Release Notes for Cisco NCS 560 Series Routers, Cisco IOS XR Release 25.3.1

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Cisco NCS 560 Series Routers, Release 25.3.1

Cisco IOS XR Release 25.3.1 is a new feature release for Cisco NCS 560 Series routers.

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

New software features

Table 1. New software features for NCS 560 Series Routers, Release 25.3.1

Product impact	Feature	Description
L2VPN		
Software reliability	Decoupled mode for L2VPN and EVPN VPWS services	Decoupled mode improves fault tolerance by allowing the PE router to maintain the PW in an active state independently of the AC status. Unlike the traditional coupled mode, which requires both AC and PW to be active for traffic flow, decoupled mode ensures uninterrupted PW traffic even during AC failures.
Software reliability	Sub-second convergence for EVPN with BGP PIC-edge	You can maintain continuous service in multi-homed EVPN deployments using sub-second convergence for EVPN with BGP PIC-edge. This functionality rapidly switches traffic to a backup nexthop path when the preferred nexthop fails, delivering fast convergence and high availability for active-active EVPN E-LAN and E-Line services.
Programmability		
Software Reliability	YANG-Push notifications	YANG-Push provides a real-time telemetry solution by allowing applications to subscribe to specific YANG datastore updates. This feature enables efficient, low-latency streaming of operational state data to subscribed receivers. By reducing the reliance on traditional polling methods, YANG-Push enhances network observability, accelerates troubleshooting, and optimizes data collection for modern network automation and assurance workflows.
Segment Routing		
Ease of Use	Cisco Network Controller (CNC) v7.2: Multiple SID-List with Preserve or Transactional gRPC API	This feature enables advanced segment routing path computation by supporting multiple SID lists and atomic, transactional updates through gRPC API. This ensures reliable, consistent policy changes and enhances network stability. It supports high availability with state synchronization across multiple SR-PCEs and integrates with Path Computation Clients for comprehensive traffic engineering across multi-AS topologies. This improves network programmability, scalability, and reduces configuration errors.
System Security		
Software Reliability	Unused connection timeout for SSH sessions	You can prevent session limit exhaustion and maintain optimal system performance by automatically disconnecting SSH connections with no active channels. The feature introduces a configurable timeout for unused SSH connections, ensuring stale sessions do not occupy resources on your routers. The router monitors each SSH connection and terminates it when all channels remain closed and SSH clients do not create new channels within

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Product impact	Feature	Description
		the configured timeout period.
Software Reliability	Channel timeout for SSH sessions	You can improve resource efficiency and minimize potential security risks by automatically closing idle SSH channels on the routers after a specific period of inactivity. The feature introduces a configurable timeout for SSH channels which ensures that unused channels do not persist while the parent SSH connection remains active. The router monitors each SSH channel and closes any channel where no data is sent or received within the configured timeout period.
API Experience	Layer 3 service gateway for interconnecting SRv6 domains	Optimize network scalability and interoperability by reducing SID resource usage, and enabling seamless integration between distinct SRv6 domains. The Layer 3 service gateway provides a flexible mechanism to extend Layer 3 services across different SRv6 networks, supporting efficient route summarization, cross-locator compatibility, and consistent service continuity on both control and data planes.
Security Efficacy	TACACS+ with TLS protection	You can significantly enhance security and reduce the risk of attacks on weak encryption by using TACACS+ over TLS. This method ensures the secure transmission of all Authentication, Authorization, and Accounting (AAA) data between the client and server. It provides robust protection for sensitive environments by supporting mutual authentication through a TLS X.509 certificate-based infrastructure. This feature is compatible with both TLS versions 1.3 and 1.2.

New hardware

This section provides a brief description of the new hardware features introduced in this release.

Table 2. New hardware features for Network Convergence System 560 Series Routers, Release 25.3.1

Hardware	Description
Optics	*Note*: Optics support varies across devices (routers, line cards, RPs, and so on). To know if an optics is compatible with a specific Cisco device, refer to the Transceiver Module Group (TMG) Compatibility Matrix. This release introduces the following optics: • DP01QS28-E20 (C-Temp) • DP01QS28-E25 (I-Temp)
Optics	*Note*: Optics support varies across devices (routers, line cards, RPs, and so on). To know if an optics is compatible with a specific Cisco device, refer to the Transceiver Module Group (TMG) Compatibility Matrix. This release introduces the following optics: • Cisco 25/50GBASE-SL SFP56 Module for MMF • SFP-50G-SL • Cisco 25/50GBASE-SR SFP56 Module for MMF • SFP-50G-SR-S • Cisco 25/50GBASE-LR SFP56 Module for SMF

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Hardware	Description
	• SFP-50G-LR-S

Changes in behavior

- Starting with Release 25.3.1, IOS XR software no longer supports Call Home transport mode for Licensing. Please configure CSLU or Smart Transport to ensure seamless operation of the licensing solution.
- Type6 server output enhancements: The show type6 server command now includes two new outputs that provides additional details for enhanced server management and troubleshooting:
  - Masterkey Length
  - Masterkey Hash
- gRPC remote-connection disable command: A new command, **grpc remote-connection disable**, has been introduced. This command allows users to disable TCP connections on the router, providing greater control over network configurations.
- 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 issues in this release.

