



# Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 26.1.1

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## Cisco NCS 540 Series Routers, Release 26.1.1

Cisco IOS XR Release 26.1.1 is a new feature release for Cisco NCS 540 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

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

**Table 1.** New software features for Cisco NCS 540 Series Routers, Release 26.1.1

Product impact	Feature	Description
<b>Programmability</b>		
Software Reliability	Maintain reliable gRPC server operation on the router	<p>You can achieve reliable server operations, a consistent system state, and secure communication between gRPC clients and the router by ensuring that client access is delayed until the router is fully configured. This approach prevents inconsistent responses, errors, and incomplete enforcement of security policies.</p> <p>With this feature, the gRPC server on the router accepts client requests only after the startup configuration is fully applied. The External Management Service Daemon (EMSD) manages gRPC services, listens for connection requests on designated network ports, and ensures that the server initiates only after the router completes its configuration. This seamless coordination guarantees robust communication and operational consistency.</p>
<b>Segment Routing</b>		
Software reliability	BGP SID locator tracking for SRv6 services	<p>You can now improve network convergence and ensure consistent path selection in SRv6 environments by enabling BGP to monitor the reachability and metric of SRv6 SID locators, not just the next hop.</p> <p>This feature extends traditional BGP next-hop tracking to include locators stored in the Routing Information Base (RIB) for both Layer 2 and Layer 3 services.</p> <p>By detecting unreachable locators—even when the next hop is reachable—BGP can proactively update path selection, maintaining alignment between control-plane and data-plane operations and enhancing overall network reliability.</p>
Ease of Use	SRv6-TE explicit BSID and remote steering	<p>You can manually configure a deterministic and persistent Binding SID or an Explicit BSID for an SRv6-TE policy. You can also enable remote BSID steering so that the router recognizes traffic whose destination address matches a local policy BSID and steers that traffic directly into the associated SRv6 TE policy.</p> <p>Previously, the router allocated SRv6-TE policy binding SIDs dynamically. The router could change the BSID during reloads or policy reinstallation, which limited deterministic policy stitching and integration with external controllers.</p>
<b>Setup and Upgrade</b>		
Upgrade	<a href="#">Signature verification for owner RPMs using owner</a>	This feature ensures integrity of owner RPMs and validates the authenticity of these RPMs by enabling the router to securely verify

Product impact	Feature	Description
	<a href="#">public keys</a>	<p>the owner RPM signatures using owner public keys onboarded on to the router.</p> <p>With this feature, you can now control whether or not to enable signature verification for owner RPMs based on defined security levels.</p> <p>When the signature verification for owner RPMs is enabled, all owner RPMs must be verified prior to IOS XR package installation.</p>
Software Reliability	<a href="#">Security profiles for Cisco IOS XR software</a>	<p>This feature supports different security profiles to ensure integrity and protection of the IOS XR system when transitioning between security profiles.</p> <p>The supported security profiles are Strict, Default, Relaxed, and Custom.</p>
Software Reliability	<a href="#">Customer consent token configuration</a>	<p>This feature allows you to enable the customer consent token workflow so that the key name is linked to the key package.</p>
Software Reliability	<a href="#">Key package enhancements</a>	<p>This feature introduces you to the version 3 key package. With the version 3 key package, you can create, validate, sign a key package before the key package is provisioned on the router.</p> <p>Unlike the reserved customer consent token name, CUS-CT, used in version 1 and version 2 key packages, you can now use any name for the customer consent token that you include in the key package.</p> <p>However, to enable the customer consent token workflow, execute the consent-token customer command after the key package installation.</p>
<b>System Security</b>		
Software Reliability	Strengthened SSH Host Key Generation with RSA 3072	<p>This update enhances device security by automatically generating RSA 3072-bit SSH host keys during system boot, replacing the previous default of RSA 2048-bit keys. The stronger key size aligns with industry best practices and provides improved cryptographic protection, ensuring secure SSH access and compliance with future security requirements.</p>
Software Reliability	Syslog warnings for RSA keys and DSA keys	<p>This enhancement ensures Cisco IOS XR devices comply with evolving security standards by sending syslog warnings if weak SSH host keys are found during system reboot where an Rivest, Shamir, and Adelman (RSA) key less than 3072 bits or any Digital Signature Algorithm (DSA) keys are detected. The default RSA key size has been increased from 2048 to 3072 bits to strengthen security.</p> <p>Additionally, DSA keys are no longer auto-generated at boot, and if found, a syslog warning prompts their removal to align with current best practices.</p>

