



Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 7.8.1

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What's New in Cisco IOS XR Release 7.8.1

Cisco IOS XR Release 7.8.1 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 [Guidelines for Cisco IOS XR Software](#).

New in Documentation

This release introduces rich and intuitive ways for you to access YANG data models supported in the Cisco IOS XR software.

Product	Description
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 Navigator	We have launched the tool as an easy reference to view the Data Models (Native, Unified, OpenConfig) supported in IOS XR platforms and releases. You can explore the data model definitions, locate a specific model, and view the containers and their respective lists, leaves, leaf lists, Xpaths, and much more. As we continue to enhance the tool, we would love to hear your feedback. You are welcome to drop us a note here .
Use Case-based Documentation at Learning Labs	You can now quickly explore and experiment on use-cases without setting up any hardware resources with the new Interactive documentation for Cisco 8000 routers on DevNet Learning Labs. Powered by Jupyter, the automated code blocks within the documentation enable you to configure the desired functionality on the routers and retrieve real-time output swiftly. Check out the new interactive documentation here: <ul style="list-style-type: none">• End to end 3-stage CLOS Networks for SONiC• Use cases for QoS and Model-driven Telemetry

Software Features Enhanced and Introduced

To learn about features introduced in other Cisco IOS XR releases, select the release from the [Documentation Landing Page](#).

The following features are supported on all the NCS 540 variants.

Feature	Description
IP Addresses and Services	
Support for HSRP version 2 Extended Group Range	<p>You can now use HSRP version 2, which has an expanded group IDs up to 4095 with 255 number of (IPv4 and IPv6 combined) HSRP sessions.</p> <p>Now, the inter operation with the other routers is supported.</p> <p>Earlier, you could configure only up to 255 group IDs with 255 number of (IPv4 and IPv6 combined) HSRP sessions.</p>
L2VPN and Ethernet Services	
Increased VLAN-IDs per VLAN list	<p>From this release, you can configure up to 64 VLAN-IDs per VLAN list. Previously, the number of VLAN-IDs supported were only up to 9, per VLAN list.</p> <p>The enhanced VLAN-IDs help to add more number of customers in an Ethernet network.</p> <p>Use the encapsulation list-extended dot1q command, to configure up to 64 VLAN-IDs.</p>
Storm Control Configuration for Subinterfaces	<p>Storm control helps prevent LAN ports from being disrupted by a broadcast, multicast, or unicast traffic storm.</p> <p>You can now configure different storm control rates for each subinterface on a physical port. This will give you control at a granular level and prevent flooding of excess traffic at the subinterface level.</p> <p>In earlier releases, storm control could be configured only at the physical port level or only on one subinterface under a main interface.</p> <p>This feature modifies the hw-module storm-control-combine-policer-bw enable command to enable per subinterface configuration support for storm control.</p>
Single Tagged VLAN Range Support for Double Tagged Frames	<p>From this release, L2 subinterface configuration with single tagged VLAN range can be matched with the double tagged frames. Previously, the packet matching was done only with single VLAN ID and the double tagged packets were dropped.</p> <p>With single tagged VLAN range support for double tagged frames, the traffic can reach the VLAN destination safely.</p>

Feature	Description
MAC Address Limit Configuration for Static Addresses	<p>You can now configure the MAC address limit for bridge domains to learn only static MAC addresses and to drop traffic from unknown sources.</p> <p>Malicious attackers can spoof a Layer 2 MAC address to change dynamic entries in the MAC table. However, with this functionality enabling you to configure the MAC address limit for bridge domains to learn only static MAC addresses, the dynamic MAC addresses are blocked. In addition, a static entry always overrules dynamic entries. This functionality thus prevents the interception of your data by unauthorized users and improves your network security.</p>
Modular QoS	
Support for displaying the QoS hardware module profiles	It is now possible to view the supported QoS hardware module profile names on the router by using the show qos hw-module-status command. You can now identify if the profile is configured on the router, and whether it requires a reboot or not.
Network Synchronization	
PTP Holdover Traceability flag override for T-GM and Virtual-port/APTS modes	This feature extends the PTP holdover traceability suppression functionality to T-GM and Virtual-port/APTS modes.
Netflow	
IPFIX Enablement for SRv6 and Services over SRv6 Core	<p>This feature provides improved information about IP traffic flows, through the introduction of sub-menus to two commands.</p> <p>The record ipv6 command is modified to support a new optional keyword, srv6.</p> <p>A new subtype for ipv4 record and ipv6 record is introduced for I2-I3 records.</p> <p>For more information, see:</p> <ul style="list-style-type: none"> • record ipv6 • show flow monitor-map
Routing	
Configure flex-algo IS-IS maximum-path	<p>This feature introduces the new algorithm 0 command and provides information on the updated flex-algo command.</p> <p>These updates enable individual granularity for flex-algo and regular SPF algorithms.</p>
Segment Routing	

