A	Network Advantage	Stackable 24x10/100/1000M Ethernet ports; 4x1G SFP fixed uplink ports; 350 WAC power supply; supports StackWise-320.
C9300L-24T-4G-E	Network Essentials	
C9300L-24P-4G-A	Network Advantage	Stackable 24x10/100/1000M PoE+ ports; 4x1G SFP fixed uplink ports; PoE budget of 505W with 715 WAC power supply; supports StackWise-320.
C9300L-24P-4G-E	Network Essentials	
C9300L-24T-4X-A	Network Advantage	Stackable 24x10/100/1000M Ethernet ports; 4x10G SFP+ fixed uplink ports; 350 WAC power supply; supports StackWise-320.
C9300L-24T-4X-E	Network Essentials	
C9300L-24P-4X-A	Network Advantage	Stackable 24x10/100/1000M PoE+ ports; 4x10G SFP+ fixed uplink ports; PoE budget of 505W with 715 WAC power supply; supports StackWise-320.
C9300L-24P-4X-E	Network Essentials	
C9300L-48T-4G-A	Network Advantage	Stackable 48x10/100/1000M Ethernet ports; 4x1G SFP fixed uplink ports; 350 WAC power supply; supports StackWise-320.
C9300L-48T-4G-E	Network Essentials	
C9300L-48P-4G-A	Network Advantage	Stackable 48x10/100/1000M PoE+ ports; 4x1G SFP fixed uplink ports; PoE budget of 505W with 715 WAC power supply; supports StackWise-320.
C9300L-48P-4G-E	Network Essentials	
C9300L-48T-4X-A	Network Advantage	Stackable 48x10/100/1000M Ethernet ports; 4x10G SFP+ fixed uplink ports; 350 WAC power supply; supports StackWise-320.
C9300L-48T-4X-E	Network Essentials	
C9300L-48P-4X-A	Network Advantage	Stackable 48x10/100/1000M PoE+ ports; 4x10G SFP+ fixed uplink ports; PoE budget of 505W with 715 WAC power supply; supports StackWise-320.
C9300L-48P-4X-E	Network Essentials	

Switch Model	Default License Level	Description
C9300L-48PF-4G-A	Network Advantage	Stackable 48 10/100/1000 Mbps PoE+ ports; 4x1G SFP+ fixed uplink ports; PoE budget of 890 W with 1100 WAC power supply; supports StackWise-320.
C9300L-48PF-4G-E	Network Essentials	
C9300L-48PF-4X-A	Network Advantage	Stackable 48 10/100/1000 Mbps PoE+ ports; 4x10G SFP+ fixed uplink ports; PoE budget of 890 W with 1100 WAC power supply; supports StackWise-320.
C9300L-48PF-4X-E	Network Essentials	
C9300L-24UXG-4X-A	Network Advantage	Stackable 16 10/100/1000 Mbps and 8 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE ports; 4x10G SFP+ fixed uplink ports; PoE budget of 880 W with 1100 WAC power supply; supports StackWise-320.
C9300L-24UXG-4X-E	Network Essentials	
C9300L-24UXG-2Q-A	Network Advantage	Stackable 16 10/100/1000 Mbps and 8 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE ports; 2x40G QSFP+ fixed uplink ports; PoE budget of 722 W with 1100 WAC power supply; supports StackWise-320.
C9300L-24UXG-2Q-E	Network Essentials	
C9300L-48UXG-4X-A	Network Advantage	Stackable 36 10/100/1000 Mbps and 12 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE ports; 4x10G SFP+ fixed uplink ports; PoE budget of 675 W with 1100 WAC power supply; supports StackWise-320.
C9300L-48UXG-4X-E	Network Essentials	
C9300L-48UXG-2Q-A	Network Advantage	Stackable 36 10/100/1000 Mbps and 12 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE ports; 2x40G QSFP+ fixed uplink ports; PoE budget of 675 W with 1100 WAC power supply; supports StackWise-320.
C9300L-48UXG-2Q-E	Network Essentials	

Table 3: Cisco Catalyst 9300LM Series Switches

Switch Model	Default License Level	Description
C9300LM-48T-4Y-A	Network Advantage	Stackable 48 x 10/100/1000 M Ethernet ports; 4 x 25 GE SFP28 fixed uplink ports; 600 WAC power supply and fixed fans; supports StackWise-320.
C9300LM-48T-4Y-E	Network Essentials	

Switch Model	Default License Level	Description
C9300LM-24U-4Y-A	Network Advantage	Stackable 24 x 10/100/1000 M UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 420 W with a single default 600 WAC power supply; supports StackWise-320.
C9300LM-24U-4Y-E	Network Essentials	
C9300LM-48U-4Y-A	Network Advantage	Stackable 48 x 10/100/1000 M UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 790 W with a single default 1000 WAC power supply; supports StackWise-320.
C9300LM-48U-4Y-E	Network Essentials	
C9300LM-48UX-4Y-A	Network Advantage	Stackable 40 x 10/100/1000 M and 8 Multigigabit Ethernet (100M/1000M/2.5GE/5GE/10GE) UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 790 W with a single default 1000 WAC power supply; supports StackWise-320.
C9300LM-48UX-4Y-E	Network Essentials	

Table 4: Cisco Catalyst 9300X Series Switches

Switch Model	Default License Level	Description
C9300X-12Y-A	Network Advantage	Stackable 12 1/10/25 GE SFP28 downlink ports; 715 WAC power supply; supports StackPower+, StackWise-1T and C9300X-NM network modules.
C9300X-12Y-E	Network Essentials	
C9300X-24Y-A	Network Advantage	Stackable 24 1/10/25 GE SFP28 downlink ports; 715 WAC power supply; supports StackPower+, StackWise-1 and C9300X-NM network modules.
C9300X-24Y-E	Network Essentials	
C9300X-24HX-A	Network Advantage	Stackable 24 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE+ ports; PoE budget of 735W with 1100WAC power supply; supports StackPower+, StackWise-1T and C9300X-NM network modules.
C9300X-24HX-E	Network Essentials	
C9300X-48HX-A	Network Advantage	Stackable 48 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE+ports; PoE budget of 590W with 1100 WAC power supply; supports StackPower+, StackWise-1T and C9300X-NM network modules.
C9300X-48HX-E	Network Essentials	
C9300X-48TX-A	Network Advantage	Stackable 48 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) ports; 715WAC powersupply; supports StackPower+, StackWise-1T and C9300X-NM network modules.
C9300X-48TX-E	Network Essentials	
C9300X-48HXN-A	Network Advantage	Stackable 40 x 100/1000 M or 2.5/5 GE Multigigabit Ethernet and 8 x 100/1000 M or 2.5/5/10 GE Multigigabit Ethernet UPOE+ ports; PoE budget of 690W with 1100WAC power supply; supports StackPower+, StackWise-1T and C9300X-NM network modules
C9300X-48HXN-E	Network Essentials	

Network Modules

The following table lists the optional uplink network modules with 1-Gigabit, 10-Gigabit, 25-Gigabit, and 40-Gigabit slots. You should only operate the switch with either a network module or a blank module installed.

Network Module	Description
C3850-NM-4-1G [1]	Four 1 Gigabit Ethernet SFP module slots
C3850-NM-2-10G [1]	Two 10 Gigabit Ethernet SFP module slots
C3850-NM-4-10G [1]	Four 10 Gigabit Ethernet SFP module slots
C3850-NM-8-10G [1]	Eight 10 Gigabit Ethernet SFP module slots
C3850-NM-2-40G [1]	Two 40 Gigabit Ethernet SFP module slots
C9300-NM-4G [2]	Four 1 Gigabit Ethernet SFP module slots
C9300-NM-4M [2]	Four MultiGigabit Ethernet slots
C9300-NM-8X [2]	Eight 10 Gigabit Ethernet SFP+ module slots
C9300-NM-2Q [2]	Two 40 Gigabit Ethernet QSFP+ module slots
C9300-NM-2Y [2]	Two 25 Gigabit Ethernet SFP28 module slots
C9300X-NM-2C[3]	Two 40 Gigabit Ethernet/100 Gigabit Ethernet QSFP+ module slots
C9300X-NM-4C [3]	Four 40 Gigabit Ethernet/100 Gigabit Ethernet slots with a QSFP+ connector ineach slot.
C9300X-NM-8M[3]	Eight Multigigabit Ethernet slots
C9300X-NM-8Y[3]	Eight 25 Gigabit Ethernet/10 Gigabit Ethernet/1 Gigabit Ethernet SFP+ module slots

Note

1. These network modules are supported only on the C3850 and C9300 SKUs of the Cisco Catalyst 3850 Series Switches and Cisco Catalyst 9300 Series Switches respectively.
2. These network modules are supported only on the C9300 SKUs of the Cisco Catalyst 9300 Series Switches.
3. These network modules are supported only on the C9300X SKUs of the Cisco Catalyst 9300 Series Switches.

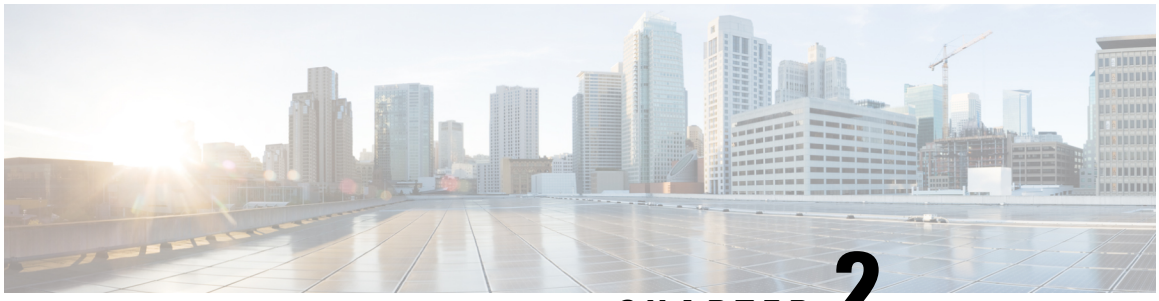
The following table lists the network modules that are supported on the Cisco Catalyst 9300X-HXN Series Switches and the ports that are usable on each of these network module:

Table 5: Network Modules Supported on Catalyst 9300X-HXN Series Switches

Network Module	Cisco IOS XE Cupertino 17.7.1 and Previous Releases	Cisco IOS XE Cupertino 17.8.1 and Later Releases
C9300X-NM-8Y (8x25G)	Ports 1 to 4 usable.	Ports 1 to 6 usable. Ports 7 and 8 are permanently disabled.
C9300X-NM-8M (8xmGig)	Ports 1 to 4 usable.	Ports 1 to 6 usable. Ports 7 and 8 are permanently disabled.
C9300X-NM-2C (2x100G/2x40G)	Ports 1 to 2 usable. No breakout cable support.	Ports 1 and 2 usable. Breakout cable supported only on port 1. No support for breakout cable on port 2.

Optics Modules

Cisco Catalyst Series Switches support a wide range of optics and the list of supported optics is updated on a regular basis. Use the Transceiver Module Group (TMG) Compatibility Matrix tool, or consult the tables at this URL for the latest transceiver module compatibility information: https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html



CHAPTER 2

Whats New in Cisco IOS XE Cupertino 17.9.x

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Whats New in Cisco IOS XE Cupertino 17.9.10

There are no new features in this release.