## New hardware

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

**Table 2.** New hardware for Cisco NCS 540 Series Routers, Release 26.1.1

Hardware	Description
Optics	<p>This release introduces these new optics that are available on supported hardware in the product portfolio. For details refer to the <a href="#">Transceiver Module Group (TMG) Compatibility Matrix</a>.</p> <p>Supported hardware</p> <ul style="list-style-type: none"> <li>• N540-24Q2C2DD-SYS-A</li> <li>• N540-24Q2C2DD-SYS-D</li> <li>• N540X-6Z18G-SYS-A</li> <li>• N540X-6Z18G-SYS-D</li> <li>• N540X-12Z16G-SYS-A</li> <li>• N540X-12Z16G-SYS-D</li> <li>• N540X-8Z16G-SYS-A</li> <li>• N540X-8Z16G-SYS-D</li> </ul> <p>Cisco Small Form-Factor Pluggable (SFP) Modules</p> <ul style="list-style-type: none"> <li>• <a href="#">SFP-E1F-SATOP-I</a></li> </ul>
N540X-8Z12G-SYS-D passive cooled small density router	<p>The N540X-8Z12G-SYS-D passive cooled small density router supports:</p> <ul style="list-style-type: none"> <li>• 8 X 1G/10G SFP+ ports: <ul style="list-style-type: none"> <li>◦ SFP+: The Small Form-factor Pluggable (SFP+) is an enhanced version of the SFP interface, supporting 1Gbps and 10Gbps data rates.</li> <li>◦ Data rates: These ports can operate at 1Gbps and 10Gbps, providing versatility for different network tasks.</li> </ul> </li> <li>• 4 X CSFP ports: <ul style="list-style-type: none"> <li>◦ CSFP: The compact small form-factor Pluggable (CSFP) is an enhanced version of the SFP interface, supporting 1Gbps data rate.</li> <li>◦ Data rates: These ports can operate at 1Gbps, providing versatility for different network tasks.</li> </ul> </li> <li>• 4 X 1G SFP ports <ul style="list-style-type: none"> <li>◦ SFP: The small form-factor Pluggable (SFP) supporting 1Gbps data rate.</li> <li>◦ Data rates: These ports can operate at 1Gbps, providing versatility for different network tasks.</li> </ul> </li> <li>• 4 X 1G Copper GE ports <ul style="list-style-type: none"> <li>◦ Copper GE ports: The copper GE ports supporting 1Gbps data rate.</li> <li>◦ Data rates: These ports can operate at 1Gbps, providing versatility for different network tasks.</li> </ul> </li> </ul>
N540X-6Z6G-SYS small density router	<p>The N540X-6Z6G-SYS small density router supports:</p> <ul style="list-style-type: none"> <li>• 6 x 1G SFP ports</li> </ul>

Hardware	Description
	<ul style="list-style-type: none"> <li>◦ SFP: The small form-factor Pluggable (SFP) supporting 1Gbps data rate.</li> <li>◦ Data rates: These ports can operate at 1Gbps, providing versatility for different network tasks.</li> <li>• 6 x 1G/10G SFP+ ports               <ul style="list-style-type: none"> <li>◦ SFP+: The Small Form-factor Pluggable plus (SFP+) is an enhanced version of the SFP interface, supporting 1Gbps and 10Gbps data rates.</li> <li>◦ Data rates: These ports can operate at 1Gbps and 10Gbps, providing versatility for different network tasks.</li> </ul> </li> </ul>
Cisco 10G Routed XGS-PON ONT	<p>The Cisco 10G Routed PON Optical Network Unit (ONT) is fully compliant with the XGS-PON ITU-T G.9807.1 standard, supporting symmetrical 10-Gbps downstream and upstream optical connectivity.</p> <p><b>Supported Cisco 10G Routed XGS-PON ONT</b></p> <p>The Cisco 10G Routed PON ONT provides embedded Ethernet-to-PON Media Access Control (MAC) bridge and optics or built-in XGS-PON optics and media.</p> <ul style="list-style-type: none"> <li>• ENC-10G-ONT-10 XGS-PON ONT supports:           <ul style="list-style-type: none"> <li>◦ 1 x 10/100/1000/2500 MbE Ethernet RJ-45 port</li> <li>◦ 1 x 1G/10G SFP/SFP+ port</li> </ul> </li> <li>• ENC-10G-ONT-14A XGS-PON ONT supports:           <ul style="list-style-type: none"> <li>◦ 1x1/2.5/5/10 GbE Ethernet RJ-45 port</li> <li>◦ 4x10/100/1000 MbE Ethernet RJ-45 port</li> <li>◦ 1xRJ-11 with FXS capability port</li> </ul> </li> <li>• ENC-10G-ONT-01PR XGS-PON ONT supports:           <ul style="list-style-type: none"> <li>◦ 1 x 10/100/1000/2500 MbE RJ-45 port</li> </ul> </li> </ul>

## Changes in behavior

This section provides a brief description of the behavior changes introduced in this release.

