

Release Notes for Cisco IOS XRv 9000 Routers, IOS XR Release 25.1.1

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Cisco IOS XRv 9000 Router Overview

The Cisco IOS XRv 9000 Router is based on Cisco IOS XR software, so it inherits and shares the wide breadth of routing functionality available on other IOS XR platforms. The IOS XR features available on the Cisco IOS XRv 9000 Router are discussed in *Supported Cisco IOS XR Technologies* section.

Cisco IOS XRv 9000 Appliance supports the same look and feel as Cisco ASR 9000 Series Aggregation Services Routers and North-bound APIs. Cisco IOS XRv 9000 Router does not support hardware specific configurations. The configuration commands for control plane and data plane features follow the same syntax as the Cisco ASR 9000 Series Aggregation Services Routers. See Cisco ASR 9000 Series Aggregation Services Routers command references for more information on configuration commands.

What's New in Cisco IOS XR Release 25.1.1

Cisco IOS XR Release 25.1.1 is a new feature release for Cisco IOS XRv 9000 Appliance model.



Note The Cisco IOS XR Release 25.1.1 does not support XRv 9000 Router virtual machines hosted on AWS, VMWare ESXi, or Kernel-Based Virtual Machine (KVM).

For more details on the Cisco IOS XR release model and associated support, see Software Lifecycle Support Statement - IOS XR.

Software Features Enhanced and Introduced

Feature	Description
API for Stateful Color-Based Delegation for SR-PCE	This feature implements a gRPC-based Per-CP (Per-Color Policy) API for stateful color-based sub-delegation, simplifying tasks where SR PCE needs to delegate operations to external entities. These external entities include bandwidth accounting, SID list splitting, and hierarchical controller or PCE scenarios. This API enhances the flexibility, scalability, seamless integration, and security of the network. For more information, see SR-TE Application Programming Interface (API).

System Requirements

Appliance Model

Cisco IOS XRv 9000 Appliance is the pre-installed Cisco IOS XRv 9000 Router software that is sent from the factory on a bare metal UCS server hardware. It supports hyper scalability as it can scale to 70 Million route prefixes when run as a Virtual Route Reflector. Therefore, the extra layer of software (hypervisor) is not required.

The Appliance also supports Zero Touch Provisioning (ZTP) which allows easier insertion into existing networks.

Table 1: Specification of the Cisco XRv 9000 Appliance

Parameters	Supported
Form Factor	1 RU
Processor	4th Gen Intel Xeon Scalable processor Intel I5420+ 2GHz/205W 28C/52.5MB DDR5 4400MT/s
Memory size	128GB (8x16GB DDR5-4800 RDIMM 1Rx8)
Internal storage	480GB M.2 Boot SATA Intel SSD
Software version	Cisco IOS-XR version 24.4.2 and later
Firmware version	BIOS version: C220M7.4.3.5a.0_XRV9K BMC version: 4.3 (5.240021)
Physical NICs	• Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe • Cisco-MLNX MCX623106AS-CDAT 2x100GbE QSFP56 PCIe

Firmware Update Available for UCS M7 Appliance (xrv9k-ucs-c220m7-huu-container-4.3.5.250001.tar.gz)

A firmware update package, xrv9k-ucs-c220m7-huu-container-4.3.5.250001.tar.gz, is now available for the UCS M7 appliance. This package includes firmware for both the CIMC and BIOS, incorporating a mandatory security fix.

The SHA256 checksum for the package is:

fbc684125becb2918191481637dcc3421d01c87b9063e8432843a5c256b0361f

The SHA256 checksum for the CIMC and BIOS binaries are:

- bios.pkg 16b8640249ec199cf096f462601dc587deed9346442a2f2081548da7dab5a4f0
- cimc.bin 8f932da5114bfbd220dad06b9ec74a3bc45fcbf69a5d732519231f4970040ef8

For detailed instructions on extracting and installing the firmware, please refer to the documentation at Firmware Files.