Whats New in Cisco IOS XE Cupertino 17.9.9

There are no new features in this release.

Whats New in Cisco IOS XE Cupertino 17.9.8

There are no new features in this release.

Whats New in Cisco IOS XE Cupertino 17.9.7

There are no new features in this release.

Whats New in Cisco IOS XE Cupertino 17.9.6a

There are no new features in this release. This release provides a fix for CSCwm57734: Dot1x auth fail vlan can't assign IP with dhcp.

Whats New in Cisco IOS XE Cupertino 17.9.6

Hardware Features in Cisco IOS XE 17.9.6

There are no new hardware features in this release.

Software Features in Cisco IOS XE 17.9.6

There are no new software features in this release.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.6

There are no behavior changes in Cisco IOS XE Cupertino 17.9.6.

Whats New in Cisco IOS XE Cupertino 17.9.5

Hardware Features in Cisco IOS XE Cupertino 17.9.5

There are no new hardware features in this release.

Software Features in Cisco IOS XE Cupertino 17.9.5

There are no new software features in this release.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.5

There are no behavior changes in Cisco IOS XE Cupertino 17.9.5.

Whats New in Cisco IOS XE Cupertino 17.9.4a

There are no new features in this release. This release provides a fix for CSCwh87343: Cisco IOS XE Software Web UI Privilege Escalation Vulnerability. For more information, see Security Advisory: cisco-sa-iosxe-webui-privesc-j22SaA4z.

Whats New in Cisco IOS XE Cupertino 17.9.4

Hardware Features in Cisco IOS XE Cupertino 17.9.4

There are no new hardware features in this release.

Software Features in Cisco IOS XE Cupertino 17.9.4

Feature Name	Description
Support for Wireless in a LISP VXLAN Fabric	A LISP VXLAN Fabric supports wireless infrastructure and wireless clients through two modes: Fabric-enabled Wireless and Over-the-top (OTT) Centralized Wireless. In a Fabric-enabled Wireless deployment, the wireless infrastructure is integrated with the wired fabric network to provide a single overlay for the wired and wireless clients. In an OTT Wireless deployment, the wireless infrastructure uses the wired fabric network as a transport medium to carry the traditional wireless traffic.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.4

There are no behavior changes in Cisco IOS XE Cupertino 17.9.4.

Whats New in Cisco IOS XE Cupertino 17.9.3

Hardware Features in Cisco IOS XE Cupertino 17.9.3

There are no new hardware features in this release.

Software Features in Cisco IOS XE Cupertino 17.9.3

Feature Name	Description
LISP VXLAN Fabric for a Wired Network	A LISP VXLAN fabric is an enterprise solution that enables policy-based segmentation over a LISP-based fabric overlay across a Campus and Branch network. It uses a LISP-based control plane and VXLAN-based data plane.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.3

There are no behavior changes in Cisco IOS XE Cupertino 17.9.3.

Whats New in Cisco IOS XE Cupertino 17.9.2

Hardware Features in Cisco IOS XE Cupertino 17.9.2

There are no new hardware features in this release.

Software Features in Cisco IOS XE Cupertino 17.9.2

There are no new software features in this release.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.2

There are no behavior changes in Cisco IOS XE Cupertino 17.9.2.

Whats New in Cisco IOS XE Cupertino 17.9.1

Hardware Features in Cisco IOS XE Cupertino 17.9.1

Feature Name	Description and Documentation Link
Cisco Catalyst 9300LM Series Switches	The following new models have been introduced in the series: • C9300LM-48T-4Y: Stackable 48 x 10/100/1000 M Ethernet ports; 4 x 25 GE SFP28 fixed uplink ports; 600 WAC power supply and fixed fans; supports StackWise-320. • C9300LM-24U-4Y: Stackable 24 x 10/100/1000 M UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 420 W with a single default 600 WAC power supply; supports StackWise-320. • C9300LM-48U-4Y: Stackable 48 x 10/100/1000 M UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 790 W with a single default 1000 WAC power supply; supports StackWise-320. • C9300LM-48UX-4Y: Stackable 40 x 10/100/1000 M and 8 Multigigabit Ethernet (100M/1000M/2.5GE/5GE/10GE) UPOE ports; 4 x 25 GE SFP28 fixed uplink ports; PoE budget of 790 W with a single default 1000 WAC power supply; supports StackWise-320. For more information about the hardware, see the Cisco Catalyst 9300 Series Switches Hardware Installation Guide.
C9300X-24HX	Stackable 24 Multigigabit Ethernet (100 Mbps or 1/2.5/5/10 Gbps) UPOE+ ports; PoE budget of 735W with 1100WAC power supply; supports StackPower+, StackWise-1T and C9300X-NM network modules. For more information about the hardware, see the Cisco Catalyst 9300 Series Switches Hardware Installation Guide.

Feature Name	Description and Documentation Link
Cisco 10GBASE-LR/10GBASE-BR/25GBASE-BR Modules on C9300-NM-2Y	On C9300-NM-2Y network module, the following SFPs are supported. • SFP-10/25G-BXD-I • SFP-10/25G-BXU-I For information about the modules, see Cisco 25GBASE SFP28 Modules Data Sheet. For information about device compatibility, see the Transceiver Module Group (TMG) Compatibility Matrix.

Software Features in Cisco IOS XE Cupertino 17.9.1

Feature Name	Description
BGP EVPN VXLAN: TCP MSS Adjustment	TCP MSS Adjustment: Introduces support for IPv4 and IPv6 TCP MSS Adjustment for EVPN Routed Overlay.
DHCP Snooping with Egress SPAN on the same interface	Introduces support for configuring concurrent DHCP Snooping and egress SPAN on the same interface for non-SDA deployments.
Programmability • YANG Data Models • Pubd Restartability	The following programmability features are introduced in this release: • YANG Data Models: For the list of Cisco IOS XE YANG models available with this release, navigate to: https://github.com/YangModels/yang/tree/master/vendor/cisco/xe/1791. Revision statements embedded in the YANG files indicate if there has been a model revision. The README.md file in the same GitHub location highlights changes that have been made in the release. (Network Advantage) • Pubd Restartability: The pubd process is restartable on all platforms in this release. Prior to this release, pubd was restartable only on certain platforms. On other platforms, to restart the pubd process, the whole device had to be restarted.

Feature Name	Description
Smart Licensing Using Policy • New mechanism to send data privacy related information • Hostname support	The following Smart Licensing Using Policy features are introduced in this release: • New mechanism to send data privacy related information: This information is no longer included in a RUM report. If data privacy is disabled (**no license smart privacy** { **all** | **hostname** | **version**} global configuration command), data privacy related information is sent in a separate sync message or offline file. Depending on the topology you have implemented, the product instance initiates the sending of this information in a separate message, or CSLU and SSM On-Prem initiates the retrieval of this information from the product instance, or this information is saved in the offline file that is generated when you enter the **license smart save usage** privileged EXEC command. • Hostname support: Support for sending hostname information was introduced. If you configure a hostname on the product instance and disable the corresponding privacy setting (**no license smart privacy hostname** global configuration command), hostname information is sent from the product instance, in a separate sync message or offline file. Depending on the topology you have implemented, the hostname information is received by CSSM, and CSLU or SSM On-Prem. It is then displayed on the corresponding user interface. (Network Advantage)
SMU Installation disabled in bundle mode	Support for SMU installation is disabled in bundle mode. Installation is supported only in install mode. (Network Advantage)
Support for PI SSH	Cisco IOS SSH Server and Client support for the following encryption algorithms have been introduced: • aes128-gcm@openssh.com • aes256-gcm@openssh.com
IPsec • BGP EVPN VXLAN over IPSec • IPsec NAT Transparency • VRF Aware IPsec	The following IPsec features are introduced in this release: • An IPSec-based underlay network securely transports the VXLAN-encapsulated packets between the source and destination VTEPs. Securing the BGP EVPN VXLAN data traffic using IPSec tunnel encrypts the data and maintains data integrity. • The IPsec NAT Transparency feature introduces support for IP Security (IPsec) traffic to travel through Network Address Translation (NAT) or Port Address Translation (PAT) points in the network by addressing many known incompatibilities between NAT and IPsec. • The VRF-Aware IPsec feature introduces IP Security (IPsec) tunnel mapping to Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs). Using the VRF-Aware IPsec feature, you can map IPsec tunnels to Virtual Routing and Forwarding (VRF) instances using a single public-facing address. (DNA Advantage)

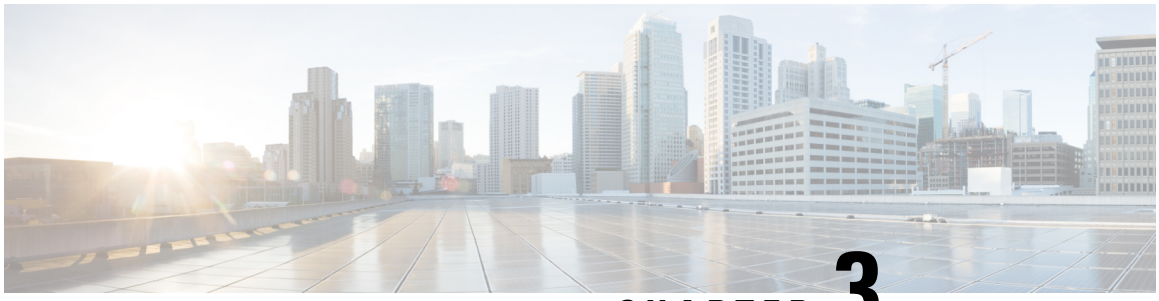
Feature Name	Description
SXP Version 5	SXP version 5 has been designed to export and import SXP mappings between specified SXP peers. (DNA Advantage)

New on the WebUI
There are no WebUI features in this release.

Hardware and Software Behavior Changes in Cisco IOS XE Cupertino 17.9.1

Behavior Change	Description
DHCP Egress Packets Captured in SPAN Sessions	SPAN sessions capture Dynamic Host Configuration Protocol (DHCP) egress packets when DHCP snooping is enabled on the device.
Last Reload Reason in **show version** command output	The **show version** command output in User EXEC mode is modified. This applies only to stacked switches. Last reload reason does not display error now.
MTU Packet Length	Prior to 17.9.1, the device was sending four bytes more than the maximum allowed packet length. Starting this release, the device sends packets as per the standard allowed packet length.
PTP: BMCA Tree Hierarchy	PTP (Precision Time Protocol) profile is modified to create tree from Best Master Clock Algorithm (BMCA). To avoid faulty ports in the PTP topology, BMCA is made independent of the Spanning Tree Protocol (STP).
RUM report throttling	For all topologies where the product instance initiates communication, the minimum reporting frequency is throttled to one day. This means the product instance does not send more than one RUM report a day. The affected topologies are: *Connected Directly to CSSM*, *Connected to CSSM Through CSLU* (product instance-initiated communication), *CSLU Disconnected from CSSM* (product instance-initiated communication), and *SSM On-Prem Deployment* (product instance-initiated communication). This resolves the problem of too many RUM reports being generated and sent for certain licenses. It also resolves the memory-related issues and system slow-down that was caused by an excessive generation of RUM reports. You can override the reporting frequency throttling, by entering the **license smart sync** command in privileged EXEC mode. This triggers an on-demand synchronization with CSSM or CSLU, or SSM On-Prem, to send and receive any pending data. RUM report throttling also applies to the Cisco IOS XE Amsterdam 17.3.6 and later releases of the 17.3.x train, and Cisco IOS XE Bengaluru 17.6.4 and later releases of the 17.6.x train. From Cisco IOS XE Cupertino 17.9.1, RUM report throttling is applicable to *all* subsequent releases.