- Delay during router reload with hw-module quad 10G mode configuration
 

When the command **hw-module quad 0 location 0/RP0/CPU0 instance 0 mode 10g** is executed, and the router reloads, a delay may occur. This delay is due to the optics driver attempting to initialize SFP modules on ports 20 through 27, despite the absence of physical optics modules in those ports. To address this, a flag is used to verify the presence of a module in each port before initiating the optics initialization process. This verification prevents unnecessary initialization attempts, thereby reducing the reload delay.
- Starting with Cisco IOS XR Software Release 25.4.1, a one-time syslog warning will be generated if TLS 1.0 or TLS 1.1 is used, and a continuous warning will occur if the syslog minimum TLS version is configured as TLS 1.0 or 1.1. The default minimum syslog TLS version is now TLS 1.2 to enhance security.

- Starting with the Cisco IOS XR Software Release 26.1.1, if the route-policy applied to the eBGP neighbor includes the **set next-hop unchanged** command, the system preserves and advertises both the received remote SRv6 SID and the remote next-hop when advertising the leaked route from GRT to the VRF table. The local SRv6 SID is no longer always sent.

## Open issues

**Table 3.** Open issues for Cisco NCS 540 Series Routers, Release 26.1.1

Bug ID	Description
<a href="#">CSCwt27094</a>	A reduction in free memory of approximately 1000 MB may lead to a severe memory state if sustained interface flaps occur.

## Known issues

- During the software upgrade to 26.1.1, the system may not complete the Auto-FPD upgrade as expected. After the software upgrade, the FPD status shows 'RLOAD REQ', indicating that you must perform an additional reload to activate the updated FPD.

## 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 4.** Compatibility Matrix for Cisco NCS 540 Series Routers, Release 26.1.1

Cisco IOS XR	Crosswork	EPNM
Release 26.1.1	<a href="#">Crosswork Optimization Engine 6.0</a>	<a href="#">Evolved Programmable Network Manager 8.1.1</a>

## 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 Programmed 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
Fri Feb 27 00:39:06.648 PST
Cisco IOS XR Software, Version 26.1.1
Copyright (c) 2013-2026 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : swtools
Built On     : Wed Feb 25 21:45:38 PST 2026
```

```

Built Host      : iox-lnx-045
Workspace      : /auto/srcarchive12/prod/26.1.1/ncs540/ws
Version        : 26.1.1
Location       : /opt/cisco/XR/packages/
Label          : 26.1.1

```

