



Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 7.1.1

[Network Convergence System 540 Series Routers](#) 2

[Supported Software Features](#) 2

[Supported Software Features for N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS](#) 7

[Supported Software Features for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D and N540X-16Z4G8Q2C-A/D](#) 7

[Supported Hardware Features](#) 8

[Behavior Change Introduced in this release](#) 8

[Restrictions and Limitations on the Cisco NCS 540 Series Router](#) 9

[Caveats](#) 9

[Supported Packages and System Requirements](#) 10

[Other Important Information](#) 15

[Supported MIBs](#) 15

Revised: June 8, 2023

Network Convergence System 540 Series Routers



Note This software release has reached end-of-life status. For more information, see the [End-of-Life and End-of-Sale Notices](#).



Note Explore the [Content Hub](#), the all new portal that offers an enhanced product documentation experience.

- Use faceted search to locate content that is most relevant to you.
- Create customized PDFs for ready reference.
- Benefit from context-based recommendations.

Get started with the Content Hub at content.cisco.com to craft a personalized documentation experience.

Do provide feedback about your experience with the Content Hub.

Supported Software Features

Following are the features supported on Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, N540-ACC-SYS, N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D and N540X-16Z4G8Q2C-A/D variants.

CEF Enhancement

This feature enables you to provide the names of the database, for example LPM, EXT-TCAM, and LEM, in which any prefix of any packet is updated. With this feature, you can efficiently manage your network resources because it allows you to understand the scaling of prefixes. This feature also helps you to understand why a particular IP address configuration for a device fails and thereby helps you in debugging.

See *Implementing Cisco Express Forwarding* in the *IP Addresses and Services Configuration Guide for Cisco NCS 540 Series Routers*.

See *Cisco Express Forwarding Commands* in the *IP Addresses and Services Command Reference for Cisco NCS 5500 Series and NCS 540 and NCS 560 Series Routers*.

Congestion Management for Telemetry Data

A congestion management system for telemetry data allows each destination a maximum of 4000 outstanding messages. The events are throttled when the outstanding messages exceed 3000; throttling of cadence messages happen when outstanding messages exceed 250. Events have higher priority than cadence messages.

See *Telemetry Configuration Guide for Cisco NCS 540 Series Routers*.

DHCP Option-82 with Circuit ID and Remote ID

Starting with Cisco IOS XR Release 7.1.1, DHCP IPv4 relay agent includes the remote IDs and circuit IDs in relay agent information for DHCP IPv4 relayed packets.

The DHCP IPv4 packets are relayed over a BVI interface, based on the relay information option policy for a relay-agent. The DHCPv4 application includes the Option-82 remote IDs and circuit IDs and forwards it to the server.

For more information see, *Network Synchronization Configuration Guide for Cisco NCS 540 Series Routers, IOS XR Release 7.1.x*.

Dying Gasp for Loss of Power via SNMP

A dying gasp event is a message (or signal) sent by the Host network equipment/router to the NMS element to notify the node is going down. Dying gasp event is triggered when one of the following unrecoverable/recoverable conditions has occurred:

- Complete power failure
- Removal of the input power supplies cable

In IOS XR NCS 540 router, dying gasp event is reported via SNMP trap packets only.

For more information see chapter, Dying Gasp for loss of Power via SNMP in the System Monitoring Configuration Guide, for Cisco NCS 540 Series Routers.

Interior Gateway Protocol (IGP) Destination-based Load Balancing (DLB)

Currently, the router supports upto 2K labelled prefixes with Equal Cost Multi Path (ECMP). From this release onwards, with the introduction of the Interior Gateway Protocol (IGP) Destination-based Load Balancing (DLB) feature, the router can support higher scale of labelled prefixes.

For more information about the feature, see the chapter *Implementing UCMP* in the *Routing Configuration Guide for Cisco NCS 540 Series Routers*.

EVPN Single-Active Multihoming for Anycast Gateway IRB

The EVPN Single-Active Multihoming for Anycast Gateway IRB feature supports single-active redundancy mode. In this mode, the provider edge (PE) nodes locally connected to an Ethernet Segment load balance traffic to and from the Ethernet Segment based on EVPN service instance (EVI). Within an EVPN service instance, only one PE forwards traffic to and from the Ethernet Segment (ES). This feature supports intersubnet scenario only.