Optic Support

Product	Product Code	Producr Recommendation
Cisco 100GBASE LR4 QSFP Transceiver, LC, 10km over SMF	Cisco QSFP-100G-LR4-S	XRv9000 Appliance with UCS-C220 M7 server - 4X10/25G
Cisco 100GBASE SR4 QSFP Transceiver, MPO, 100m over OM4 MMF	Cisco QSFP-100G-SR4-S	
Cisco 10GBASE SFP+, Short Range	Cisco SFP-10G-SR	XRv9000 Appliance with UCS-C220 M7 server, 2X100G
Cisco 10GBASE SFP+, Long Range	Cisco SFP-10G-LR	

Cisco IOS XRv 9000 Router Licensing Model

The Cisco IOS XRv 9000 Router supports activation using Cisco Smart Licensing. By default the Cisco IOS XRv 9000 Router (without license) is rate limited to 200 Kbps.

For more information on licensing model supported on Cisco IOS XRv 9000 Router, see the *Cisco IOS XRv 9000 Router Smart Licensing* chapter in the Cisco IOS XRv 9000 Router Installation and Configuration Guide.

See Cisco Smart Software Licensing Overview for more information on Cisco Smart Licensing.

License Ordering Information

The Cisco IOS XRv 9000 Router offers a flexible licensing scheme, with multiple tiers to choose from, such as Scale, and Throughput. This table lists details of Cisco IOS XRv 9000 Router's pool of software licenses or entitlements, arranged according to licensing PIDs.

Note The XRv9000 router only consumes and reports VPE licenses. VRR licenses are not consumed or reported.

Table 2: Cisco IOS XRv 9000 Router UCS M7 Based Appliance PIDS

License PID	Description
XRV-M7-APLN-25G	XRv9000 Appliance with UCS-C220 M7 server, Quantity 1-4X10/25G NIC
XRV-M7-APLN-100G	XRv9000 Appliance with UCS-C220 M7 server, Quantity 2-2X100G NIC

Supported Cisco IOS XR Technologies

Cisco IOS XRv 9000 Router supports selected Cisco IOS XR technologies.

This table lists the major Cisco IOS XR technologies Cisco IOS XRv 9000 supports. Not all features in a given technology may be supported. To verify support for specific features, use Cisco Feature Navigator.

Table 3: Cisco IOS XR Technologies Supported on the Cisco IOS XRv 9000 Router

Feature	See the Following Documentation	Introduced in Release
• BFD over Logical Bundle	• Routing Configuration Guide for Cisco ASR 9000 Series Routers • Routing Command Reference for Cisco ASR 9000 Series Routers	Release 6.1.2

Feature	See the Following Documentation	Introduced in Release
• Bi-directional Policing and Marking	• Cisco ASR 9000 Series Aggregation Services Router Modular Quality of Service Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Modular Quality of Service Command Reference	Release 5.4.0
• BGP Persistence	• Cisco ASR 9000 Series Aggregation Services Router Routing Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Routing Command Reference	Release 6.2.1
• BGP Optimal Route Reflector	• Cisco IOS XRv 9000 Router Installation and Configuration Guide	Release 6.0.1
• Broadband Network Gateway (BNG) IPoE	• Broadband Network Gateway Configuration Guide for Cisco ASR 9000 Series Routers • IPoE Commands	Release 6.3.1
Customize Installation using Golden ISO	Customize Installation using Golden ISO	Release 7.3.1
Cisco IOS XRv 9000 Router Deployment on AWS	• Cisco IOS XRv 9000 Router Installation and Configuration Guide	Release 6.3.1
Create User Profiles and Assign Privileges	System Setup and Software Installation Guide for Cisco ASR 9000 Series Routers	Release 7.1.1
• Generic Routing Encapsulation (GRE) over IPv4	• MPLS Layer 3 VPN Configuration Guide for Cisco ASR 9000 Series Routers • Generic Routing Encapsulation Commands	Release 6.3.1
• Hierarchical Policers (including conform aware)	• Cisco ASR 9000 Series Aggregation Services Router Modular Quality of Service Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Modular Quality of Service Command Reference	Release 6.0.1
• IPv4 Routing • IPv6 Routing • OSPF • ISIS	• Cisco ASR 9000 Series Aggregation Services Router Routing Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Routing Command Reference	Release 5.4.0