Behavior Change	Description
show vlan mapping command output	The **show vlan mapping** command output is modified. Information about Five GigabitEthernet interface is displayed in the output.



CHAPTER 3

Important Notes

- Important Notes, on page 17

Important Notes

Unsupported Features

- **Cisco TrustSec**
  - Cisco TrustSec Network Device Admission Control (NDAC) on Uplinks
- **Security**
  - MACsec switch-to-host connections in an overlay network.
  - Virtual Routing and Forwarding (VRF)-Aware web authentication
- **System Management**
  - Performance Monitoring (PerfMon)
- Converged Access for Branch Deployments
- Network Load Balancing (NLB)

Complete List of Supported Features

For the complete list of features supported on a platform, see the Cisco Feature Navigator.

Accessing Hidden Commands

Starting with Cisco IOS XE Fuji 16.8.1a, as an improved security measure, the way in which hidden commands can be accessed has changed.

Hidden commands have always been present in Cisco IOS XE, but were not equipped with CLI help. That is, entering a question mark (?) at the system prompt did not display the list of available commands. These commands were only meant to assist Cisco TAC in advanced troubleshooting and were not documented either.

Starting with Cisco IOS XE Fuji 16.8.1a, hidden commands are available under:

- Category 1—Hidden commands in privileged or User EXEC mode. Begin by entering the **service internal** command to access these commands.
- Category 2—Hidden commands in one of the configuration modes (global, interface and so on). These commands do not require the **service internal** command.

Further, the following applies to hidden commands under Category 1 and 2:

- The commands have CLI help. Enter enter a question mark (?) at the system prompt to display the list of available commands.

  Note: For Category 1, enter the **service internal** command before you enter the question mark; you do not have to do this for Category 2.

- The system generates a %PARSER-5-HIDDEN syslog message when a hidden command is used. For example:

```
*Feb 14 10:44:37.917: %PARSER-5-HIDDEN: Warning!!! 'show processes memory old-header '
 is a hidden command.
Use of this command is not recommended/supported and will be removed in future.
```

Apart from category 1 and 2, there remain internal commands displayed on the CLI, for which the system does NOT generate the %PARSER-5-HIDDEN syslog message.

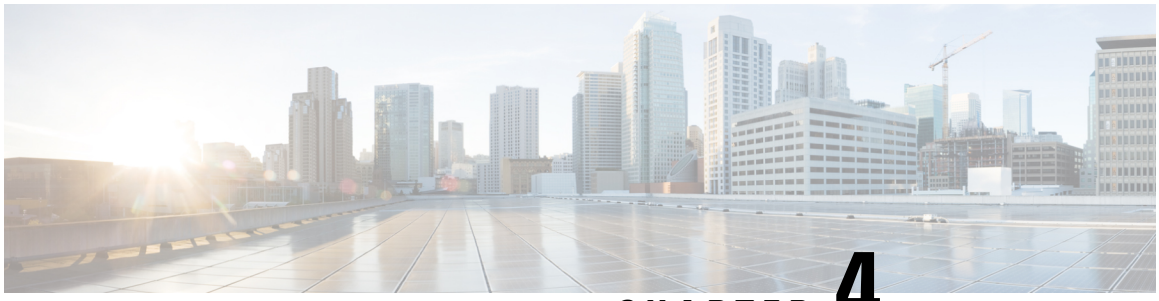


Important We recommend that you use any hidden command only under TAC supervision.

If you find that you are using a hidden command, open a TAC case for help with finding another way of collecting the same information as the hidden command (for a hidden EXEC mode command), or to configure the same functionality (for a hidden configuration mode command) using non-hidden commands.

Default Behaviour

Beginning from Cisco IOS XE Gibraltar 16.12.5 and later, do not fragment bit (DF bit) in the IP packet is always set to 0 for all outgoing RADIUS packets (packets that originate from the device towards the RADIUS server).



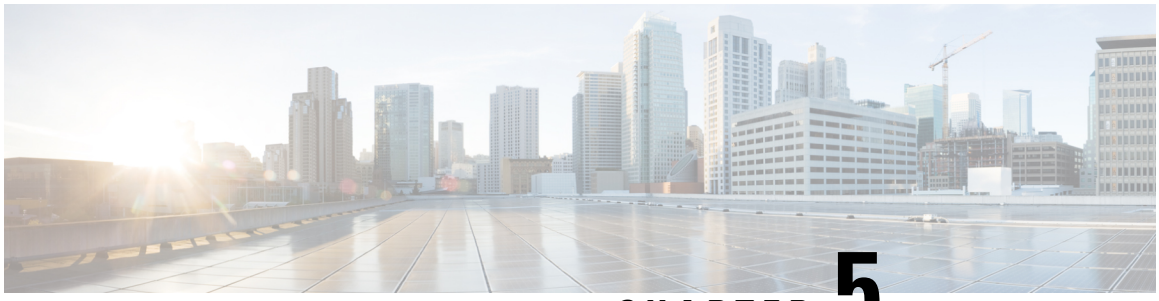
CHAPTER 4

Compatibility Matrix and Web UI System Requirements

- Compatibility Matrix, on page 19

Compatibility Matrix

To view the software compatibility information between Cisco Catalyst 9300 Series Switches, Cisco Identity Services Engine, and Cisco Prime Infrastructure, go to Cisco Catalyst 9000 Series Switches Software Version Compatibility Matrix.



CHAPTER 5

Licensing and Scaling Guidelines

- Licensing, on page 21
- Scaling Guidelines, on page 21

Licensing

For information about licenses required for the features available on Cisco Catalyst 9000 Series Switches, see Configuring Licenses on Cisco Catalyst 9000 Series Switches.

All licensing information relating to Cisco Catalyst 9000 Series Switches are available on this collection page: Cisco Catalyst 9000 Switching Family Licensing.

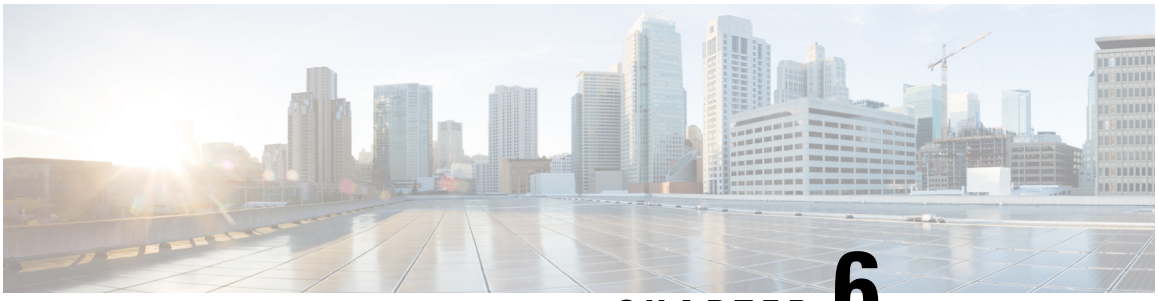
Available Licensing Models and Configuration Information

- Cisco IOS XE Fuji 16.8.x and earlier: RTU Licensing is the default and the only supported method to manage licenses.
- Cisco IOS XE Fuji 16.9.1 to Cisco IOS XE Amsterdam 17.3.1: Smart Licensing is the default and the only supported method to manage licenses.
- Cisco IOS XE Amsterdam 17.3.2a and later: Smart Licensing Using Policy, which is an enhanced version of Smart Licensing, is the default and the only supported method to manage licenses.

Scaling Guidelines

For information about feature scaling guidelines, see the Cisco Catalyst 9300 Series Switches datasheet at:

http://www.cisco.com/c/en/us/products/collateral/switches/catalyst-9300-series-switches/datasheet-c78-738977.html



CHAPTER 6

Limitations and Restrictions

• Limitations and Restrictions, on page 23

Limitations and Restrictions

- Control Plane Policing (CoPP)—The **show run** command does not display information about classes configured under `system-cpp policy`, when they are left at default values. Use the **show policy-map system-cpp-policy** or the **show policy-map control-plane** commands in privileged EXEC mode instead.
- Cisco TrustSec restrictions—Cisco TrustSec can be configured only on physical interfaces, not on logical interfaces.
- Flexible NetFlow limitations
  - You cannot configure NetFlow export using the Ethernet Management port (GigabitEthernet0/0).
  - You can not configure a flow monitor on logical interfaces, such as layer 2 port-channels, loopback, tunnels.
  - You can not configure multiple flow monitors of same type (ipv4, ipv6 or datalink) on the same interface for same direction.
- Hardware Limitations
  - SFP-10G-T-X supports 100Mbps/1G/10G speeds based on auto negotiation with the peer device. 10Mbps speed is not supported and you cannot force speed settings from the transceiver.
  - PHY Loopback test is not supported on SFP-10G-T-X.
  - On the Cisco Catalyst C9300X-48HXN Series Switches, breakout cable is supported only on port 1 of the C9300X-NM-2C network module. Breakout cable is not supported on port 2 of the C9300X-NM-2C network module. Both port 1 and port 2 can be used for 40/100G SFPs.
- QoS restrictions
  - When configuring QoS queuing policy, the sum of the queuing buffer should not exceed 100%.
  - Policing and marking policy on sub interfaces is supported.
  - Marking policy on witched virtual interfaces (SVI) is supported.

- QoS policies are not supported for port-channel interfaces, tunnel interfaces, and other logical interfaces.
- Stack Queuing and Scheduling (SQS) drops CPU bound packets exceeding 1.4 Gbps.

- Secure Shell (SSH)
  - Use SSH Version 2. SSH Version 1 is not supported.
  - When the device is running SCP and SSH cryptographic operations, expect high CPU until the SCP read process is completed. SCP supports file transfers between hosts on a network and uses SSH for the transfer.

    Since SCP and SSH operations are currently not supported on the hardware crypto engine, running encryption and decryption process in software causes high CPU. The SCP and SSH processes can show as much as 40 or 50 percent CPU usage, but they do not cause the device to shutdown.

- Smart Licensing Using Policy: Starting with Cisco IOS XE Amsterdam 17.3.2a, with the introduction of Smart Licensing Using Policy, even if you configure a hostname for a product instance or device, only the Unique Device Identifier (UDI) is displayed. This change in the display can be observed in all licensing utilities and user interfaces where the hostname was displayed in earlier releases. It does not affect any licensing functionality. There is no workaround for this limitation.

  The licensing utilities and user interfaces that are affected by this limitation include only the following: Cisco Smart Software Manager (CSSM), Cisco Smart License Utility (CSLU), and Smart Software Manager On-Prem (SSM On-Prem).

  This limitation is removed from Cisco IOS XE Cupertino 17.9.1. If you configure a hostname and disable hostname privacy (**no license smart privacy hostname** global configuration command), hostname information is sent from the product instance and displayed on the applicable user interfaces (CSSM, CSLU, SSM On-Prem). For more information, see the command reference for this release.

- Stacking:
  - A switch stack supports up to eight stack members.
  - Only homogenous stacking is supported, mixed stacking is not.