Feature	Description
EVPN VPWS and EVPN ELAN ODN over SRv6-TE policy	<p>This feature enables support for On-Demand Next-Hop over SRv6-TE policy.</p> <p>When SRv6-TE is configured, the ODN policy uses SRv6-TE tunnels, thus improving traffic performance.</p>
Configure SR-TE Head-end Explicit Path with TI-LFA	<p>An SRv6 segment using an IPv6 prefix enables validation of all SIDs in the segment list. Segments in the topology database are validated, providing for improved traffic flow.</p>
Circuit-Style SR-TE Policies	<p>This solution allows Segment Routing to meet the requirements of a connection-oriented transport network, which was historically delivered over circuit-switched SONET/SDH networks.</p> <p>Circuit-style SR-TE policies allow a common network infrastructure to be used for both connection-oriented services and classic IP-based transport. This eliminates the need for multiple parallel networks, which greatly reduces both capital expenditures (CapEx) and operating expenditures (OpEx).</p>
Path Tracing Midpoint	<p>Path Tracing (PT) provides a log or record of the packet path as a sequence of interface IDs along with its time stamp. In Path Tracing, a node can behave as a source, midpoint, or sink node.</p> <p>The Path Tracing Midpoint feature is implemented in this release which measures the hop-by-hop delay, traces the path in the network and collects egress interface load information and interface Id, and stores them in the Midpoint Compressed Data (MCD) section of Hop-by-Hop Path Tracing (HbH-PT) header.</p> <p>This feature provides visibility to the Path Tracing Midpoint node that handles IPv6 transit in Path Tracing and full characterization of the packet delivery path. It provides real time information and the current status of the network.</p> <p>This feature introduces the following command:</p> <ul style="list-style-type: none"> • performance-measurement interface
SR IS-IS Enhancements: max-metric and data plane updates	<p>The new anomaly optional keyword is introduced to affinity flex-algo command. This keyword helps to advertise the flex-algo affinity when the performance measurement signals a link anomaly, such as an excessive delay on a link. You could use the anomaly option to exclude the link from flex-algo path computations.</p> <p>affinity flex-algo</p>
Manual SRv6-TE Policies with Explicit Paths	<p>This feature is now supported on Cisco NCS 540 routers. To enable the native mode, use the hw-module profile npu native-mode-enable command in the configuration mode. Ensure that you reload the router after configuring the native mode.</p>

Feature	Description
IS-IS Unreachable Prefix Announcement	<p>The Unreachable Prefix Announcement (UPA) notifies the loss of prefix reachability between areas or domains, for prefixes that are covered by the summary address range during inter-area or inter-domain summarization.</p> <p>This feature helps in identifying the routers that are facing prefix unreachability issues faster and fix it.</p> <p>The new commands introduced for this feature are:</p> <ul style="list-style-type: none"> • summary-prefix • prefix-unreachable
Full-Replace Migration to SRv6 Micro-SID	<p>This feature enables migration of existing SRv6 SID format1 to SRv6 Micro-SIDs (f3216) formats.</p> <p>Earlier, only one format was supported at a time, and you had to choose either format1 or Micro-SID format for the deployment of services. Migration from Full-length SIDs to SRv6 Micro-SIDs was not possible.</p> <p>The hw-module profile segment-routing srv6 mode base-and-micro-segment-f3216 subcommand is introduced under hw-module profile segment-routing srv6 mode.</p>
System Management	
Smart Licensing Per Port for Segment Routing-Traffic Engineering	<p>Cisco Smart Licensing is a cloud-based, flexible software licensing model that enables you to activate and manage Cisco software licenses across your organization. Under the flexible, automated software licensing model, we have Advantage licenses which are required on top of Essential Licenses for ports that use advanced features like L3VPN.</p> <p>This release allows you to allocate the Advantage licenses to the Segment Routing Traffic Engineering (SR-TE) based on the active ports under MPLS or SRV6. Before this release, when you configured SR-TE, all the ports used to consume Advantage licenses. This allows you to manage advantage licenses for SR-TE.</p>