Feature	See the Following Documentation	Introduced in Release
• IPSLA	• Implementing IP Service Level Agreements • Cisco ASR 9000 Series Aggregation Services Router System Monitoring Command Reference	Release 6.0.0
• IPv4 and IPv6 ACL	• Cisco ASR 9000 Series Aggregation Services Router IP Addresses and Services Configuration Guide • Access List Commands	Release 5.4.0
• IPv4 L3VPN • 6PE, 6VPE	• Cisco ASR 9000 Series Aggregation Services Router MPLS Layer 3 VPN Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router VPN and Ethernet Services Command Reference	Release 5.4.0
• Link Aggregation Group (LAG)	• Cisco ASR 9000 Series Aggregation Services Router Interface and Hardware Component Configuration Guide	Release 6.1.2
• LDP	• Cisco ASR 9000 Series Aggregation Services Router MPLS Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router MPLS Command Reference	Release 5.4.0
• LPTS	• Cisco ASR 9000 Series Aggregation Services Router IP Addresses and Services Configuration Guide • LPTS Commands	Release 5.4.0
• MPLS	• Cisco ASR 9000 Series Aggregation Services Router MPLS Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router MPLS Command Reference	Release 5.4.0
• MP-BGP, EBGP PE-CE	• Cisco ASR 9000 Series Aggregation Services Router Routing Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Routing Command Reference	Release 5.4.0

Feature	See the Following Documentation	Introduced in Release
• RT Constriant	• Cisco ASR 9000 Series Aggregation Services Router Routing Configuration Guide • Cisco ASR 9000 Series Aggregation Services Router Routing Command Reference	Release 6.2.1
• Segment Routing over IPv6	• Segment Routing Configuration Guide for Cisco ASR 9000 Series Routers • Segment Routing Command Reference for Cisco ASR 9000 Series Routers	Release 6.6.1
• Telemetry	• Telemetry Configuration Guide for Cisco ASR 9000 Series Routers	Release 6.0.0
• The Two-Way Active Measurement Protocol (TWAMP)	• System Monitoring Configuration Guide for Cisco ASR 9000 Series Routers • Cisco ASR 9000 Series Aggregation Services Router System Monitoring Command Reference	Release 6.0.1
• VRF Support on Docker and LXC Containers	• Cisco IOS XR Application Hosting Configuration Guide	Release 6.3.1
• SRv6 Traffic Engineering	• Segment Routing Configuration Guide for Cisco ASR 9000 Series Routers	Release 7.3.2
Generic Route Encapsulation using IPv6	MPLS Layer 3 VPN Configuration Guide	Release 7.3.3
• Running High Availability (HA) redundancy application for AWS • QoS on IPv4 Release GRE Tunnels • Increase in BFD scale limit and BFD sessions	Cisco IOS XRv 9000 Router Installation and Configuration Guide	Release 7.3.3

Feature	See the Following Documentation	Introduced in Release
• Updated DPDK Driver Version • Enhanced router performance and scales • ACL Based Forwarding (ABF) • Redirect IPV4 and IPv6 traffic using PBR • Support for IPv6 over SR-MPLS through a GRE Tunnel towards an IPv6 Next Hop device • BFD on GRE Tunnel Interface	Release Notes for Cisco IOS XRv 9000 Routers, IOS XR Release 7.3.3	Release 7.3.3
gNMI Bundling of Telemetry Updates	Cisco IOS XRv 9000 Router Installation and Configuration Guide	Release 7.8.1
Auto-Save and Copy Router Configuration Using Public Key Authentication	General Administration on Cisco ASR 9000 Series Routers	Release 7.10.1
Multi-Factor Authentication for SSH	System Security Configuration Guide for Cisco ASR 9000 Series Routers	Release 24.1.1

Caveats

There are no caveats in this release.

Other Important Information

- For the XRv 9000 platform, minimum transmission period supported for the Link Aggregation Control Protocol (LACP) is 200 milliseconds.

Upgrading Cisco IOS XR Software

Cisco IOS XR Software is installed and activated from modular packages, allowing specific features or software patches to be installed, upgraded, or downgraded without affecting unrelated processes. Software packages can be upgraded or downgraded on all supported card types, or on a single card (node).

Note The FPD related commands are not supported on IOS XRv 9000 Appliance. That includes **fpd auto-upgrade** command.

Cisco IOS XR Error messages

To view, search, compare, and download Cisco IOS XR Error Messages, refer to the Cisco IOS XR Error messages tool.

Cisco IOS XR MIBs

To determine the MIBs supported by platform and release, refer to the Cisco IOS XR MIBs tool.

Related Documentation

The most current Cisco XRv 9000 router documentation is located at the following URL:

https://www.cisco.com/c/en/us/td/docs/iosxr/ios-xrv-9000-router.html

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