# Release Notes for Cisco IOS XRv 9000 Routers, IOS XR Release 25.4.1

# Contents

## Cisco XRv 9000 Routers, IOS XR Release 25.4.1

Cisco IOS XR Release 25.4.1 for XRv 9000 routers introduces support for the UCS C220 M7 appliance with 5th Gen Intel Xeon CPUs, and enhances security by adding syslog warnings for insecure configurations, helping improve hardware reliability and network protection.

## New software features

**Table 1.** New software features for IOS XRv 9000 Router, Release 25.4.1

| Product impact | Feature | Description |
|---|---|---|
| **Appliance** | | |
| Hardware Reliability | UCS C220 M7 based Appliance Support on XRv9000 | The Cisco UCS C220 M7 Rack Server appliance now supports 5th Gen Intel Xeon Scalable CPU with 2.2GHz clock speed, 28 cores and 128GB of RAM with a 4800MT/s transfer rate. |
| **Routing** | | |
| Ease of use | IS-IS auto-cost reference bandwidth | The IS-IS auto-cost reference bandwidth feature automates IS-IS metric provisioning based on physical link bandwidth, optimizing path selection and reducing operational overhead. This feature allows you to configure a reference bandwidth, which IS-IS then uses to automatically calculate interface metrics. It also dynamically adjusts metrics for bundle interfaces when member links change, ensuring accurate and efficient routing without manual intervention. |
| **System Monitoring** | | |
| Software reliability | Insecure features warning syslog messages | Cisco IOS XR software warns you with a syslog message each time you use an insecure command and repeats the warning every 30 days until you remove the command. This helps you identify potential security risks and suggests safer alternatives to improve your network security.<br><br>Cisco will systematically deprecate and eventually remove these insecure features and protocols in future IOS XR releases. For more information on insecure commands and their alternatives, see Feature deprecation phasing out insecure capabilities . |

## Changes in behavior

- The Cisco IOS XRv 9000 Appliance supports the 5th Gen Intel(R) Xeon(R) Gold 5520+ Scalable processor. For more information on specifications, see Table 3 Specification of the Cisco XRv 9000 Appliance.
- **Deprecation and phasing out features with insecure capabilities and its secure alternatives**
  From Release 25.4.1, Cisco IOS XR software displays warning messages when you configure features or protocols that lack sufficient security, such as those that transmit sensitive data without encryption or use outdated encryption mechanisms. The software also shows warnings when you do not follow security best practices, and it provides suggestions for secure alternatives.

  This list may change, but Cisco plans to generate warnings for the following features and protocols from Release 25.4.1. Each Release Notes will describe the exact changes for that version.

These documents list all features planned for removal, including insecure commands, and provide recommended secure alternatives to help you maintain network security and compliance.

- **Feature deprecation phasing out insecure capabilities**
- **Feature deprecation and removal details**
- **Feature removal and suggested alternatives**

**Table 2. Deprecation and phasing out features with insecure capabilities and its secure alternatives**

| If you are using the following insecure features... | Then follow these secure alternatives... |
|---|---|
| HTTP | Use HTTPS. |
| FTP client<br>install FTP<br>install TFTP | Use SFTP. |
| IPV4 source route | There is no alternative. Do not enable IPv4 source routing. |
| Telnet client<br>Telnet dscp | There is no alternative. Do not use Telnet client. |
| Telnet server | Use SSH. |
| TFTP client | Use SFTP. |
| TFTP server | Use SSH. |
| copy ftp<br>copy ftp running-config<br>copy running-config ftp<br>copy running-config tftp<br>copy tftp<br>copy tftp running-config<br>copy xml-schema tftp | Use SFTP or SCP. |
| install FTP<br>install TFTP | Use SFTP. |
| TCP or UDP small_servers | There is no alternative. Do not use TCP or UDP small_servers. |
| SSHv1 | Use ssh server v2. |
| SSH host-key DSA algorithm | Use ECDSA, ED25519, or RSA and so on. |
| Syslog TLS Version 1.1 (server1) | Configure TLS Version 1.2 or higher. |
| TLS 1.0<br>TLS 1.1 | Use TLS 1.2 or TLS 1.3. |
| utility mv ftp<br>utility mv tftp | There is no alternative. Do not use utility mv ftp and utility mv tftp. |

| If you are using the following insecure features... | Then follow these secure alternatives... |
|---|---|
| load ftp<br>load tftp<br>load script ftp<br>load script tftp<br>load diff ftp<br>load diff tftp<br>load diff reverse ftp<br>load diff reverse tftp | Use scp or sftp. |
| tacacs and radius server with type-7 shared secret | Use type 6 secret. |