For more information about this feature, see the *Configure EVPN IRB* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Flooding Disable

The Flooding Disable feature prevents forwarding of Broadcast, Unknown-unicast and Multicast (BUM) traffic on the bridge domain. You can disable flooding of BUM traffic at the bridge level or at the interface level. By disabling flooding at the bridge level, you can prevent forwarding of BUM traffic on attachment circuit (AC) and pseudowire (PW).

You can also disable only unknown unicast traffic at the bridge level or at the interface level. By disabling flooding of unknown unicast traffic at the bridge level, you can prevent forwarding of unknown unicast traffic on attachment circuit (AC) and pseudowire (PW).

By disabling flooding of unknown unicast traffic at the interface level, you can prevent forwarding of unknown unicast traffic on AC alone.

For more information about this feature, see the *Configure Multipoint Layer 2 Services* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Ingress Classification and Ingress and Egress Marking on L3 Subinterfaces

Beginning this release, you can:

- classify packets at the ingress on L3 subinterfaces for (CoS, DEI) for IPv4, IPv6, and MPLS flows.
- perform Layer 2 marking of Ethernet packets for (CoS, DEI) for IPv4, IPv6, and MPLS flows in the egress direction on L3 subinterfaces.

For more information, see the *Packet Classification Overview* and *QoS Re-marking of Ethernet Packets in Egress Direction* sections in the [Modular QoS Configuration Guide for Cisco NCS 540 Series Routers](#) and the **hw-module profile qos ipv6 short** command in the *Modular QoS Command Reference for Cisco NCS 5500 Series, Cisco NCS 540 Series, and Cisco NCS 560 Series Routers*.

Ingress Short-Pipe Mode to Set DSCP

With this feature, in addition to setting ingress action such as traffic class and QoS group, you can also mark DSCP in the packet header at ingress.

For more information, see the *Ingress Short-Pipe* section in the [Modular QoS Configuration Guide for Cisco NCS 540 Series Routers](#) and the **match mpls disposition class-map** command in the *Modular QoS Command Reference for Cisco NCS 5500 Series, Cisco NCS 540 Series, and Cisco NCS 560 Series Routers*.

Multiple Spanning Tree Protocol

The Multiple Spanning Tree Protocol (MSTP) is a Spanning tree protocols (STP) variant that allows you to create multiple and independent spanning trees over the same physical network. You can configure the parameters for each spanning tree separately. You can select different network devices as the root bridge or different paths to form the loop-free topology. Therefore, you can block a given physical interface for some of the spanning trees and unblocked for others.

For more information about this feature, see the *Configure Multiple Spanning Tree Protocol* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Multisegment Pseudowire

The Multisegment Pseudowire feature allows you to extend L2VPN pseudowires across an inter-AS boundary or across two separate MPLS networks. A multisegment pseudowire connects two or more contiguous pseudowire segments to form an end-to-end multi-hop pseudowire as a single point-to-point pseudowire. These segments act as a single pseudowire, allowing you to:

- Manage the end-to-end service by separating administrative or provisioning domains.
- Keep IP addresses of provider edge (PE) nodes private across interautonomous system (inter-AS) boundaries. Use IP address of autonomous system boundary routers (ASBRs) and treat them as pseudowire aggregation routers. The ASBRs join the pseudowires of the two domains.

For more information about this feature, see the *Configure Point-to-Point Layer 2 Services* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Notification Alerts for TLS Certificate Expiry

Support for a notification mechanism using SNMP trap and syslog messages when a TLS certificate is approaching its expiry.

The notifications are sent at the following intervals:

- First notification—This notification is sent 60 days before the expiry of the certificate.
- Repeated notifications—After the first notification, subsequent notifications are sent every week until a week before the expiry of the certificate. In the last week, notifications are sent every day until the certificate expiry date.

See .