```

cisco NCS-540 () processor
System uptime is 9 minutes

```

## Supported software packages

The following tables list the supported base images and optional packages and their corresponding file names.

Visit the [Cisco Software Download page](#) to download the Cisco IOS XR software images.

**Table 5.** Release 26.1.1 software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Package	Filename	Description
<b>Base image</b>		
IOS XR Base Image	ncs540-mini-x-26.1.1.iso	IOS XR mandatory base image.
USB Boot Package	ncs540-usb_boot-26.1.1.zip	Package required to perform USB Boot. Includes the same packages as the base image.
<b>Optional packages not included in the base image</b>		
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r2611.x86_64.rpm	Supports Extensible Markup Language (XML) Parser, Telemetry, Netconf, gRPC and HTTP server
IOS XR MPLS	ncs540-mpls-1.0.0.0-r2611.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r2611.x86_64.rpm	Supports MPLS and MPLS Traffic Engineering (MPLS-TE)
IOS XR Security	ncs540-k9sec-1.0.0.0-r2611.x86_64.rpm	Supports MACsec and 802.1X
IOS XR ISIS	ncs540-isis-1.0.0.0-r2611.x86_64.rpm	Supports ISIS
IOS XR OSPF	ncs540-ospf-1.0.0.0-r2611.x86_64.rpm	Supports OSPF
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r2611.x86_64.rpm	Supports Lawful Intercept (LI)
IOS XR Multicast	ncs540-mcast-1.0.0.0-r2611.x86_64.rpm	Supports Multicast
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r2611.x86_64.rpm	Supports EIGRP
IOS XR LI-CTRL	ncs540-lictrl-1.0.0.0-r2611.x86_64.rpm	Supports LI-CTRL

**Table 6.** Release 26.1.1 Software for N540-24Q8L2DD-SYS, N540-24Q2C2DD-SYS, N540X-16Z4G8Q2C-A/D, N540-28Z4C-SYS-A/D, N540X-12Z16G-SYS-A/D, N540-12Z20G-SYS-A/D, N540-FH-CSR-SYS, N540X-16Z8Q2C-D, and N540-FH-AGG-SYS

Package	Filename	Description
<b>Base Image</b>		
IOS XR Base Image	ncs540l-x64-26.1.1.iso	<p>IOS XR base image with mandatory packages.</p> <p>The base ISO image also includes the following optional packages:</p> <ul style="list-style-type: none"> <li>xr-bgp</li> <li>xr-cdp</li> <li>xr-eigrp</li> <li>xr-ipsla</li> <li>xr-is-is</li> <li>xr-k9sec</li> <li>xr-lictrl</li> <li>xr-lldp</li> <li>xr-mcast</li> <li>xr-mpls-oam</li> <li>xr-netflow</li> <li>xr-ospf</li> <li>xr-perf-meas</li> <li>xr-perfmgmt</li> <li>xr-rip</li> <li>xr-telnet</li> <li>xr-track</li> </ul> <p>These optional packages are also included in NCS540l-iosxr-26.1.1.tar.</p>
USB Boot Package	ncs540l-usb_boot-26.1.1.zip	<p>Package required to perform USB Boot.</p> <p>Includes the same packages as the base image.</p>
<b>Optional packages not included in the base image</b>		
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-26.1.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-26.1.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-iosxr-26.1.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.26.1.1.tar	Supports 802.1X
IOS XR RIP (xr-rip)	NCS540l-iosxr-26.1.1.tar	Supports RIP

**Table 7.** Release 26.1.1 Software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, N540X-6Z18G-SYS-A/D, and N540X-6Z6G-SYS

Package	Filename	Description
<b>Base image</b>		
IOS XR Base Image	ncs540l-aarch64-26.1.1.iso	<p>IOS XR base image with mandatory packages.</p> <p>The ISO image also includes the following optional packages:</p> <ul style="list-style-type: none"> <li>xr-bgp</li> <li>xr-cdp</li> <li>xr-eigrp</li> <li>xr-ipsla</li> <li>xr-is-is</li> <li>xr-k9sec</li> <li>xr-lictrl</li> <li>xr-lldp</li> <li>xr-mcast</li> <li>xr-mpls-oam</li> <li>xr-ncs540l-mcast</li> <li>xr-ncs540l-netflow</li> <li>xr-netflow</li> <li>xr-ospf</li> <li>xr-perf-meas</li> <li>xr-perfmgmt</li> <li>xr-rip</li> <li>xr-telnet</li> <li>xr-track</li> </ul> <p>These optional packages are also included in NCS540l aarch64 iosxr optional rpms-26.1.1.tar.</p>
USB Boot Package	ncs540l-aarch64-usb_boot-26.1.1.zip	<p>Package required to perform USB Boot.</p> <p>Includes the same packages as the base image.</p>
<b>Optional packages not included in the base image</b>		
Package	Filename	Description

Package	Filename	Description
IOS XR Telnet (xr-telnet)	NCS540I-aarch64-iosxr-optional-rpms-26.1.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540I-aarch64-iosxr-optional-rpms-26.1.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540I-aarch64-iosxr-optional-rpms-26.1.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540I-aarch64-k9sec-rpms.26.1.1.tar	Supports 802.1X
IOS XR RIP (xr-rip)	NCS540I-aarch64-iosxr-optional-rpms-26.1.1.tar	Supports RIP

## Related resources

**Table 8.** Related resources

Document	Description
<a href="#">Cisco feature finder</a>	An interactive tool that assists in locating features introduced across Cisco IOS XR releases and platforms.
<a href="#">Cisco IOS XR error messages</a>	Search by release number, error strings, or compare release numbers to view a detailed repository of error messages and descriptions.
<a href="#">Cisco IOS XR MIBs</a>	Select the MIB of your choice from a drop-down to explore an extensive repository of MIB information.
<a href="#">Cisco NCS 540 documentation</a>	CCO Documentation for Cisco NCS 540 Series Routers
<a href="#">Feature deprecation and removal details</a>	Outlines the features currently supported by each operating system.
<a href="#">Feature deprecation phasing out insecure capabilities</a>	Provides a list of insecure features and protocols that are scheduled for systematic deprecation and eventual removal from specified Cisco products.
<a href="#">Feature removal and suggested alternatives</a>	Details the reasons why certain features or protocols are deemed insecure and offers secure alternatives when available.
<a href="#">Smart licensing</a>	Information about Smart Licensing Using Policy solutions and their deployment on IOS XR Routers.
<a href="#">Transceiver Module Group (TMG) compatibility matrix</a>	Search by product family, product ID, data rate, reach, cable type, or form factor to determine the transceivers that Cisco hardware device supports.
<a href="#">YANG data models</a>	A user-friendly reference designed to easily explore and understand the various data models supported in Cisco IOS XR platforms and releases.
<a href="#">Yang data models in Github</a>	Repository containing the folders with yang data models introduced and enhanced in every IOS XR release.

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