Known Issues

- Telemetry data collection may timeout due to CPU overload during route churn. In such scenarios, telemetry will resume when the CPU becomes available after the route churn is complete.
- The standby RP may get into 'NOT READY' state intermittently due to some network churn, though the corresponding VM is up and running. But this is a transient state and shows that some data aren't in sync between active and standby due to the network churn. After both active and standby are in sync with respect to all the parameters, then the standby RP comes into 'READY' state.

Compatibility

Compatibility Matrix for EPNM and Crosswork with Cisco IOS XR Software

The compatibility matrix lists the version of EPNM and Crosswork that are supported with Cisco IOS XR Release in this release.

Table 3. Compatibility matrix for Cisco NCS 560 Series Routers, Release 25.3.1

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Cisco IOS XR	Crosswork	EPNM
Release 25.3.1	Crosswork Optimization Engine 6.0	Evolved Programmable Network Manager 7.1.1

System requirements

Use the **show hw-module fpd** command in EXEC and Admin mode to view the hardware components with their current FPD version and status. The status of the hardware must be CURRENT; Running and Programed version must be the same. You can also use the `show fpd package` command in Admin mode to check the fpd versions.

Software version

To verify the software version running on the router, use show version command in the EXEC mode.

```
Router# show version
Cisco IOS XR Software, Version 25.3.1
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Build Information:
 Built By     : swtools
 Built On     : Mon Sep 15 07:15:40 PDT 2025
 Built Host   : iox-lnx-027
 Workspace    : /auto/srcarchive12/prod/25.3.1/ncs560/ws
 Version      : 25.3.1
 Location     : /opt/cisco/XR/packages/
 Label        : 25.3.1

cisco NCS-560 () processor
System uptime is 1 hour 52 minutes
```

Supported software packages

This table lists the Cisco IOS XR Software feature set matrix (packages) with associated filenames.

Visit the Cisco Software Download page to download the Cisco IOS XR software images.

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Feature Set	Filename	Description
Cisco IOS XR IP Unicast Routing Core Bundle	ncs560-mini-x-25.3.1.iso	Contains base image contents that includes: Host operating system System Admin boot image IOS XR boot image BGP packages OS Admin Base Forwarding Modular Services Card Routing SNMP Agent Alarm Correlation
Cisco IOS XR Manageability Package	ncs560-mgbl-1.0.0.0-r2531.x86_64.rpm	Telemetry, Extensible Markup Language (XML), Parser, and HTTP server packages, NETCONF, YANG Models, gRPC.
Cisco IOS XR OSPF package	ncs560-ospf-1.0.0.0-r2531.x86_64.rpm	Supports OSPF
Cisco IOS XR Security Package	ncs560-k9sec-1.0.0.0-r2531.x86_64.rpm	k9sec is needed for IPsec or MACsec and Dot1x and for basic crypto services such as Decryption, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).
Multicast Package	ncs560-mcast-1.0.0.0-r2531.x86_64.rpm	Supports Multicast Supports Automatic Multicast Tunneling (AMT), IGMP Multicast Listener Discovery (MLD), Multicast Label Distribution Protocol (MLDP), Multicast Source Discovery Protocol (MSDP) and PIM.
Cisco IOS XR ISIS package	ncs560-isis-1.0.0.0-r2531.x86_64.rpm	Supports Intermediate System to Intermediate System (IS-IS).
Cisco IOS XR USB Boot Package	ncs560-usb_boot-25.3.1.zip	Supports Cisco IOS XR USB Boot Package
Cisco IOS XR MPLS Package	ncs560-mpls-1.0.0.0-r2531.x86_64.rpm ncs560-mpls-te-rsvp-1.0.0.0-r2531.x86_64.rpm	Supports MPLS and MPLS Traffic Engineering (MPLS-TE) RPM. Label Distribution Protocol (LDP), MPLS Forwarding, MPLS Operations, Administration, and Maintenance (OAM), Link Manager Protocol (LMP), Optical User Network Interface (OUNI) and Layer-3 VPN. Cisco IOS XR MPLS-TE and RSVP Package MPLS Traffic Engineering (MPLS-TE) and Resource Reservation Protocol (RSVP).
Cisco IOS XR LI Package	ncs560-li-1.0.0.0-r2531.x86_64.rpm	Lawful Intercept
Cisco IOS XR EIGRP Package	ncs560-eigrp-1.0.0.0-r2531.x86_64.rpm	(Optional) Includes EIGRP protocol support softwar

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Related resources

Table 4. Related resources

Document	Description
Cisco feature finder	An interactive tool that assists in locating features introduced across Cisco IOS XR releases and platforms.
Smart licensing	Information about Smart Licensing Using Policy solutions and their deployment on IOS XR Routers.
Cisco NCS 560 documentation	CCO Documentation for Cisco NCS 560 Series Routers
Transceiver Module Group (TMG) compatibility matrix	Search 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	Search by release number, error strings, or compare release numbers to view a detailed repository of error messages and descriptions.
Cisco IOS XR MIBs	Select the MIB of your choice from a drop-down to explore an extensive repository of MIB information.
YANG data models	A user-friendly reference designed to easily explore and understand the various data models supported in Cisco IOS XR platforms and releases.
Yang data models in Github	Repository containing the folders with yang data models introduced and enhanced in every IOS XR release.

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