OpenConfig Data Models for Network Programmability

The OpenConfig (OC) data models are defined by the OC community to create configuration and retrieve operational state data of the network. This release introduces support for the following OC models:

- The OC Bidirectional Forwarding Detection data model, `oc-bfd`, defines the BFD protocol in multi-vendor environment to configure and get operational state data for the BFD protocol.
- The `oc-platform` data model supports streaming operational and configuration state data that are related to the underlying characteristics of the device.

See *Programmability Configuration Guide for Cisco NCS 540 Series Routers*.

Per-VLAN Rapid Spanning Tree

The Per-VLAN Rapid Spanning Tree (PVRST) is the IEEE 802.1w (RSTP) standard implemented per VLAN. PVRST uses point-to-point wiring to provide rapid convergence of the spanning tree. The spanning tree reconfiguration occurs in less than one second with PVRST.

See [Per-VLAN Rapid Spanning Tree](#).

For more information about this feature, see the *Configure Multiple Spanning Tree Protocol* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Revised OpenConfig Data Models for Network Programmability

The OpenConfig (OC) data models are defined by the OC community to create configuration and retrieve operational state data of the network. The following data models are revised to provide additional capabilities:

- The OC Integrated Intermediate System-to-Intermediate System data model, `oc-isis`, is enhanced to provide support for additional paths in the data model.
- The `oc-policy` data model contains general data definitions for use in routing policy. It can be imported by modules that contain protocol-specific policy conditions and actions.
- Enhancement of gNMI specification to include updates from version 0.4.0 to version 0.6.0. Support is extended for the following gNMI features:
 - gNMI support for multiple client roles and primary arbitration
 - Path Target
 - gNMI service registration with the gRPC reflection service to allow clients to determine that gNMI is available on the target

See

For more information about OC models and instructions to use these models, see the *Programmability Configuration Guide for Cisco NCS 540 Series Routers*.

Rewrite of Priority Tag

The Rewrite of Priority Tag feature allows you to configure rewrite tag for a priority-tagged VLAN. This feature removes the priority-tagged VLAN in the ingress direction and adds the priority-tagged VLAN in the egress direction.

For more information about this feature, see the *Configure Virtual LANs in Layer 2 VPNs* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Segment Routing Flexible Algorithm Affinity Constraints for IS-IS

This feature introduces support for “include-all” and “include-any” affinity constraints for configuring Segment Routing Flexible Algorithm for IS-IS.

See the *Segment Routing Configuration Guide for Cisco NCS 540 Series Routers*.

Set discard-class to Drop Packets at Ingress

On ingress direction, after matching the traffic based on either the IP Precedence or DSCP value, you can set it to a particular discard-class. At the egress, a congestion avoidance technique such as weighted random early detection (WRED) then uses the assigned discard-class value to determine the probability that a packet is dropped. With the introduction of this feature, if you now set a discard-class of 3, the packet is dropped at ingress itself.

For more information, see the section *Packet Marking* in the [Modular QoS Configuration Guide for Cisco NCS 540 Series Routers](#).

Support for HSRP v4/v6

Hot Standby Router Protocol (HSRP) is supported. The HSRP is an IP routing redundancy protocol designed to allow for transparent failover at the first-hop IP router. HSRP provides high network availability, because it routes IP traffic from hosts on networks without relying on the availability of any single router. HSRP is used in a group of routers for selecting an active router and a standby router. An active router is the router of choice for routing packets whereas a standby router is a router that takes over the routing duties when an active router fails, or when pre-set routing conditions are met.

See *Implementing HSRP* in the *IP Addresses and Services Configuration Guide for Cisco NCS 540 Series Routers*.

See *HSRP Commands* in the *IP Addresses and Services Command Reference for Cisco NCS 5500 Series and NCS 540 and NCS 560 Series Routers*.

VPLS VFI with BVI as Routed Interface

The VPLS VFI with BVI as Routed Interface feature allows you to route the VPLS PW traffic dynamically over BVI interface.

Integrated routing and bridging (IRB) enables you to route the packets received from a host on a bridge group and a routed interface using a Bridge-Group Virtual Interface (BVI). The BVI is a virtual interface configured on the router which acts as a gateway routed interface towards the core network.

For more information about this feature, see the *Configure Multipoint Layer 2 Services* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Supported Software Features for N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS

Following are the features supported on Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants.