The following features are supported only on N540-24Q8L2DD-SYS variant.

Feature	Feature
System Management	
Y.1564 Service Activation Test in Native Mode	<p>Y.1564 - Ethernet Service Activation Test (or performance test methodology) is a testing procedure which tests service turn-up, installation, and troubleshooting of Ethernet-based services. This test methodology was created to have a standard way of measuring Ethernet-based services in the industry.</p> <p>This testing procedure is now supported on Cisco N540-24Q8L2DD-SYS routers that are installed and operate in the Native mode.</p>
Segment Routing	

Feature	Feature
Automated Steering of L3 BGP-based services	This feature is now supported on Cisco NCS 540 routers. To enable the native mode, use the hw-module profile npu native-mode-enable command in the configuration mode. Ensure that you reload the router after configuring the native mode.

The following features are supported on all the NCS 540 variants, but not supported on N540-ACC-SYS, N540X-ACC-SYS, and N540-24Z8Q2C-SYS variants.

Feature	Feature
System Security	
Secure Boot Status	<p>You can now verify whether the router is securely booted up with an authentic Cisco software image. We have introduced a show command to verify the secure boot status of the router. If the software image was tampered with, then the secure boot fails, and the router does not boot up. Before this release, there was no provision on the router to verify the secure boot status.</p> <p>The feature introduces these:</p> <ul style="list-style-type: none"> • CLI: show platform security integrity log secure-boot status command. • YANG Data Model: <code>Cisco-IOS-XR-attestation-agent-oper.yang</code> Cisco native model (see Github) <p>The feature is supported only on the following Cisco NCS 540 router variants:</p> <ul style="list-style-type: none"> • N540-28Z4C-SYS-A/D • N540X-16Z4G8Q2C-A/D • N540X-16Z8Q2C-D • N540-12Z20G-SYS-A/D • N540X-12Z16G-SYS-A/D • N540X-6Z18G-SYS-A/D • N540X-8Z16G-SYS-A/D • N540X-4Z14G2Q-A/D • N540-6Z18G-SYS-A/D • N540-6Z14S-SYS-D
Programmability	

Feature	Feature
gNOI System Service Revision 1.0.0	<p>With the gRPC Network Operations Interface (gNOI) Revision 1.0.0, you can:</p> <ul style="list-style-type: none"> • Cancel a pending reboot request using the <code>CancelReboot</code> RPC • Terminate a process using the <code>KillProcess</code> RPC <p>You can access the gNOI system RPC messages from the Github repository.</p>

The following features are supported on N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, N540X-6Z18G-SYS-A/D, N540X-8Z16G-SYS-A/D, and N540X-4Z14G2Q-A/D variants.

Feature	Description
System Security	
Selective Authentication Methods for SSH Server	<p>You now have the flexibility to choose the preferred SSH server authentication methods on the router. These methods include password authentication, keyboard-interactive authentication, and public-key authentication. This feature allows you to selectively disable these authentication methods. By allowing the SSH clients to connect to the server only through these permitted authentication methods, this functionality provides additional security for router access through SSH. Before this release, by default, the SSH server allowed all these authentication methods for establishing SSH connections.</p> <p>The feature introduces these changes:</p> <ul style="list-style-type: none"> • CLI: New <code>disable auth-methods</code> command • YANG Data Model: New XPath for <code>Cisco-IOS-XR-crypto-ssh-cfg.yang</code> Cisco native model (see GitHub)