    C9300 SKUs can be stacked only with other C9300 SKUs. Similarly C9300L SKUs can be stacked only with other C9300L SKUs.

    The following additional restriction applies to the C9300-24UB, C9300-24UXB, and C9300-48UB models of the series: These models can be stacked only with each other. They cannot be stacked with other C9300 SKUs.

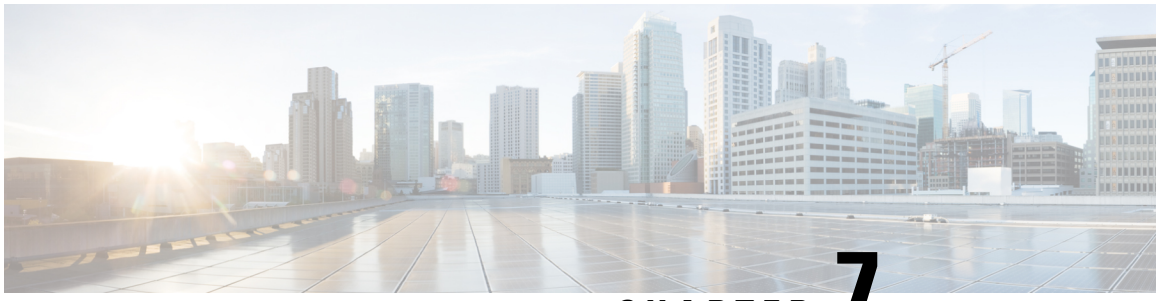
  - Auto upgrade for a new member switch is supported only in the install mode.

- TACACS legacy command: Do not configure the legacy **tacacs-server host** command; this command is deprecated. If the software version running on your device is Cisco IOS XE Gibraltar 16.12.2 or a later release, using the legacy command can cause authentication failures. Use the **tacacs server** command in global configuration mode.
- USB Authentication—When you connect a Cisco USB drive to the switch, the switch tries to authenticate the drive against an existing encrypted preshared key. Since the USB drive does not send a key for authentication, the following message is displayed on the console when you enter **password encryption aes** command:

```
Device(config)# password encryption aes
Master key change notification called without new or old key
```

- MACsec is not supported on Software-Defined Access deployments.
- VLAN Restriction—It is advisable to have well-defined segregation while defining data and voice domain during switch configuration and to maintain a data VLAN different from voice VLAN across the switch stack. If the same VLAN is configured for data and voice domains on an interface, the resulting high CPU utilization might affect the device.
- Wired Application Visibility and Control limitations:
  - NBAR2 (QoS and Protocol-discovery) configuration is allowed only on wired physical ports. It is not supported on virtual interfaces, for example, VLAN, port channel nor other logical interfaces.
  - NBAR2 based match criteria ‘match protocol’ is allowed only with marking or policing actions. NBAR2 match criteria will not be allowed in a policy that has queuing features configured.
  - ‘Match Protocol’: up to 256 concurrent different protocols in all policies.
  - NBAR2 and Legacy NetFlow cannot be configured together at the same time on the same interface. However, NBAR2 and wired AVC Flexible NetFlow can be configured together on the same interface.
  - Only IPv4 unicast (TCP/UDP) is supported.
  - AVC is not supported on management port (Gig 0/0)
  - NBAR2 attachment should be done only on physical access ports. Uplink can be attached as long as it is a single uplink and is not part of a port channel.
  - Performance—Each switch member is able to handle 2000 connections per second (CPS) at less than 50% CPU utilization. Above this rate, AVC service is not guaranteed.
  - Scale—Able to handle up to 20000 bi-directional flows per 24 access ports and per 48 access ports.
- YANG data modeling limitation—A maximum of 20 simultaneous NETCONF sessions are supported.
- Embedded Event Manager—Identity event detector is not supported on Embedded Event Manager.
- The File System Check (fsck) utility is not supported in install mode.
- Switch Web UI allows configuration of data VLANs only and not voice VLANs. If you remove a voice VLAN configured to an interface using the Web UI, then all data VLANs associated with the interface are also removed by default.

Limitations and Restrictions



CHAPTER 7

ROMMON Versions

- ROMMON Versions, on page 27

ROMMON Versions

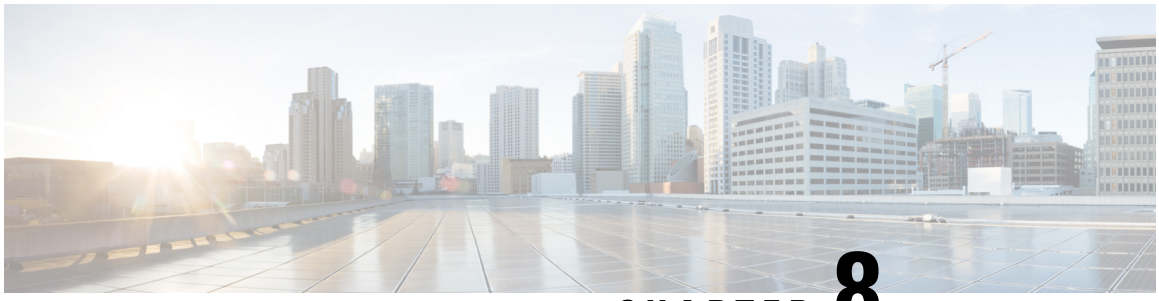
ROMMON, also known as the boot loader, is firmware that runs when the device is powered up or reset. It initializes the processor hardware and boots the operating system software (Cisco IOS XE software image). The ROMMON is stored on the following Serial Peripheral Interface (SPI) flash devices on your switch:

- Primary: The ROMMON stored here is the one the system boots every time the device is powered-on or reset.
- Golden: The ROMMON stored here is a backup copy. If the one in the primary is corrupted, the system automatically boots the ROMMON in the golden SPI flash device.

ROMMON upgrades may be required to resolve firmware defects, or to support new features, but there may not be new versions with every release.

Release	ROMMON Version (C9300 Models)	ROMMON Version (C9300L Models)	ROMMON Version (C9300X Models)	ROMMON Version (C9300LM Models)
Cupertino 17.9.10	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.9	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.8	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.7	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.6a	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.6	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.5	17.9.2r	17.9.2r	17.9.4r	17.9.1r[FC1]
Cupertino 17.9.4	17.9.2r	17.9.1r	17.9.1r	17.9.1r[FC1]
Cupertino 17.9.3	17.9.2r	17.9.1r	17.9.1r	17.9.1r[FC1]
Cupertino 17.9.2	17.9.1r	17.9.1r	17.9.1r	17.9.1r

Release	ROMMON Version (C9300 Models)	ROMMON Version (C9300L Models)	ROMMON Version (C9300X Models)	ROMMON Version (C9300LM Models)
Cupertino 17.9.1	17.9.1r	17.9.1r	17.9.1r	17.9.1r
Cupertino 17.8.1	17.8.1r[FC2]	17.8.1r[FC2]	17.5.1r	17.8.1r
Cupertino 17.7.1	17.6.1r[FC2]	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.8	17.6.6r	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.7	17.6.6r	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.6a	17.6.6r	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.6	17.6.6r	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.5	17.6.6r	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.4	17.6.1r[FC2]	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.3	17.6.1r[FC2]	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.2	17.6.1r[FC2]	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.6.1	17.6.1r[FC2]	17.6.1r[FC2]	17.5.1r	-
Bengaluru 17.5.1	17.5.2r	17.4.1r[FC2]	17.5.1r	-
Bengaluru 17.4.1	17.4.1r	17.4.1r[FC2]	-	-
Amsterdam 17.3.8a	17.3.8r	17.8.1r[FC2]	-	-
Amsterdam 17.3.8	17.3.8r	17.8.1r[FC2]	-	-
Amsterdam 17.3.7	17.3.2r	17.8.1r[FC2]	-	-
Amsterdam 17.3.6	17.3.2r	17.8.1r[FC2]	-	-
Amsterdam 17.3.5	17.3.2r	17.8.1r[FC2]	-	-
Amsterdam 17.3.4	17.3.2r	17.3.2r	-	-
Amsterdam 17.3.3	17.3.2r	17.3.2r	-	-
Amsterdam 17.3.2a	17.3.2r	17.3.2r	-	-
Amsterdam 17.3.1	17.3.1r[FC2]	17.1.1r [FC1]	-	-
Amsterdam 17.2.1	17.2.1r[FC1]	17.1.1r[FC1]	-	-
Amsterdam 17.1.1	17.1.1r [FC1]	17.1.1r [FC1]	-	-



CHAPTER 8

Upgrading the Switch Software

- Finding the Software Version, on page 29
- Software Images, on page 29
- Upgrading the ROMMON, on page 30
- Software Installation Commands, on page 31
- Upgrading in Install Mode, on page 32
- Downgrading in Install Mode, on page 40
- Field-Programmable Gate Array Version Upgrade, on page 47

Finding the Software Version

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

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

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

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

Software Images

Release	Image Type	File Name
Cisco IOS XE Cupertino 17.9.10	CAT9K_IOSXE	cat9k_iosxe.17.09.10.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.10.SPA.bin
Cisco IOS XE Cupertino 17.9.9	CAT9K_IOSXE	cat9k_iosxe.17.09.09.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.09.SPA.bin

Release	Image Type	File Name
Cisco IOS XE Cupertino 17.9.8	CAT9K_IOSXE	cat9k_iosxe.17.09.08.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.08.SPA.bin
Cisco IOS XE Cupertino 17.9.7	CAT9K_IOSXE	cat9k_iosxe.17.09.07.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.07.SPA.bin
Cisco IOS XE Cupertino 17.9.6a	CAT9K_IOSXE	cat9k_iosxe.17.09.06a.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.06a.SPA.bin
Cisco IOS XE Cupertino 17.9.6	CAT9K_IOSXE	cat9k_iosxe.17.09.06.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.06.SPA.bin
Cisco IOS XE Cupertino 17.9.5	CAT9K_IOSXE	cat9k_iosxe.17.09.05.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.05.SPA.bin
Cisco IOS XE Cupertino 17.9.4a	CAT9K_IOSXE	cat9k_iosxe.17.09.04a.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.04a.SPA.bin
Cisco IOS XE Cupertino 17.9.4	CAT9K_IOSXE	cat9k_iosxe.17.09.04.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.04.SPA.bin
Cisco IOS XE Cupertino 17.9.3	CAT9K_IOSXE	cat9k_iosxe.17.09.03.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.03.SPA.bin
Cisco IOS XE Cupertino 17.9.2	CAT9K_IOSXE	cat9k_iosxe.17.09.02.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.02.SPA.bin
Cisco IOS XE Cupertino 17.9.1	CAT9K_IOSXE	cat9k_iosxe.17.09.01.SPA.bin
	No Payload Encryption (NPE)	cat9k_iosxe_npe.17.09.01.SPA.bin

Upgrading the ROMMON

To know the ROMMON or bootloader version that applies to every major and maintenance release, see ROMMON Versions, on page 27.

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

- Upgrading the ROMMON in the primary SPI flash device

  This ROMMON is upgraded automatically. When you upgrade from an existing release on your switch to a later or newer release for the first time, and there is a new ROMMON version in the new release,

the system automatically upgrades the ROMMON in the primary SPI flash device, based on the hardware version of the switch.

- Upgrading the ROMMON in the golden SPI flash device

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

Note

- In case of a switch stack, perform the upgrade on the active switch and all members of the stack.