ITU-T Y.1564

Y.1564 or Ethernet Service Activation (or performance test methodology) is a testing procedure which tests service turn-up, installation and troubleshooting of Ethernet-based services.

Y.1564 allows simultaneous testing of multiple Ethernet services and measures. It validates the different service level agreements (SLAs) to ensure the service meets guaranteed performance settings in a controlled test time. It helps to ensure all the services carried by the network meet the SLA objectives at the maximum committed rate proving that under maximum load, the network devices and paths can support the traffic as designed, even under stress.

See *System Management Configuration Guide for Cisco NCS 540 Series Routers*.

Supported Software Features for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D and N540X-16Z4G8Q2C-A/D

Following are the features supported on Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D and N540X-16Z4G8Q2C-A/D variants.

Global Navigation Satellite System

IOS XR 540 Router now uses a satellite receiver, also called the Global Navigation Satellite System (GNSS), as the new timing interface. GNSS capability simplifies network synchronization planning, provides flexibility and resilience in resolving network synchronization issues in the hierarchical network.

For more information see chapter, Global Navigation Satellite System in the Network Synchronization Configuration Guide, for Cisco NCS 540 Series Routers.

PTP Profiles

PTP allows for separate profiles to be defined in order to adapt itself for use in different scenarios. A profile is a specific selection of PTP configuration options that are selected to meet the requirements of a particular application.

For more information see chapter, Understanding PTP in the Network Synchronization Configuration Guide, for Cisco NCS 540 Series Routers.

SR-TE MPLS Label Imposition Enhancement

The SR-TE MPLS Label Imposition Enhancement feature increases the maximum label imposition capabilities of the platform based on ASIC packet recirculation. This enhancement is enabled and disabled dynamically, as the label count changes. For example, if a path requires only 3 MPLS transport labels, the MPLS Label Imposition Enhancement feature is not enabled. You can disable labeled services for SR-TE policies. The label switching database (LSD) needs to know if labeled services are disabled on top of an SR-TE policy to perform proper label stack splitting.

For more information see chapter, Configure SR-TE Policies in the Segment Routing Configuration Guide, for Cisco NCS 540 Series Routers.

Y.1731 SLM Sessions Scale Support

Starting Cisco IOS XR Release 7.1.1, Y.1731 SLM sessions scale is supported on the following variants on the NCS 540 routers.

- N540-28Z4C-SYS-A
- N540-28Z4C-SYS-D
- N540X-16Z4G8Q2C-A
- N540X-16Z4G8Q2C-D
- N540-12Z20G-SYS-A
- N540-12Z20G-SYS-D
- N540X-12Z16G-SYS-A
- N540X-12Z16G-SYS-D

SLM is supported on all transport interfaces such as physical interfaces, bundle interfaces, Layer2 subinterfaces, pseudowire head-end interfaces or attachment circuits and Up and Down MEPs.

For more information, see *Synthetic Loss Measurement* in the *Interface and Hardware Component Configuration Guide for Cisco NCS 540 Series Routers*.

Supported Hardware Features

Effective Cisco IOS XR Release 7.1.1, the NCS 540 series routers support the DWDM-SFP10G-C-S optic.

For more information, see the [Cisco NCS 540 Router Hardware Installation Guide](#).

Behavior Change Introduced in this release

Deprecated Commands

From this release onwards the **lACP period short receive** and **lACP period short transmit** commands are deprecated.

You can now configure LACP receive and transmit time in a single CLI. Use the **lACP period <time in milliseconds>** command in the interface config mode.

You must first enable Cisco extension feature before configuring **lACP period** command. Use the **lACP cisco enable** command in the bundle interface mode. In the absence of Cisco extension feature, even if you have configured a **lACP period** the members transmits at a standard time of 1 second.

For more information, see *Link Bundling Commands* in the *Interface and Hardware Component Command Reference for Cisco NCS 5500 and NCS 540 and NCS 560 Series Routers*

H-QoS with G8032

You can configure HQoS on an AC interface that is part of the G.8032 ring. However, this functionality has a limitation on the G.8032 convergence. The convergence depends on the number of AC interfaces used in a G.8032 ring. This limitation is applicable when the HQOS mode is enabled at the system level or at the G.8032 AC level.