Feature	Description
Reimage Protection for Routers	<p>By disallowing USB and PXE boots, this feature aims to prevent the reimage of stolen routers. Such an intervention ensures that attackers can't use the USB or PXE boot facility to erase the existing configuration and boot the stolen router with a fresh IOS Rx image for resale.</p> <p>This feature is supported on the following Cisco NCS 540 router variants:</p> <ul style="list-style-type: none"> • N540-28Z4C-SYS-A/D • N540X-16Z4G8Q2C-A/D • N540X-16Z8Q2C-D • N540-6Z14S-SYS-D • N540-12Z20G-SYS-A/D • N540X-12Z16G-SYS-A/D • N540X-6Z18G-SYS-A/D • N540X-8Z16G-SYS-A/D • N540X-4Z14G2Q-A/D • N540-6Z18G-SYS-A/D

The following feature is supported only on N540X-6Z18G-SYS-A/D router variants.

Feature	Description
Time Division Multiplexing (TDM)	
TDM2IP Smart SFP Optics is supported on N540X-6Z18G-SYS-A/D router variants	<p>TDM2IP Smart SFP Optics is supported on N540X-6Z18G-SYS-A/D router variants.</p> <p>The TPoP and CSoP Smart SFPs enable operators to migrate and integrate their TDM based transport network onto a single technology packet network for both data and TDM transport, which helps to streamline operations and to reduce operational expenditures.</p>

The following feature is supported on N540X-6Z18G-SYS-A/D, N540X-8Z16G-SYS-A/D, N540X-4Z14G2Q-A/D, N540-6Z14S-SYS-D, and N540-6Z18G-SYS-A/D variants.

Feature	Description
System Security	

Feature	Description
IMA Enforcement	<p>We now use Integrity Measurement Architecture (IMA) to provide a higher level of trust and runtime security for the routers. With IMA appraisal, you can detect modifications to a file or executable within the router. These modifications could be accidental or malicious, carried out remotely or locally. In addition to logging an integrity violation, the IMA policy also enforces an appraisal by blocking any operation (open or run) for a compromised executable.</p> <p>IMA Enforcement is now introduced on the following Cisco NCS 540 router variants:</p> <ul style="list-style-type: none"> • N540X-6Z18G-SYS-A/D • N540X-8Z16G-SYS-A/D • N540X-4Z14G2Q-A/D • N540-6Z18G-SYS-A/D • N540-6Z14S-SYS-D

The following feature is supported only on N540X-12Z16G-SYS-A/D variants.

Feature	Description
System Security	
IP Security (IPSec) for Management Traffic	<p>You can now use IP Security (IPSec), a protocol suite that authenticates and encrypts packets of data to provide secure communication over an unprotected network for all management traffic flows between routers.</p> <p>With IPSec, management traffic data is sent across a public network without observation, modification, or spoofing.</p> <p>This feature introduces the following commands:</p> <ul style="list-style-type: none"> • ikev2 policy • ikev2 profile • ikev2 proposal • ipsec profile • ipsec transform-set • keyring • show ikev2 session detail • show ikev2 session • show ikev2 summary • show ipsec sa <p>This feature modifies the tunnel mode command.</p>

Hardware Introduced

Hardware	Description
Optics	<p>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.</p> <p>This release introduces the following new optics:</p> <ul style="list-style-type: none"> • Cisco Quad Small Form-Factor Pluggable Double Density (QSFP-DD) <ul style="list-style-type: none"> • QDD-2X100-CWDM4-S • QDD-2X100-LR4-S • QDD-2X100-SR4-S • QDD-4X100G-FR-S • QDD-400-AOCxM • QDD-400G-LR4-S • QDD-4X100G-LR-S • Cisco 10GBASE SFP+ Module <ul style="list-style-type: none"> • ONS-SI+-10G-ZR
N540-6Z18G-SYS-A/D Routers	<p>The new N540-6Z18G-SYS-A/D routers are fixed port, one rack unit form-factor, non-conformal coated routers, with security, and QoS features that revolutionize sub-100G routing. An IOS-XR based router, this router extends as Network Interface Device (NID)/Customer Premises Equipment (CPE), with the smallest footprint, ever.</p> <p>The N540-6Z18G-SYS-A/D routers support the following ports:</p> <ul style="list-style-type: none"> • 18 x 1G SFP+ ports • 6 x 1G/10G SFP+ ports

Restrictions and Limitations on the Cisco NCS 540 Series Router

- Fabric multicast queue stats are not supported in N540X-8Z16G-SYS-A/D, N540X-6Z18G-SYS-A/D, and N540X-4Z14G2Q-A/D variants.
- Unlabeled BGP PIC EDGE for global prefixes is not supported.