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

Software Installation Commands

Summary of Software Installation Commands **Supported starting from Cisco IOS XE Everest 16.6.2 and later releases**	
To install and activate the specified file, and to commit changes to be persistent across reloads: **`install add file`** *`filename`* [**`activate commit`**] To separately install, activate, commit, cancel, or remove the installation file: **`install ?`**	
add file tftp: *filename*	Copies the install file package from a remote location to the device and performs a compatibility check for the platform and image versions.
activate [**auto-abort-timer**]	Activates the file, and reloads the device. The **auto-abort-timer** keyword automatically rolls back image activation.
commit	Makes changes persistent over reloads.
rollback to committed	Rolls back the update to the last committed version.
abort	Cancels file activation, and rolls back to the version that was running before the current installation procedure started.
remove	Deletes all unused and inactive software installation files.

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

Summary of request platform software Commands
`Device# request platform software package ?`

Summary of request platform software Commands	
clean	Cleans unnecessary package files from media
copy	Copies package to media
describe	Describes package content
expand	Expands all-in-one package to media
install	Installs the package
uninstall	Uninstalls the package
verify	Verifies In Service Software Upgrade (ISSU) software package compatibility

Upgrading in Install Mode

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

Before you begin

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

When upgrading from ...	Use these commands...	To upgrade to...
Cisco IOS XE Everest 16.5.1a or Cisco IOS XE Everest 16.6.1	Only **request platform software** commands	Cisco IOS XE Cupertino 17.9.x
Cisco IOS XE Everest 16.6.2 and all later releases	Either **install** commands or **request platform software** commands[1].	

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

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

Procedure

Step 1 Clean-up

install remove inactive

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

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

```
Switch# install remove inactive

install_remove: START Mon Jul 25 19:51:48 PDT 2022
Cleaning up unnecessary package files
Scanning boot directory for packages ... done.
Preparing packages list to delete ...
    cat9k-cc_srdriver.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-espbase.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-guestshell.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-rpbase.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-rpboot.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-sipbase.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-sipspa.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-srdriver.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-webui.17.08.01.SPA.pkg
      File is in use, will not delete.
    cat9k-wlc.17.08.01.SPA.pkg
      File is in use, will not delete.
    packages.conf
      File is in use, will not delete.
  done.
The following files will be deleted:
[switch 1]:
/flash/cat9k-cc_srdriver.17.08.01.SPA.pkg
/flash/cat9k-espbase.17.08.01.SPA.pkg
/flash/cat9k-guestshell.17.08.01.SPA.pkg
/flash/cat9k-rpbase.17.08.01.SPA.pkg
/flash/cat9k-rpboot.17.08.01.SPA.pkg
/flash/cat9k-sipbase.17.08.01.SPA.pkg
/flash/cat9k-sipspa.17.08.01.SPA.pkg
/flash/cat9k-srdriver.17.08.01.SPA.pkg
/flash/cat9k-webui.17.08.01.SPA.pkg
/flash/cat9k-wlc.17.08.01.SPA.pkg
/flash/packages.conf

Do you want to remove the above files? [y/n]y

[switch 1]:
Deleting file flash:cat9k-cc_srdriver.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-espbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-guestshell.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-rpboot.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipbase.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-sipspa.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-srdriver.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-webui.17.08.01.SPA.pkg ... done.
Deleting file flash:cat9k-wlc.17.08.01.SPA.pkg ... done.
Deleting file flash:packages.conf ... done.
SUCCESS: Files deleted.
--- Starting Post_Remove_Cleanup ---
Performing Post_Remove_Cleanup on all members
[1] Post_Remove_Cleanup package(s) on switch 1
[1] Finished Post_Remove_Cleanup on switch 1
Checking status of Post_Remove_Cleanup on [1]
Post_Remove_Cleanup: Passed on [1]
```

```
Finished Post_Remove_Cleanup

SUCCESS: install_remove Mon Jul 25 19:52:25 PDT 2022
Switch#
<output truncated>
```

Step 2 Copy new image to flash

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

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

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

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

b) **dir flash:**

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

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

Directory of flash:/

434184 -rw- 601216545    Jul 25 2022 10:18:11 -07:00 cat9k_iosxe.17.09.01.SPA.bin
11353194496 bytes total (8976625664 bytes free)
```

Step 3 Set boot variable

a) **no boot system**

Use this command to reset the boot variable. This command removes the startup system image specification. Otherwise, the switch may boot a previously configured boot image.

```
Switch(config)# no boot system
```

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

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

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

c) **no boot manual**

Use this command to configure the switch to auto-boot.

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

d) **write memory**

Use this command to save boot settings.

```
Switch# write memory
```

e) **show boot**

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

```
Switch# show boot
Current Boot Variables:
BOOT variable = flash:packages.conf;

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

Step 4 Install image to flash

install add file activate commit

Use this command to install the image.

We recommend that you point to the source image on your TFTP server or the flash drive of the *active* switch, if you have copied the image to flash memory. If you point to an image on the flash or USB drive of a member switch (instead of the active), you must specify the exact flash or USB drive - otherwise installation fails. For example, if the image is on the flash drive of member switch 3 (flash-3): `Switch# install add file flash-3:cat9k_iosxe.17.09.01.SPA.bin activate commit`.

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

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

install_add_activate_commit: START Mon Jul 25 15:37:20 PDT 2022
install_add_activate_commit: Adding PACKAGE
install_add_activate_commit: Checking whether new add is allowed ....

--- Starting initial file syncing ---
[2]: Copying flash:cat9k_iosxe.17.09.01.SPA.bin from switch 2 to switch 1 3 4
[1 3 4]: Finished copying to switch 1 switch 3 switch 4
Info: Finished copying flash:cat9k_iosxe.17.09.01.SPA.bin to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
  [1] Add package(s) on switch 1
  [1] Finished Add on switch 1
  [2] Add package(s) on switch 2
  [2] Finished Add on switch 2
  [3] Add package(s) on switch 3
  [3] Finished Add on switch 3
  [4] Add package(s) on switch 4
  [4] Finished Add on switch 4
Checking status of Add on [1 2 3 4]
Add: Passed on [1 2 3 4]
Finished Add

Image added. Version: 17.09.01
install_add_activate_commit: Activating PACKAGE
Following packages shall be activated:
/flash/cat9k-wlc.17.09.01.SPA.pkg
/flash/cat9k-webui.17.09.01.SPA.pkg
/flash/cat9k-srdriver.17.09.01.SPA.pkg
/flash/cat9k-sipspa.17.09.01.SPA.pkg
/flash/cat9k-sipbase.17.09.01.SPA.pkg
```

```
/flash/cat9k-rpboot.17.09.01.SPA.pkg
/flash/cat9k-rpbase.17.09.01.SPA.pkg
/flash/cat9k-lni.17.09.01.SPA.pkg
/flash/cat9k-guestshell.17.09.01.SPA.pkg
/flash/cat9k-espbase.17.09.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.09.01.SPA.pkg
--- Starting Activate ---
Performing Activate on all members
  [1] Activate package(s) on switch 1
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.08.01.SPA.pkg
      Removed cat9k-espbase.17.08.01.SPA.pkg
      Removed cat9k-guestshell.17.08.01.SPA.pkg
      Removed cat9k-rpbase.17.08.01.SPA.pkg
      Removed cat9k-rpboot.17.08.01.SPA.pkg
      Removed cat9k-sipbase.17.08.01.SPA.pkg
      Removed cat9k-sipspa.17.08.01.SPA.pkg
      Removed cat9k-srdriver.17.08.01.SPA.pkg
      Removed cat9k-webui.17.08.01.SPA.pkg
      Removed cat9k-wlc.17.08.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.09.01.SPA.pkg
      Added cat9k-espbase.17.09.01.SPA.pkg
      Added cat9k-guestshell.17.09.01.SPA.pkg
      Added cat9k-lni.17.09.01.SPA.pkg
      Added cat9k-rpbase.17.09.01.SPA.pkg
      Added cat9k-rpboot.17.09.01.SPA.pkg
      Added cat9k-sipbase.17.09.01.SPA.pkg
      Added cat9k-sipspa.17.09.01.SPA.pkg
      Added cat9k-srdriver.17.09.01.SPA.pkg
      Added cat9k-webui.17.09.01.SPA.pkg
      Added cat9k-wlc.17.09.01.SPA.pkg
    Finished list of software package changes
  [1] Finished Activate on switch 1
  [2] Activate package(s) on switch 2
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.08.01.SPA.pkg
      Removed cat9k-espbase.17.08.01.SPA.pkg
      Removed cat9k-guestshell.17.08.01.SPA.pkg
      Removed cat9k-rpbase.17.08.01.SPA.pkg
      Removed cat9k-rpboot.17.08.01.SPA.pkg
      Removed cat9k-sipbase.17.08.01.SPA.pkg
      Removed cat9k-sipspa.17.08.01.SPA.pkg
      Removed cat9k-srdriver.17.08.01.SPA.pkg
      Removed cat9k-webui.17.08.01.SPA.pkg
      Removed cat9k-wlc.17.08.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.09.01.SPA.pkg
      Added cat9k-espbase.17.09.01.SPA.pkg
      Added cat9k-guestshell.17.09.01.SPA.pkg
      Added cat9k-lni.17.09.01.SPA.pkg
      Added cat9k-rpbase.17.09.01.SPA.pkg
      Added cat9k-rpboot.17.09.01.SPA.pkg
      Added cat9k-sipbase.17.09.01.SPA.pkg
      Added cat9k-sipspa.17.09.01.SPA.pkg
      Added cat9k-srdriver.17.09.01.SPA.pkg
      Added cat9k-webui.17.09.01.SPA.pkg
      Added cat9k-wlc.17.09.01.SPA.pkg
    Finished list of software package changes
  [2] Finished Activate on switch 2
  [3] Activate package(s) on switch 3
    --- Starting list of software package changes ---
```