For more information, see the *Configure Point-to-Point Layer 2 Services* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 540 Series Routers*.

Restrictions and Limitations on the Cisco NCS 540 Series Router

The following restrictions are applicable only to Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants.

- In the Cisco IOS XR Release 7.1.1, the Packet IO feature is not supported on bundle interfaces.
- The **show inventory** and the **show diagnostic** commands do not display the fan serial number.
- The interface ports 0/0/0/24 to 0/0/0/31 do not support 1G Copper SFPs.
- Remove the speed settings on the 1G Copper optics when 10M/100M is configured and replaced with 1G SFP optics.
- The **hw-module profile mfib statistics** command is not supported.

Caveats

This section describes open and resolved severity 1 and 2 caveats and select severity 3 caveats:

- The “Open Caveats” sections list open caveats that apply to the current release and may apply to previous releases. A caveat that is open for a prior release and is still unresolved applies to all future releases until it is resolved.
- The “Resolved Caveats” sections list caveats resolved in a specific release, but open in previous releases.

The bug IDs are sorted alphanumerically.



Note The Caveats section includes the bug ID and a short description of the bug. For details on the symptoms, conditions, and workaround for a specific caveat you must use the Bug Search Tool.

Cisco IOS XR Caveats Release 7.1.1

Following caveat is applicable to Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants.

Bug ID	Headline
CSCvs21179	25G interface taking longer time to come up after unshut and Multiple RX_FAULT logs are seen

Following caveat is applicable to Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, and N540X-16Z4G8Q2C-A/D variants.

Bug ID	Headline
CSCvs68497	NCS540L: Continuous optics_driver crash seen after downgrading to 701 from 711

Supported Packages and System Requirements

For more information on system upgrade and package installation process, see [Perform System Upgrade and Install Feature Packages](#).

For a complete list of supported optics, hardware and ordering information see [Cisco Network Convergence System 540 Medium Density Routers Data Sheet](#) and [Cisco Network Convergence System 540 Small Density Router Data Sheet](#).

To install the Cisco NCS 540 Series Routers, see [Cisco NCS 540 Router Hardware Installation Guide](#).

Release 7.1.1 Packages for Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS Variants

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

Table 1: Release 7.1.1 Packages for Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS Variants

Composite Package		
Feature Set	Filename	Description
Cisco IOS XR IP Unicast Routing Core Bundle	ncs540-mini-x-7.1.1.iso	Contains the following base image content: <ul style="list-style-type: none"> • Host operating system • System Admin boot image • IOS XR boot image • BGP packages
Individually-Installable Optional Packages		
Feature Set	Filename	Description
Cisco IOS XR Manageability Package	ncs540-mgbl-1.0.0.0-r711.x86_64.rpm	Extensible Markup Language (XML) Parser, Telemetry, Netconf, gRPC and HTTP server packages.
Cisco IOS XR MPLS Package	ncs540-mpls-1.0.0.0-r711.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r711.x86_64.rpm	MPLS and MPLS Traffic Engineering (MPLS-TE) RPM.
Cisco IOS XR Security Package	ncs540-k9sec-1.0.0.0-r711.x86_64.rpm	Support for Encryption, Decryption, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI)
Cisco IOS XR ISIS package	ncs540-isis-1.0.0.0-r711.x86_64.rpm	Support ISIS
Cisco IOS XR OSPF package	ncs540-ospf-1.0.0.0-r711.x86_64.rpm	Support OSPF

Lawful Intercept (LI) Package	ncs540-li-1.0.0.0-r711.x86_64.rpm	Includes LI software images
Multicast Package	ncs540-mcast-1.0.0.0-r711.x86_64.rpm	Support Multicast
USB Boot Package	ncs540-usb_boot-7.1.1.zip	Supports USB

Release 7.1.1 Packages for Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, and N540X-16Z4G8Q2C-A/D Variants

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

Table 2: Release 7.1.1 Packages for Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, and N540X-16Z4G8Q2C-A/D Variants