- The **show inventory** and the **show diagnostic** commands do not display the fan serial number for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, and N540X-12Z16G-SYS-A/D variants.
- The interface ports 0/0/0/24 to 0/0/0/31 do not support 1G Copper SFPs on N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- The interface ports 0/0/0/20 to 0/0/0/27 do not support 1G Copper SFPs on N540X-16Z4G8Q2C-A and N540X-16Z4G8Q2C-D variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- 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

Table 1: Cisco IOS XR NCS 540 Routers Specific Bugs

Bug ID	Headline
CSCwd64936	ADM-MBConfig version reverts back to 2.01 from 2.02 after reload

IOS XR Base Images and Optional Packages

For more information on system setup and software installation process, see [System Setup and Software Installation Guide for Cisco NCS 540 Series Routers](#).

For general and ordering information see:

- [Cisco Network Convergence System 540 Fronthaul Routers Data Sheet](#)
- [Cisco Network Convergence System 540 Large Density Router Data Sheet](#)
- [Cisco Network Convergence System 540 Medium Density Routers Data Sheet](#)
- [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 7.8.1 Software

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

- The first table lists the supported software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants.
- The second table lists the supported software for N540-24Q8L2DD-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 variants.

- The third table lists the supported software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-6Z18G-SYS-A/D variants.

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

Table 2: Release 7.8.1 Software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Base Image	Filename
IOS XR Base Image	ncs540-mini-x-7.8.1.iso
USB Boot Package	ncs540-usb_boot-7.8.1.zip
Optional Packages not included in the base image	
Package	Filename
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r781.x86_64.rpm
IOS XR MPLS	ncs540-mpls-1.0.0.0-r781.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r781.x86_64.rpm
IOS XR Security	ncs540-k9sec-1.0.0.0-r781.x86_64.rpm
IOS XR ISIS	ncs540-isis-1.0.0.0-r781.x86_64.rpm
IOS XR OSPF	ncs540-ospf-1.0.0.0-r781.x86_64.rpm
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r781.x86_64.rpm
IOS XR Multicast	ncs540-mcast-1.0.0.0-r781.x86_64.rpm
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r781.x86_64.rpm
IOS XR LI-CTRL	ncs540-lictrl-1.0.0.0-r781.x86_64.rpm

Table 3: Release 7.8.1 Software for N540-24Q8L2DD-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

Base Image	Filename
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IOS XR Base Image	ncs540l-x64-7.8.1.iso
USB Boot Package	ncs540l-usb_boot-7.8.1.zip
Optional Packages not included in the base image	
Package	Filename
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-7.8.1.tar
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-7.8.1.tar
IOS XR CDP (xr-cdp)	NCS540l-iosxr-7.8.1.tar
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.7.8.1.tar
IOS XR RIP (xr-rip)	NCS540l-iosxr-7.8.1.tar

Table 4: Release 7.8.1 Software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-6Z18G-SYS-A/D

Base Image	Filename
IOS XR Base Image	ncs540l-aarch64-7.8.1.iso
USB Boot Package	ncs540l-aarch64-usb_boot-7.8.1.zip
Optional Packages not included in the base image	
Package	Filename
IOS XR Telnet (xr-telnet)	NCS540l-aarch64-iosxr-optional-rpms-7.8.1.tar
IOS XR EIGRP (xr-eigrp)	NCS540l-aarch64-iosxr-optional-rpms-7.8.1.tar

IOS XR CDP (xr-cdp)	NCS540l-aarch64-iosxr-optional-rpms-7.8.1.tar
IOS XR k9sec (xr-k9sec)	NCS540l-aarch64-k9sec-rpms.7.8.1.tar
IOS XR RIP (xr-rip)	NCS540l-aarch64-iosxr-optional-rpms-7.8.1.tar