```
    Old files list:
      Removed cat9k-cc_srdriver.17.08.01.SPA.pkg
      Removed cat9k-espbase.17.08.01.SPA.pkg
      Removed cat9k-guestshell.17.08.01.SPA.pkg
      Removed cat9k-rpbase.17.08.01.SPA.pkg
      Removed cat9k-rpboot.17.08.01.SPA.pkg
      Removed cat9k-sipbase.17.08.01.SPA.pkg
      Removed cat9k-sipspa.17.08.01.SPA.pkg
      Removed cat9k-srdriver.17.08.01.SPA.pkg
      Removed cat9k-webui.17.08.01.SPA.pkg
      Removed cat9k-wlc.17.08.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.09.01.SPA.pkg
      Added cat9k-espbase.17.09.01.SPA.pkg
      Added cat9k-guestshell.17.09.01.SPA.pkg
      Added cat9k-lni.17.09.01.SPA.pkg
      Added cat9k-rpbase.17.09.01.SPA.pkg
      Added cat9k-rpboot.17.09.01.SPA.pkg
      Added cat9k-sipbase.17.09.01.SPA.pkg
      Added cat9k-sipspa.17.09.01.SPA.pkg
      Added cat9k-srdriver.17.09.01.SPA.pkg
      Added cat9k-webui.17.09.01.SPA.pkg
      Added cat9k-wlc.17.09.01.SPA.pkg
    Finished list of software package changes
  [3] Finished Activate on switch 3
  [4] Activate package(s) on switch 4
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.08.01.SPA.pkg
      Removed cat9k-espbase.17.08.01.SPA.pkg
      Removed cat9k-guestshell.17.08.01.SPA.pkg
      Removed cat9k-rpbase.17.08.01.SPA.pkg
      Removed cat9k-rpboot.17.08.01.SPA.pkg
      Removed cat9k-sipbase.17.08.01.SPA.pkg
      Removed cat9k-sipspa.17.08.01.SPA.pkg
      Removed cat9k-srdriver.17.08.01.SPA.pkg
      Removed cat9k-webui.17.08.01.SPA.pkg
      Removed cat9k-wlc.17.08.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.09.01.SPA.pkg
      Added cat9k-espbase.17.09.01.SPA.pkg
      Added cat9k-guestshell.17.09.01.SPA.pkg
      Added cat9k-lni.17.09.01.SPA.pkg
      Added cat9k-rpbase.17.09.01.SPA.pkg
      Added cat9k-rpboot.17.09.01.SPA.pkg
      Added cat9k-sipbase.17.09.01.SPA.pkg
      Added cat9k-sipspa.17.09.01.SPA.pkg
      Added cat9k-srdriver.17.09.01.SPA.pkg
      Added cat9k-webui.17.09.01.SPA.pkg
      Added cat9k-wlc.17.09.01.SPA.pkg
    Finished list of software package changes
  [4] Finished Activate on switch 4
Checking status of Activate on [1 2 3 4]
Activate: Passed on [1 2 3 4]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
  [1] Commit package(s) on switch 1
  [1] Finished Commit on switch 1
  [2] Commit package(s) on switch 2
  [2] Finished Commit on switch 2
  [3] Commit package(s) on switch 3
  [3] Finished Commit on switch 3
```

```
  [4] Commit package(s) on switch 4
  [4] Finished Commit on switch 4
Checking status of Commit on [1 2 3 4]
Commit: Passed on [1 2 3 4]
Finished Commit

Send model notification for install_add_activate_commit before reload
[1 2 3 4]: Performing Upgrade_Service

*Jul 25 15:47:28.095: %IOSXEBOOT-4-BOOTLOADER_UPGRADE: (local/local): Starting boot preupgrade
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.315817 s, 973 kB/s

AppGigabitEthernet port has the latest Firmware

MM [1] MCU version 191 sw ver 196
MM [2] MCU version 191 sw ver 196

Front-end Microcode IMG MGR: found 4 microcode images for 1 device.
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_0 update needed: no
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_1 update needed: yes
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_2 update needed: yes
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_3 update needed: no
Front-end Microcode IMG MGR: Preparing to program device microcode...
Front-end Microcode IMG MGR: Preparing to program device[0], index=0 ...594412 bytes....
Skipped[0].
Front-end Microcode IMG MGR: Preparing to program device[0], index=1 ...440976 bytes.
Front-end Microcode IMG MGR: Programming device 0...rwRrrrrrrw..
0%.....10%
  .....20%
  .....30%
  .....40%
  .....50%
  .....60%
  .....70%
  .....80%
  .....90%
  .....100%
Front-end Microcode IMG MGR: Preparing to program device[0], index=2 ...24506 bytes.
Front-end Microcode IMG MGR: Programming device
0...rrrrrrw..0%....10%....20%......30%...40%....50%......60%....70%.....80%....90%....100%w
Wating for MCU to come up .....Rr!
Front-end Microcode IMG MGR: Microcode programming complete for device 0.
Front-end Microcode IMG MGR: Preparing to program device[0], index=3 ...90974 bytes....
Skipped[3].
Front-end Microcode IMG MGR: Microcode programming complete in 298 seconds


MCU UPGRADE COMPLETED!!...  SUCCESS: Upgrade_Service finished
Install will reload the system now!
SUCCESS: install_add_activate_commit  Mon Jul 25 15:52:33 PDT 2022
Switch#
Chassis 2 reloading, reason - Reload command
Jul 25 15:52:36.588: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload fp
action requested
Jul 25 15:52:38.199: %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: rp processes
 exit with reload switch code



Initializing Hardware......

System Bootstrap, Version 17.3.1r[FC2], RELEASE SOFTWARE (P)
```

```
Compiled Wed 04/29/2022 12:55:25.08 by rel

Current ROMMON image : Primary
Last reset cause     : SoftwareReload
C9300-48P platform with 8388608 Kbytes of main memory

Preparing to autoboot. [Press Ctrl-C to interrupt]  0
boot: attempting to boot from [flash:packages.conf]
boot: reading file packages.conf
##################################################################################################################
##################################################################################################################


Waiting for 120 seconds for other switches to boot
##################################################################################################################
Switch number is 2
<output truncated>
```

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

Step 5 Verify installation

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

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

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

```
Switch# dir flash:*.pkg

Directory of flash:/
75140 -rw- 2012104     Mar 17 2022 09:52:41 -07:00 cat9k-cc_srdriver.17.08.01.SPA.pkg
475141 -rw- 70333380   Mar 17 2022 09:52:44 -07:00 cat9k-espbase.17.08.01.SPA.pkg
475142 -rw- 13256      Mar 17 2022 09:52:44 -07:00 cat9k-guestshell.17.08.01.SPA.pkg
475143 -rw- 349635524  Mar 17 2022 09:52:54 -07:00 cat9k-rpbase.17.08.01.SPA.pkg
475149 -rw- 24248187   Mar 17 2022 09:53:02 -07:00 cat9k-rpboot.17.08.01.SPA.pkg
475144 -rw- 25285572   Mar 17 2022 09:52:55 -07:00 cat9k-sipbase.17.08.01.SPA.pkg
475145 -rw- 20947908   Mar 17 2022 09:52:55 -07:00 cat9k-sipspa.17.08.01.SPA.pkg
475146 -rw- 2962372    Mar 17 2022 09:52:56 -07:00 cat9k-srdriver.17.08.01.SPA.pkg
475147 -rw- 13284288   Mar 17 2022 09:52:56 -07:00 cat9k-webui.17.08.01.SPA.pkg
475148 -rw- 13248      Mar 17 2022 09:52:56 -07:00 cat9k-wlc.17.08.01.SPA.pkg

491524 -rw- 25711568   Jul 25 2022 11:49:33 -07:00 cat9k-cc_srdriver.17.09.01.SPA.pkg
491525 -rw- 78484428   Jul 25 2022 11:49:35 -07:00 cat9k-espbase.17.09.01.SPA.pkg
491526 -rw- 1598412    Jul 25 2022 11:49:35 -07:00 cat9k-guestshell.17.09.01.SPA.pkg
491527 -rw- 404153288  Jul 25 2022 11:49:47 -07:00 cat9k-rpbase.17.09.01.SPA.pkg
491533 -rw- 31657374   Jul 25 2022 11:50:09 -07:00 cat9k-rpboot.17.09.01.SPA.pkg
491528 -rw- 27681740   Jul 25 2022 11:49:48 -07:00 cat9k-sipbase.17.09.01.SPA.pkg
491529 -rw- 52224968   Jul 25 2022 11:49:49 -07:00 cat9k-sipspa.17.09.01.SPA.pkg
491530 -rw- 31130572   Jul 25 2022 11:49:50 -07:00 cat9k-srdriver.17.09.01.SPA.pkg
491531 -rw- 14783432   Jul 25 2022 11:49:51 -07:00 cat9k-webui.17.09.01.SPA.pkg
491532 -rw- 9160       Jul 25 2022 11:49:51 -07:00 cat9k-wlc.17.09.01.SPA.pkg


11353194496 bytes total (9544245248 bytes free)
Switch#
```

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

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

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

```
Switch# dir flash:*.conf

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

434197 -rw- 7406 Jul 25 2022 10:59:16 -07:00 packages.conf
516098 -rw- 7406 Jul 25 2022 10:58:08 -07:00 cat9k_iosxe.17.09.01.SPA.conf
11353194496 bytes total (8963174400 bytes free)
```

Step 6 **show version**

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

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

```
Switch# show version
Cisco IOS XE Software, Version 17.09.01
Cisco IOS Software [Cupertino], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.9.1,
 RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2022 by Cisco Systems, Inc.
<output truncated>
```

Downgrading in Install Mode

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

Before you begin

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

When downgrading from ...	Use these commands...	To downgrade to...
Cisco IOS XE Cupertino 17.9.x	Either **install** commands or **request platform software** command[2].	Cisco IOS XE Cupertino 17.8.x or earlier releases.

[2] The **request platform software** commands are deprecated. So although they are still visible on the CLI, we recommend that you use **install** commands.

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

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

Microcode Downgrade Prerequisite:

Starting from Cisco IOS XE Gibraltar 16.12.1, a new microcode is introduced to support IEEE 802.3bt Type 3 standard for UPOE switches in the series (C9300-24U, C9300-48U, C9300-24UX, C9300-48UXM, C9300-48UN). The new microcode is not backward-compatible with some releases, because of which you must also downgrade the microcode when you downgrade to one of these releases. If the microcode is not downgraded, PoE features will be impacted after the downgrade.

Depending on the *release* you are downgrading to and the *commands* you use to downgrade, review the table below for the action you may have to take:

When downgrading from ...	To one of These Releases	by Using...	Action For Microcode Downgrade
Cisco IOS XE Gibraltar 16.12.1 or a later release	Cisco IOS XE Everest 16.6.1 through Cisco IOS XE Everest 16.6.6 Cisco IOS XE Fuji 16.9.1 through Cisco IOS XE Fuji 16.9.2	**install** commands	Microcode will roll back automatically as part of the software installation. No further action is required.
		request platform software commands or or bundle boot	Manually downgrade the microcode before downgrading the software image. Enter the **hw-module mcu rollback** command in global configuration mode, to downgrade microcode.

Procedure

Step 1 Clean-up

install remove inactive

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

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

```
Switch# install remove inactive

install_remove: START Mon Apr 4 19:51:48 PDT 2022
Cleaning up unnecessary package files
Scanning boot directory for packages ... done.
  Preparing packages list to delete ...
    cat9k-cc_srdriver.17.09.01.SSA.pkg
      File is in use, will not delete.
    cat9k-espbase.17.09.01.SSA.pkg
      File is in use, will not delete.
    cat9k-guestshell.17.09.01.SSA.pkg
      File is in use, will not delete.
    cat9k-rpbase.17.09.01.SSA.pkg
      File is in use, will not delete.
    cat9k-rpboot.17.09.01.SSA.pkg
      File is in use, will not delete.
```

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

SUCCESS: install_remove  Mon Apr 4 11:42:39 PDT 2022
```

Step 2 Copy new image to flash

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

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

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

b) **dir flash:**

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

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

Directory of flash:/

434184 -rw- 508584771 Apr 4 2022 13:35:16 -07:00 cat9k_iosxe.17.08.01.SPA.bin
11353194496 bytes total (9055866880 bytes free)
```

Step 3 Set boot variable

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

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

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

b) **no boot manual**

Use this command to configure the switch to auto-boot.

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

c) **write memory**

Use this command to save boot settings.

```
Switch# write memory
```

d) **show boot**

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

```
Switch# show boot
Current Boot Variables:
BOOT variable = flash:packages.conf;

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

Step 4 Downgrade software image

install add file activate commit

Use this command to install the image.