## Open issues

There are no open issues 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 3.** Specification of the Cisco XRv 9000 Appliance

| Parameters | Supported |
|---|---|
| Form Factor | 1 RU |
| Processor | 5th Gen Intel Xeon Scalable processor<br>Intel(R) Xeon(R) Gold 5520+ 2.2GHz/205W 28C/52.5MB DDR5 4800MT/s |
| | 4th Gen Intel Xeon Scalable processor<br>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 |

| Parameters | Supported |
|---|---|
| Firmware version | BIOS version: C220M7.6.0.1a.0_XRV9K<br>CIMC/BMC version: 6.0(1.250129) |
| Physical NICs | 25G Model:<br>Cisco-Intel E810XXVDA4L 4x25/10 GbE SFP28 PCIe<br>100G Model:<br>Cisco-MLNX MCX623106AS-CDAT 2x100GbE QSFP56 PCIe<br>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 4.** Support Matrix for Hypervisor Versions

| Cisco IOS XR Version | VMWare ESXi | Kernel Based Virtual Machine (KVM) |
|---|---|---|
| Release 25.4.1 | Version 8.0 | Linux KVM based on Red Hat Enterprise Linux 9.4 |

## Virtual machines

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

**Table 5.** VM Requirement for VMware Environment

| Parameters | Supported |
|---|---|
| VMware ESXi | Version 8.0 |
| Virtual CPU cores | 1 socket with a minimum of 4 cores<br>Note: For multicast heavy deployments we recommend configuring 8 cores (with 4 assigned for control plane and 4 assigned for data plane).<br>Note: For production environment minimum of 4 cores is recommended. |
| Virtual Machine memory size | 24GB minimum for VRR, recommended to increase as per VM and scale requirements |
| Virtual Machine hard disk size | 64GB minimum for vPE and vRR image variants |
| Virtual Interfaces | • E1000<br>• VMXNET3 for traffic interfaces only |

| Parameters | Supported |
|---|---|
| Physical NICs | For pass-through:<br>• Intel X710, XXV710<br>• Mellanox ConnectX 6<br>SR-IOV supported for:<br>• Intel E810 XXV, E810 C<br>• Intel X710, XXV710 |
| Number of interfaces | Maximum of 11 NICs where:<br>• 1 for management<br>• 2 are reserved<br>• 8 for traffic |
| Default video, SCSI controller set | Required<br>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<br>Note: Multiple hard disk drives on a VM are not supported. |

## Firmware update available for UCS M7 appliance (xrv9k-ucs-c220m7-huu-container-6.0.1.250127.tar.gz)

A firmware update package, xrv9k-ucs-c220m7-huu-container-6.0.1.250127.tar.gz, is now available for the UCS M7 appliance. This package includes firmware for both the CIMC and BIOS.

The SHA256 checksum for the package is:
5bb660e0586c42f4f01ed25d5aef25be60ccd22d026df3fefd593aa887b365fd

The SHA256 checksum for the CIMC and BIOS binaries are:

- bios.pkg 5567aea1a085dd1e8300be692639fbad01f792d6aed39a5a7bad1e162673a031
- cimc.bin b5bace7d6126de3196057b08aa54391c2a178d3e7532ce62ef1c6803dfd75aec

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

## Optics support

**Table 6.** 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 |

| Product | Product Code | Product Recommendation |
|---|---|---|
| Cisco 10GBASE SFP+, Long Range | Cisco SFP-10G-LR | - 4X10/25G |

## Related resources

**Table 7.** 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