Determine Software Version

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

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 7.8.1
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : ingunawa
Built On      : Wed Nov 30 08:33:36 PST 2022
Built Host    : iox-lnx-066
Workspace     : /auto/srcarchive13/prod/7.8.1/ncs540/ws
Version      : 7.8.1
Location     : /opt/cisco/XR/packages/
Label        : 7.8.1
```

```
cisco NCS-540 () processor
System uptime is 3 hours 31 minutes
```

Log in to the router and enter the **show version** command on the N540X-16Z4G8Q2C-A/D, N540-28Z4C-SYS-A/D, N540X-12Z16G-SYS-A/D, and N540-12Z20G-SYS-A/D variants:

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 7.8.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : ingunawa
Built On      : Wed Nov 30 13:00:28 UTC 2022
Built Host    : iox-lnx-069
Workspace     : /auto/srcarchive13/prod/7.8.1/ncs540l/ws
Version      : 7.8.1
Label        : 7.8.1
```

```
cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-28Z4C-SYS-A (C3708 @ 1.70GHz) processor with 8GB of memory
ncs540l uptime is 1 hour, 6 minutes
Cisco NCS 540 Series Fixed Router 28x1/10G, 4x100G, AC Chassis
```

Log in to the router and enter the **show version** command on the N540X-8Z16G-SYS-A/D, and N540X-6Z18G-SYS-A/D variants:

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.8.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : ingunawa
Built On      : Wed Nov 30 13:00:28 UTC 2022
Build Host    : iox-lnx-077
Workspace     : /auto/srcarchive13/prod/7.8.1/ncs540l-aarch64/ws
Version      : 7.8.1
Label        : 7.8.1
```

```
cisco NCS540L
cisco N540-6Z14S-SYS-D processor with 8GB of memory
ncs540l-aarch64 uptime is 19 minutes
Cisco NCS 540 Series Fixed Router 10x1G, 4xCu, 6x1/10G, DC
```

Log in to the router and enter the **show version** command on the N540-24Q8L2DD-SYS variant:

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.8.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

```
Build Information:
  Built By      : ingunawa
  Built On     : Wed Nov 30 13:00:28 UTC 2022
  Build Host   : iox-lnx-069
  Workspace    : /auto/srcarchive13/prod/7.8.1/ncs540l/ws
  Version     : 7.8.1
  Label       : 7.8.1
```

```
cisco NCS540L (D1519 @ 1.50GHz)
cisco N540-24Q8L2DD-SYS (D1519 @ 1.50GHz) processor with 16GB of memory
N540-24Q8L2DD-SYS uptime is 5 minutes
Cisco NCS540 Series, Fixed Router 2x400G, 8x50G, 24x25G Chassis
```

Log in to the router and enter the **show version** command on the N540-FH-CSR-SYS variant:

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.8.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.
```

```
Build Information:
  Built By      : ingunawa
  Built On     : Wed Nov 30 13:00:28 UTC 2022
  Build Host   : iox-lnx-069
  Workspace    : /auto/srcarchive13/prod/7.8.1/ncs540l/ws
  Version     : 7.8.1
  Label       : 7.8.1
```

```
cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-FH-CSR-SYS (C3708 @ 1.70GHz) processor with 8GB of memory
ROUTER uptime is 17 minutes
Cisco NCS 540 FH with 8xCPRI+4xCPRI/10G+8x10G+6x25G+2x100G
```

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. The Golden FPDs with “NEED UPGD” can be ignored, the Golden FPDs are not upgradable.