We recommend that you point to the source image on your TFTP server or the flash drive of the *active* switch, if you have copied the image to flash memory. If you point to an image on the flash or USB drive of a member switch (instead of the active), you must specify the exact flash or USB drive - otherwise installation fails. For example, if the image is on the flash drive of member switch 3 (flash-3): `Switch# install add file flash-3:cat9k_iosxe.17.08.01.SPA.bin activate commit`.

The following example displays the installation of the Cisco IOS XE Cupertino 17.8.1 software image to flash, by using the **install add file activate commit** command.

```
Switch# install add file flash:cat9k_iosxe.17.08.01.SPA.bin activate commit
install_add_activate_commit: START Mon Apr 4 14:59:46 PDT 2022
install_add_activate_commit: Adding PACKAGE
install_add_activate_commit: Checking whether new add is allowed ....

--- Starting initial file syncing ---
[1]: Copying flash:cat9k_iosxe.17.08.01.SPA.bin from switch 1 to switch 2 3 4
[2 3 4]: Finished copying to switch 2 switch 3 switch 4
Info: Finished copying flash:cat9k_iosxe.17.08.01.SPA.bin to the selected switch(es)
Finished initial file syncing

--- Starting Add ---
Performing Add on all members
^[[A  [1] Add package(s) on switch 1
  [1] Finished Add on switch 1
  [2] Add package(s) on switch 2
  [2] Finished Add on switch 2
  [3] Add package(s) on switch 3
  [3] Finished Add on switch 3
  [4] Add package(s) on switch 4
  [4] Finished Add on switch 4
Checking status of Add on [1 2 3 4]
Add: Passed on [1 2 3 4]
Finished Add

Image added. Version: 17.08.01.0.306
install_add_activate_commit: Activating PACKAGE
Following packages shall be activated:
/flash/cat9k-wlc.17.08.01.SPA.pkg
/flash/cat9k-webui.17.08.01.SPA.pkg
/flash/cat9k-srdriver.17.08.01.SPA.pkg
/flash/cat9k-sipspa.17.08.01.SPA.pkg
```

```
/flash/cat9k-sipbase.17.08.01.SPA.pkg
/flash/cat9k-rpboot.17.08.01.SPA.pkg
/flash/cat9k-rpbase.17.08.01.SPA.pkg
/flash/cat9k-guestshell.17.08.01.SPA.pkg
/flash/cat9k-espbase.17.08.01.SPA.pkg
/flash/cat9k-cc_srdriver.17.08.01.SPA.pkg
--- Starting Activate ---
Performing Activate on all members
  [1] Activate package(s) on switch 1
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.09.01.SPA.pkg
      Removed cat9k-espbase.17.09.01.SPA.pkg
      Removed cat9k-guestshell.17.09.01.SPA.pkg
      Removed cat9k-lni.17.09.01.SPA.pkg
      Removed cat9k-rpbase.17.09.01.SPA.pkg
      Removed cat9k-rpboot.17.09.01.SPA.pkg
      Removed cat9k-sipbase.17.09.01.SPA.pkg
      Removed cat9k-sipspa.17.09.01.SPA.pkg
      Removed cat9k-srdriver.17.09.01.SPA.pkg
      Removed cat9k-webui.17.09.01.SPA.pkg
      Removed cat9k-wlc.17.09.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.08.01.SPA.pkg
      Added cat9k-espbase.17.08.01.SPA.pkg
      Added cat9k-guestshell.17.08.01.SPA.pkg
      Added cat9k-rpbase.17.08.01.SPA.pkg
      Added cat9k-rpboot.17.08.01.SPA.pkg
      Added cat9k-sipbase.17.08.01.SPA.pkg
      Added cat9k-sipspa.17.08.01.SPA.pkg
      Added cat9k-srdriver.17.08.01.SPA.pkg
      Added cat9k-webui.17.08.01.SPA.pkg
      Added cat9k-wlc.17.08.01.SPA.pkg
    Finished list of software package changes
  [1] Finished Activate on switch 1
  [2] Activate package(s) on switch 2
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.09.01.SPA.pkg
      Removed cat9k-espbase.17.09.01.SPA.pkg
      Removed cat9k-guestshell.17.09.01.SPA.pkg
      Removed cat9k-lni.17.09.01.SPA.pkg
      Removed cat9k-rpbase.17.09.01.SPA.pkg
      Removed cat9k-rpboot.17.09.01.SPA.pkg
      Removed cat9k-sipbase.17.09.01.SPA.pkg
      Removed cat9k-sipspa.17.09.01.SPA.pkg
      Removed cat9k-srdriver.17.09.01.SPA.pkg
      Removed cat9k-webui.17.09.01.SPA.pkg
      Removed cat9k-wlc.17.09.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.08.01.SPA.pkg
      Added cat9k-espbase.17.08.01.SPA.pkg
      Added cat9k-guestshell.17.08.01.SPA.pkg
      Added cat9k-rpbase.17.08.01.SPA.pkg
      Added cat9k-rpboot.17.08.01.SPA.pkg
      Added cat9k-sipbase.17.08.01.SPA.pkg
      Added cat9k-sipspa.17.08.01.SPA.pkg
      Added cat9k-srdriver.17.08.01.SPA.pkg
      Added cat9k-webui.17.08.01.SPA.pkg
      Added cat9k-wlc.17.08.01.SPA.pkg
    Finished list of software package changes
  [2] Finished Activate on switch 2
  [3] Activate package(s) on switch 3
    --- Starting list of software package changes ---
```

```
    Old files list:
      Removed cat9k-cc_srdriver.17.09.01.SPA.pkg
      Removed cat9k-espbase.17.09.01.SPA.pkg
      Removed cat9k-guestshell.17.09.01.SPA.pkg
      Removed cat9k-lni.17.09.01.SPA.pkg
      Removed cat9k-rpbase.17.09.01.SPA.pkg
      Removed cat9k-rpboot.17.09.01.SPA.pkg
      Removed cat9k-sipbase.17.09.01.SPA.pkg
      Removed cat9k-sipspa.17.09.01.SPA.pkg
      Removed cat9k-srdriver.17.09.01.SPA.pkg
      Removed cat9k-webui.17.09.01.SPA.pkg
      Removed cat9k-wlc.17.09.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.08.01.SPA.pkg
      Added cat9k-espbase.17.08.01.SPA.pkg
      Added cat9k-guestshell.17.08.01.SPA.pkg
      Added cat9k-rpbase.17.08.01.SPA.pkg
      Added cat9k-rpboot.17.08.01.SPA.pkg
      Added cat9k-sipbase.17.08.01.SPA.pkg
      Added cat9k-sipspa.17.08.01.SPA.pkg
      Added cat9k-srdriver.17.08.01.SPA.pkg
      Added cat9k-webui.17.08.01.SPA.pkg
      Added cat9k-wlc.17.08.01.SPA.pkg
    Finished list of software package changes
  [3] Finished Activate on switch 3
  [4] Activate package(s) on switch 4
    --- Starting list of software package changes ---
    Old files list:
      Removed cat9k-cc_srdriver.17.09.01.SPA.pkg
      Removed cat9k-espbase.17.09.01.SPA.pkg
      Removed cat9k-guestshell.17.09.01.SPA.pkg
      Removed cat9k-lni.17.09.01.SPA.pkg
      Removed cat9k-rpbase.17.09.01.SPA.pkg
      Removed cat9k-rpboot.17.09.01.SPA.pkg
      Removed cat9k-sipbase.17.09.01.SPA.pkg
      Removed cat9k-sipspa.17.09.01.SPA.pkg
      Removed cat9k-srdriver.17.09.01.SPA.pkg
      Removed cat9k-webui.17.09.01.SPA.pkg
      Removed cat9k-wlc.17.09.01.SPA.pkg
    New files list:
      Added cat9k-cc_srdriver.17.08.01.SPA.pkg
      Added cat9k-espbase.17.08.01.SPA.pkg
      Added cat9k-guestshell.17.08.01.SPA.pkg
      Added cat9k-rpbase.17.08.01.SPA.pkg
      Added cat9k-rpboot.17.08.01.SPA.pkg
      Added cat9k-sipbase.17.08.01.SPA.pkg
      Added cat9k-sipspa.17.08.01.SPA.pkg
      Added cat9k-srdriver.17.08.01.SPA.pkg
      Added cat9k-webui.17.08.01.SPA.pkg
      Added cat9k-wlc.17.08.01.SPA.pkg
    Finished list of software package changes
  [4] Finished Activate on switch 4
Checking status of Activate on [1 2 3 4]
Activate: Passed on [1 2 3 4]
Finished Activate

--- Starting Commit ---
Performing Commit on all members
  [1] Commit package(s) on switch 1
  [1] Finished Commit on switch 1
  [2] Commit package(s) on switch 2
  [2] Finished Commit on switch 2
  [3] Commit package(s) on switch 3
  [3] Finished Commit on switch 3
```

```
  [4] Commit package(s) on switch 4
  [4] Finished Commit on switch 4
Checking status of Commit on [1 2 3 4]
Commit: Passed on [1 2 3 4]
Finished Commit

Send model notification for install_add_activate_commit before reload
[1 2 3 4]: Performing Upgrade_Service
300+0 records in
300+0 records out
307200 bytes (307 kB, 300 KiB) copied, 0.316195 s, 972 kB/s
MM [1] MCU version 196 sw ver 191
MM [2] MCU version 196 sw ver 191

MCU UPGRADE IN PROGRESS... PLEASE DO NOT POWER CYCLE!!

Front-end Microcode IMG MGR: found 4 microcode images for 1 device.
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_0 update needed: no
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_1 update needed: yes
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_2 update needed: yes
Image for front-end 0: /tmp/microcode_update/front_end/fe_type_6_3 update needed: no

Front-end Microcode IMG MGR: Preparing to program device microcode...
Front-end Microcode IMG MGR: Preparing to program device[0], index=0 ...594412 bytes....
Skipped[0].
Front-end Microcode IMG MGR: Preparing to program device[0], index=1 ...440688 bytes.
Front-end Microcode IMG MGR: Programming device 0...rwRrrrrrrw
..0%.....................................................................................10%
    .....................................................................................20%
    .....................................................................................30%
    .....................................................................................40%
    .....................................................................................50%
    .....................................................................................60%
    .....................................................................................70%
    .....................................................................................80%
    .....................................................................................90%
    ....................................................................................100%

Front-end Microcode IMG MGR: Preparing to program device[0], index=2 ...24506 bytes.
Front-end Microcode IMG MGR: Programming device
0...rrrrrrw..0%....10%....20%......30%...40%....50%......60%....70%.....80%....90%....100%w
Wating for MCU to come up .....Rr!
Front-end Microcode IMG MGR: Microcode programming complete for device 0.
Front-end Microcode IMG MGR: Preparing to program device[0], index=3 ...90974 bytes....
Skipped[3].
Front-end Microcode IMG MGR: Microcode programming complete in 295 seconds

MCU UPGRADE COMPLETED!!...  SUCCESS: Upgrade_Service finished

Install will reload the system now!
SUCCESS: install_add_activate_commit  Mon Apr 4 15:14:57 PDT 2022
stack-4mnyq#
Chassis 1 reloading, reason - Reload command
Apr 2 15:15:01.382: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload fp
action requested
Apr 2 15:15:03.101: %PMAN-5-EXITACTION: R0/0: pvp: Process manager is exiting: rp processes
 exit with reload switch code

Initializing Hardware......

System Bootstrap, Version 17.3.1r[FC2], RELEASE SOFTWARE (P)
Compiled Wed 03/17/2022 12:55:25.08 by rel

Current ROMMON image : Primary
```

```
Last reset cause     : SoftwareReload
C9300-24UX platform with 8388608 Kbytes of main memory

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


Waiting for 120 seconds for other switches to boot
Switch is in STRAGGLER mode, waiting for active Switch to boot
Active Switch has booted up, starting discovery phase

Switch number is 1
All switches in the stack have been discovered. Accelerating discovery

Switch console is now available

Press RETURN to get started.
```