Composite Package		
Feature Set	Filename	Description
Cisco IOS XR Bundle	ncs540l-x64-7.1.1.iso	<p>Contains the following base image content:</p> <ul style="list-style-type: none"> • Host operating system • System Admin boot image • IOS XR boot image <p>The ISO image also includes the following optional packages:</p> <ul style="list-style-type: none"> • BGP • Ipsla • IS-IS • Ldp • Mcast • Mpls-oam • ncs540l-mcast • ncs540l-netflow • Netflow • OSPF • Perfmgmt • Track
Individually Installable Optional Packages		
Feature Set	Filename	Description
USB Boot Package	ncs540l-usb_boot-7.1.1.zip	Supports USB

Optional Packages

Optional packages may be installed for CDP and Telnet.

Determine Software Version

Log in to the router and enter the **show version** command on the Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants:

```
RP/0/RP0/CPU0:ROUTER#show version
Cisco IOS XR Software, Version 7.1.1
Copyright (c) 2013-2020 by Cisco Systems, Inc.
```

```
Build Information:
Built By      : deenayak
Built On     : Mon Jan 27 01:37:09 PST 2020
Built Host   : iox-lnx-074
Workspace    : /auto/srcarchive15/prod/7.1.1/ncs540/ws
Version     : 7.1.1
Location    : /opt/cisco/XR/packages/
Label       : 7.1.1
```

```
cisco NCS-540 () processor
System uptime is 12 hours 46 minutes
```

Log in to the router and enter the show version command on the Cisco N540-28Z4C-SYS-A/D and N540X-16Z4G8Q2C-A/D variants:

```
RP/0/RP0/CPU0:ROUTER#show version
Cisco IOS XR Software, Version 7.1.1 LNT
Copyright (c) 2013-2020 by Cisco Systems, Inc.
```

```
Build Information:
Built By      : deenayak
Built On     : Mon Jan 27 08:57:08 UTC 2020
Build Host   : iox-lnx-075
Workspace    : /auto/srcarchive15/prod/7.1.1/ncs5401/ws
Version     : 7.1.1
Label       : 7.1.1
```

```
cisco NCS540L (C3708 @ 1.70GHz)
System uptime is 12 hours, 9 minutes
```

Log in to the router and enter the show version command on the Cisco N540-12Z20G-SYS-A/D and N540X-12Z16G-SYS-A/D variants:

```
RP/0/RP0/CPU0:ROUTER#show version
Cisco IOS XR Software, Version 7.1.1 LNT
Copyright (c) 2013-2020 by Cisco Systems, Inc.
```

```
Build Information:
Built By      : deenayak
Built On     : Mon Jan 27 08:57:08 UTC 2020
Build Host   : iox-lnx-075
Workspace    : /auto/srcarchive15/prod/7.1.1/ncs5401/ws
Version     : 7.1.1
Label       : 7.1.1
```

```
cisco NCS540L (C3508 @ 1.60GHz)
System uptime is 12 hours, 9 minutes
```

Determine Firmware Support

Use the show command in EXEC 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.

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants:

```
RP/0/RP0/CPU0:ROUTER#show hw-module fpd
```

Location	Card type	HWver	FPD device	FPD Versions		
				ATR Status	Running	Programd
0/RP0	N540-24Z8Q2C-M	1.0	MB-MIFPGA	CURRENT	0.05	0.05
0/RP0	N540-24Z8Q2C-M	1.0	Bootloader	CURRENT	1.13	1.13
0/RP0	N540-24Z8Q2C-M	1.0	CPU-IOFPGA	CURRENT	0.07	0.07
0/RP0	N540-24Z8Q2C-M	1.0	MB-IOFPGA	CURRENT	0.20	0.20

```
RP/0/RP0/CPU0:ROUTER#show fpd package
```

```
=====
```

