Release Notes for Cisco IOS XRv 9000 Routers, IOS XR Release 25.2.1

Contents

Cisco XRv 9000 Routers, IOS XR Release 25.2.1

Cisco IOS XR Release 25.2.1 for XRv 9000 routers delivers key enhancements, including Packet I/O infrastructure migration for better Linux networking application support and a gRPC-based North Bound API for real-time BGP-LS topology updates. The release is compatible with VMware ESXi 8.0 and Linux KVM on RHEL 8.8.

New software features

Table 1. New software features for Cisco XRv 9000 Routers, Release 25.2.1

Product Impact	Feature	Description
Upgrade	Packet I/O infrastructure migration	We have enhanced our network capabilities by migrating the packet path for linux applications to the PacketIO infrastructure, strengthening support for Linux networking applications. This upgrade includes the Linux kernel update from version 5.4 to 6.6, and it provides increased support for VRF and MPLS traffic. This enhancement facilitates seamless transmission and reception of third-party application (TPA) traffic via the Linux PacketIO framework over XR interfaces. Please note that this upgrade may alter the 'show running-config' output for any pre-existing TPA configurations.
API Experience	gRPC based North Bound API for BGP-LS objects	This gRPC-based API exports BGP-LS topology objects, which include Nodes, Links, IPv4 and IPv6 Prefixes, SRv6 SIDs, and SR Policy Candidate Paths. The API is designed to provide real-time updates to external controllers and applications, enabling them to perform tasks such as re-optimization, service placement, and network visualization. For more information, refer to the Cisco Crosswork Optimization Engine User Guides.
Ease of Setup	Support for VMWare ESXi 8.0	You can now use VMware ESXi 8.0 to deploy the Cisco XRv 9000, providing access to the latest virtualization capabilities and improved hypervisor features.

Changes in behavior

- The **Cisco-IOS-XR-pmengine-oper.yang data** model has been updated to ensure consistency. The naming convention has been standardized by renaming elements such as **hour24fec** to **hour24-fec**, **minute15pcs** to **minute15-pcs**, and **second30pcs** to **second30-pcs** across all layers, including OTN, OTNSEC, PCS, FEC, PRBS, Ether, and GFP. For more details on the sensor paths or the updated 25.2.1 Yang models, refer to the GitHub repository.

Open issues

There are no open caveats in this release.

Known issues

There are no known issues in this release.

Compatibility

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 2. 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: C220M7.4.3.5b.0_XRV9K CIMC/BMC version: 4.3(5.250001)
Physical NICs	25G Model: Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe 100G Model: Cisco-MLNX MCX623106AS-CDAT 2x100GbE QSFP56 PCIe Cisco-MLNX MCX623106AS-CDAT 2x100GbE QSFP56 PCIe

Hypervisors

A hypervisor enables multiple operating systems to share a single hardware host machine. While each operating system appears to have the dedicated use of the host's processor, memory, and other resources; the hypervisor controls and allocates only needed resources to each operating system and ensures that the operating systems (VMs) do not disrupt each other.

Installation of the Cisco IOS XRv 9000 Router is supported on selected Type 1 (native, bare metal) hypervisors. Installation is not supported on Type 2 (hosted) hypervisors, such as VMware Fusion, VMware Player, or Virtual Box. The following table lists release specific supported hypervisor versions.

Table 3. Support Matrix for Hypervisor Versions

Cisco IOS XR Version	VMWare ESXi	Kernel Based Virtual Machine (KVM)
Release 25.2.1	Version 8.0	Linux KVM based on Red Hat Enterprise Linux 8.8

Virtual machines

Cisco IOS XRv 9000 Router virtual machines must meet the following requirements:

Table 4. VM Requirement for VMware Environment

Parameters	Supported
VMware ESXi	Version 8.0
Virtual CPU cores	1 socket with a minimum of 2 cores Note: For multicast heavy deployments we recommend configuring 8 cores (with 4 assigned for control plane and 4 assigned for data plane). Note: For production environment minimum of 4 cores is recommended.
Virtual Machine memory size	12GB minimum, 19GB recommended for 10G interfaces
Virtual Machine hard disk size	64GB minimum for vPE and vRR image variants
Virtual Interfaces	• E1000 • VMXNET3 for traffic interfaces only
Physical NICs	For pass-through: • Intel X710 SR-IOV supported for: • Intel E810 XXV (Trunk VFs Only)
Number of interfaces	Maximum of 11 NICs where: • 1 for management • 2 are reserved • 8 for traffic
Default video, SCSI controller set	Required SCSI controller not required for IDE disk.
Virtual CD/DVD drive installed	Virtual CD/DVD is required when installing the Cisco IOS XRv 9000 Router on the VM using ISO template.
IDE hard disk	Single IDE hard disk Note: Multiple hard disk drives on a VM are not supported.

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

Table 5. Optics support for the XRv 9000 Routers

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

Related resources

Table 6. Related resources

Resource	Description
Smart licensing	Provides information about Smart Licensing Using Policy solutions and their deployment on IOS XR routers.
Cisco XRv 9000 documentation	Provides CDC documentation for Cisco XRv 9000 routers.
Transceiver Module Group (TMG) compatibility matrix	Allows searching by product family, product ID, data rate, reach, cable type, or form factor to determine the transceivers that Cisco hardware device supports.
Cisco IOS XR Error messages	Allows searching by release number, error strings, or comparing release numbers to view a detailed repository of error messages and descriptions.
Cisco IOS XR MIBs	Allows selecting the MIB of your choice from a drop-down to explore an extensive repository of MIB information.
Yang data models in GitHub	Provides yang data models introduced and enhanced in every IOS XR release.
Recommended release	Provides a general guide in case of upgrading IOS XR routers or new deployments that involve IOS XR routers.

Legal information