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

Step 5 Verify version

show version

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

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

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

```
Switch# show version
Cisco IOS XE Software, Version 17.08.01
Cisco IOS Software [Cupertino], Catalyst L3 Switch Software (CAT9K_IOSXE), Version 17.8.1,
 RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2022 by Cisco Systems, Inc.
<output truncated>
```

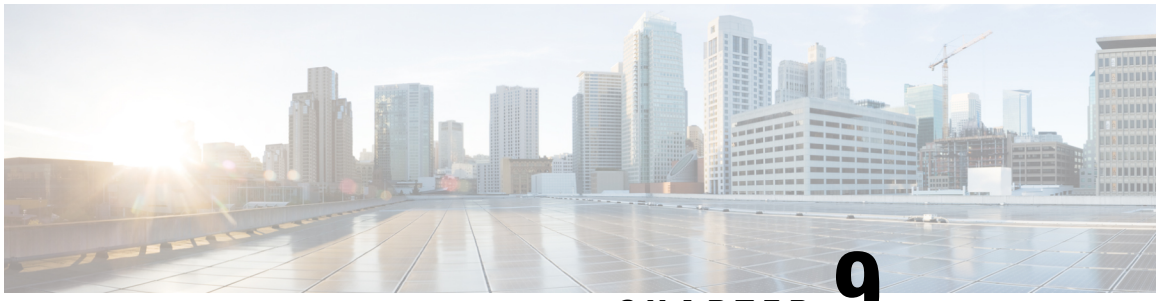
Field-Programmable Gate Array Version Upgrade

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

To check the current FPGA version, enter the **version -v** command in ROMMON mode.

Note

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



CHAPTER 9

Caveats

- Cisco Bug Search Tool, on page 49
- Open Caveats in Cisco IOS XE Cupertino 17.9.x, on page 49
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.10, on page 49
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.9, on page 50
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.8, on page 50
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.7, on page 50
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.6a, on page 50
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.6, on page 50
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.5, on page 51
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.4a, on page 51
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.4, on page 52
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.3, on page 52
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.2, on page 53
- Resolved Caveats in Cisco IOS XE Cupertino 17.9.1, on page 53

Cisco Bug Search Tool

The Cisco Bug Search Tool (BST) allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The BST is designed to improve the effectiveness in network risk management and device troubleshooting. The tool has a provision to filter bugs based on credentials to provide external and internal bug views for the search input.

To view the details of a caveat, click on the identifier.

Open Caveats in Cisco IOS XE Cupertino 17.9.x

There are no open caveats in this release.

Resolved Caveats in Cisco IOS XE Cupertino 17.9.10

There are no resolved caveats in this release.

Resolved Caveats in Cisco IOS XE Cupertino 17.9.9

Identifier	Headline
CSCwo40128	ISR1000 could experience an unexpected reload while connecting with MFA
CSCwq01495	Cisco IOS, IOS XE, Secure Firewall Adaptive Security Appliance, and Secure Firewall Threat Defense Software IKEv2 Denial of Service Vulnerability

Resolved Caveats in Cisco IOS XE Cupertino 17.9.8

There are no resolved caveats in this release

Resolved Caveats in Cisco IOS XE Cupertino 17.9.7

Identifier	Headline
CSCwm89327	Catalyst Center 2.3.7.6 Silently enables Bluetooth interface during discovery
CSCwm01495	C9300L 2.5 mGig link flaps randomly when connected to Cisco AP C9115AXI/C9120AXI

Resolved Caveats in Cisco IOS XE Cupertino 17.9.6a

Identifier	Applicable Models	Headline
CSCwm57734	All Models	Dot1x auth fail vlan can't assign IP with dhcp

Resolved Caveats in Cisco IOS XE Cupertino 17.9.6

Identifier	Headline
CSCwb98485	Support for the "server-sig-algs" extension to communicate supported signature algorithms
CSCwi35710	Interface on C9300X-12Y/24Y remains down when configured with speed nonegotiate
CSCwh94840	Interfaces stop forwarding traffic and not releasing QoS buffers
CSCwj26552	GLC-T SFP links not coming UP in C9300-NM-2Y
CSCwi70932	POE POST failure on C9300LM switches after a power outage

Identifier	Headline
CSCwh56886	C9300-48UXM (V03) may loop packets internally on tenGig downlinks on boot up in certain conditions.
CSCwi66670	C9300X notPresent of ciscoEnvMonFanState output twice when remove FAN tray
CSCwk58506	Some non fully IEEE compliant devices is not getting PoE due to TSTART ERROR
CSCwk44644	xFSU failure on stacked switches with SMU installed
CSCwj27650	Decreasing ifInBroadcastPkts SNMP value
CSCwj67804	C9300 - QSFP Accelink displaying 0.0 dBM in TX lane transceiver output
CSCwk57170	C9300L stack standby interface config removed when the standby added to stack
CSCwk84047	Memory Leak due to security violation by new MAC address and '"Del Pend" object increases - ACE_IPV4
CSCwk50488	Memory leak in fman_rp under acl_db

Resolved Caveats in Cisco IOS XE Cupertino 17.9.5

Identifier	Applicable Models	Headline
CSCwh10596	C9300	High CPU observed in Fed main after switchover
CSCwe35651	C9300	False hotspot temperature alerts indicating RED threshold has been exceeded
CSCwh51416	C9300LM	C9300LM - GLC-TE is not working
CSCwe95691	C9300	PnP | Cat9k sends DHCP Discover with IP Source address 192.168.1.1 instead of 0.0.0.0
CSCwi10405	C9300	[NEAT] CISP installs a static MAC address entry pointing to a wrong interface

Resolved Caveats in Cisco IOS XE Cupertino 17.9.4a

Identifier	Applicable Models	Headline
CSCwh87343	All Models	Cisco IOS XE Software Web UI Privilege Escalation Vulnerability For more information, see Security Advisory: cisco-sa-iosxe-webui-privesc-j22SaA4z.

Resolved Caveats in Cisco IOS XE Cupertino 17.9.4

Identifier	Applicable Models	Headline
CSCwe18993	C9300-24P C9300-48P	PoE devices connected to C9300-24P/48P series of switches losing power and staying in "down" state
CSCwe09745	C9300	Memory leak in Pubd when continuously trying to connect to remote peer
CSCwd56049	C9300	Few C9300-48UN do not link up with Statstrip Glucose Meter
CSCwe33886	C9300	17.9 install oper DB queries returning errors on DB queries to xpath install-oper-hist
CSCwe36743	C9300	Segmentation Fault - Crash - SSH - When Changing AAA Group Configs

Resolved Caveats in Cisco IOS XE Cupertino 17.9.3

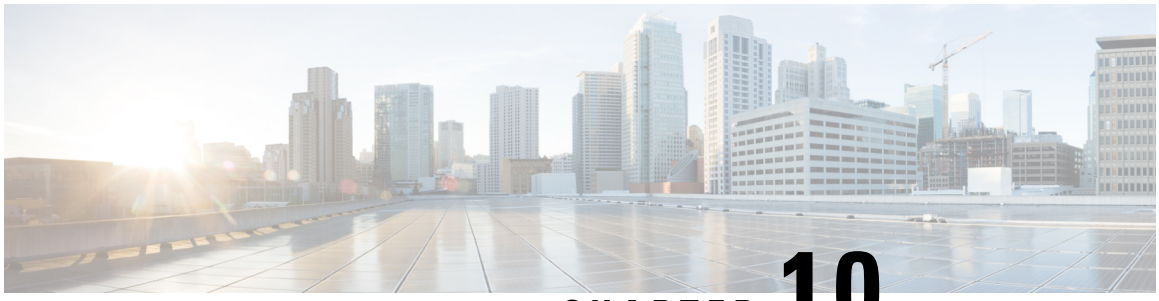
Identifier	Applicable Models	Headline
CSCwc95388	9300L	9300L: 1G link is down when connected between 9300L uplink
CSCwd20481	9300	Command **reload cancel** fails when the system clock changes to a later time in between "reload in x"
CSCwd23435	9300X	C9300X use SFP-10G-T-X Copper transceiver has random packet loss with 1G speed after OIR
CSCwd28734	9300	Cat9k memory leak in pubd causes switch reload
CSCwd39377	9300	BGP timers not supported after upgrade
CSCwd39892	9300	**no ip dhcp excluded-address** doesn't work post 17.2.1
CSCwd78924	9300	Cat9300: PoE Imax error detected for PD requesting 30W since 17.3.5+
CSCwd99665	9300L	C9300L-48UXG-4X: TMPFS leak due to excessive logging to debug_logging_file

Resolved Caveats in Cisco IOS XE Cupertino 17.9.2

Identifier	Applicable Models	Headline
CSCwc85671	9300	**license boot level** command line duplicated if there is no DNA addon license
CSCwc88452	9300	**hw-module breakout** command not working on C9300-48UN IOS version 17.6.3
CSCwc29733	9300L	C9300L: uplink using GLC-SX-MMD not coming up
CSCwc87761	9300L	C9300L: PWR-C1-350WAC-P power supply may turn off requiring power cable OIR

Resolved Caveats in Cisco IOS XE Cupertino 17.9.1

Identifier	Applicable Models	Headline
CSCwa00143	C9300	C9300 Rcv-Err counter keeps increasing on unused ports
CSCwa06718	C9300L	Link between 9500x/9600X QSA/SFP+ to 9300L 10G doesn't come up after reload
CSCwa93776	C9300	Few ip phones connected to c9300-mGig switches unable to link up if "no mdix auto" is configured
CSCwb23060	C9300, C9300X	Interop between 9300x and 9300 not working for Copper 40G cables.
CSCwb44422	C9300X	C9300X-24Y show license usage indicate inconsistency
CSCwb76541	All models	IOSd Crashes in "Call Home cert update" Process During Trustpool Download



CHAPTER 10

Additional Information

- Troubleshooting, on page 55
- Related Documentation, on page 55
- Communications, Services, and Additional Information, on page 55

Troubleshooting

For the most up-to-date, detailed troubleshooting information, see the Cisco TAC website at this URL:

https://www.cisco.com/en/US/support/index.html

Go to **Product Support** and select your product from the list or enter the name of your product. Look under Troubleshoot and Alerts, to find information for the problem that you are experiencing.

Related Documentation

Information about Cisco IOS XE at this URL: https://www.cisco.com/c/en/us/products/ios-nx-os-software/ios-xe/index.html

All support documentation for Cisco Catalyst 9300 Series Switches is at this URL: https://www.cisco.com/c/en/us/support/switches/catalyst-9300-series-switches/tsd-products-support-series-home.html

Cisco Validated Designs documents at this URL: https://www.cisco.com/go/designzone

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: https://cfnng.cisco.com/mibs

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business results you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco Marketplace.

- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

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