Field Programmable Device Package						
Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver	
N540-24Z8Q2C-M	Bootloader (A)	YES	1.13	1.13	0.0	
	CPU-IOFPGA (A)	YES	0.07	0.07	0.0	
	MB-IOFPGA (A)	YES	0.20	0.20	0.0	
	MB-MIFPGA	YES	0.05	0.05	0.0	
	SATA (A)	NO	5.00	5.00	0.0	
N540-ACC-SYS	Bootloader (A)	YES	1.13	1.13	0.0	
	CPU-IOFPGA (A)	YES	0.07	0.07	0.0	
	MB-IOFPGA (A)	YES	0.20	0.20	0.0	
	MB-MIFPGA	YES	0.05	0.05	0.0	
	SATA (A)	NO	5.00	5.00	0.0	
N540-X-24Z8Q2C-M	Bootloader (A)	YES	1.13	1.13	0.0	
	CPU-IOFPGA (A)	YES	0.07	0.07	0.0	
	MB-IOFPGA (A)	YES	0.20	0.20	0.0	
	MB-MIFPGA	YES	0.05	0.05	0.0	
	SATA (A)	NO	5.00	5.00	0.0	
N540X-ACC-SYS	Bootloader (A)	YES	1.13	1.13	0.0	
	CPU-IOFPGA (A)	YES	0.07	0.07	0.0	
	MB-IOFPGA (A)	YES	0.20	0.20	0.0	
	MB-MIFPGA	YES	0.05	0.05	0.0	
	SATA (A)	NO	5.00	5.00	0.0	

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D and N540X-16Z4G8Q2C-A/D variants:

```
RP/0/RP0/CPU0:ROUTER#show hw-module fpd
Attribute codes: B golden, P protect, S secure
```

Location	Card type	HWver	FPD device	FPD Versions		
				ATR Status	Running	Programd
0/RP0/CPU0	N540X-16Z4G8Q2C-A	1.0	IoFpga	CURRENT	2.03	2.03
0/RP0/CPU0	N540X-16Z4G8Q2C-A	1.0	IoFpgaGolden	B NEED UPGD		1.31
0/RP0/CPU0	N540X-16Z4G8Q2C-A	1.0	Primary-BIOS	S CURRENT	1.14	1.14
0/RP0/CPU0	N540X-16Z4G8Q2C-A	1.0	StdbyFpga	S CURRENT	0.40	0.40
0/RP0/CPU0	N540X-16Z4G8Q2C-A	1.0	StdbyFpgaGolden	BS NEED UPGD		0.37

```

0/RP0/CPU0 N540X-16Z4G8Q2C-A 1.0 TamFw S CURRENT 4.11 4.11
0/RP0/CPU0 N540X-16Z4G8Q2C-A 1.0 TamFwGolden BS CURRENT 4.11
RP/0/RP0/CPU0:ROUTER#show fpd package

```

```

=====
Field Programmable Device Package
=====

```

Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
N540-12Z20G-SYS-A	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-12Z20G-SYS-D	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-28Z4C-SYS-A	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-28Z4C-SYS-D	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540X-12Z16G-SYS-A	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540X-12Z16G-SYS-D	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540X-16Z4G8Q2C-A	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0

	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0

N540X-16Z4G8Q2C-D	IoFpga	YES	2.03	2.03	0.0
	IoFpgaGolden	YES	2.03	2.03	0.0
	Primary-BIOS	YES	1.14	1.14	0.0
	StdyFpga	YES	0.40	0.40	0.0
	StdyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0

Other Important Information

MLDP LFA FRR feature is not supported.

Supported Transceiver Modules

For more information on the supported transceiver modules, see [Transceiver Module Group \(TMG\) Compatibility Matrix](#). In the **Begin your Search** search box, enter the keyword NCS540 and click **Enter**.

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.

The upgrade document for Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants ([NCS540-docs-7.1.1.tar](#)) is available along with the software images.

Supported MIBs

The Cisco NCS 5500 MIB support list is also applicable to the Cisco NCS 540 Series Routers. For the list of supported MIBs, see the [Cisco NCS5500 MIB Support List](#).

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on standards documentation, or language that is used by a referenced third-party product.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/c/en/us/about/legal/trademarks.html>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

© 2020 Cisco Systems, Inc. All rights reserved.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA 95134-1706
USA

Asia Pacific Headquarters
CiscoSystems(USA)Pte.Ltd.
Singapore

Europe Headquarters
CiscoSystemsInternationalBV
Amsterdam,TheNetherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.