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:



Note If the **Req Reload** field is mentioned as **Yes** in the output, then it indicates the need for a router reboot for the FPD's latest version to take effect.

```
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	1.16	1.16	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.26	0.26	0.0
	MB-MIFPGA	YES	0.05	0.05	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1241.00	1241.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0
	SSFP_E1F_16	NO	13.01	13.01	0.0
	SSFP_E1F_17	NO	13.01	13.01	0.0
	SSFP_E1F_18	NO	13.01	13.01	0.0
	SSFP_E1F_19	NO	13.01	13.01	0.0
	SSFP_E1F_2	NO	13.01	13.01	0.0
	SSFP_E1F_20	NO	13.01	13.01	0.0
	SSFP_E1F_21	NO	13.01	13.01	0.0
	SSFP_E1F_22	NO	13.01	13.01	0.0
	SSFP_E1F_23	NO	13.01	13.01	0.0
	SSFP_E1F_24	NO	13.01	13.01	0.0
	SSFP_E1F_25	NO	13.01	13.01	0.0
	SSFP_E1F_26	NO	13.01	13.01	0.0
	SSFP_E1F_27	NO	13.01	13.01	0.0
	SSFP_E1F_28	NO	13.01	13.01	0.0
	SSFP_E1F_29	NO	13.01	13.01	0.0
	SSFP_E1F_3	NO	13.01	13.01	0.0
	SSFP_E1F_30	NO	13.01	13.01	0.0
	SSFP_E1F_31	NO	13.01	13.01	0.0
	SSFP_E1F_4	NO	13.01	13.01	0.0
	SSFP_E1F_5	NO	13.01	13.01	0.0
	SSFP_E1F_6	NO	13.01	13.01	0.0
	SSFP_E1F_7	NO	13.01	13.01	0.0
	SSFP_E1F_8	NO	13.01	13.01	0.0
	SSFP_E1F_9	NO	13.01	13.01	0.0
	SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0	

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	SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_9	NO	12.01	12.01	0.0

N540-ACC-SYS	Bootloader (A)	YES	1.16	1.16	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.26	0.26	0.0
	MB-MIFPGA	YES	0.05	0.05	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1241.00	1241.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0
	SSFP_E1F_16	NO	13.01	13.01	0.0
	SSFP_E1F_17	NO	13.01	13.01	0.0
	SSFP_E1F_18	NO	13.01	13.01	0.0
	SSFP_E1F_19	NO	13.01	13.01	0.0
	SSFP_E1F_2	NO	13.01	13.01	0.0
	SSFP_E1F_20	NO	13.01	13.01	0.0
	SSFP_E1F_21	NO	13.01	13.01	0.0
	SSFP_E1F_22	NO	13.01	13.01	0.0
	SSFP_E1F_23	NO	13.01	13.01	0.0
	SSFP_E1F_24	NO	13.01	13.01	0.0
	SSFP_E1F_25	NO	13.01	13.01	0.0
	SSFP_E1F_26	NO	13.01	13.01	0.0
	SSFP_E1F_27	NO	13.01	13.01	0.0
	SSFP_E1F_28	NO	13.01	13.01	0.0
	SSFP_E1F_29	NO	13.01	13.01	0.0
	SSFP_E1F_3	NO	13.01	13.01	0.0
	SSFP_E1F_30	NO	13.01	13.01	0.0
	SSFP_E1F_31	NO	13.01	13.01	0.0
	SSFP_E1F_4	NO	13.01	13.01	0.0
	SSFP_E1F_5	NO	13.01	13.01	0.0
	SSFP_E1F_6	NO	13.01	13.01	0.0
	SSFP_E1F_7	NO	13.01	13.01	0.0
	SSFP_E1F_8	NO	13.01	13.01	0.0

	SSFP_E1F_9	NO	13.01	13.01	0.0
	SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_18	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_9	NO	12.01	12.01	0.0

N540-PWR400-A	LIT-PrimMCU-ACFW (A)	NO	0.04	0.04	0.0
	LIT-SecMCU-ACFW (A)	NO	0.07	0.07	0.0

N540-PWR400-D	LIT-PrimMCU-DCFW (A)	NO	0.04	0.04	0.0
	LIT-SecMCU-DCFW (A)	NO	0.06	0.06	0.0
	SDG-PrimMCU-DCFW (A)	NO	1.03	1.03	0.0
	SDG-SecMCU-DCFW (A)	NO	1.03	1.03	0.0

N540-X-24Z8Q2C-M	Bootloader (A)	YES	1.16	1.16	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.26	0.26	0.0
	MB-MIFPGA	YES	0.05	0.05	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1241.00	1241.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0

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SSFP_E1F_16	NO	13.01	13.01	0.0	
SSFP_E1F_17	NO	13.01	13.01	0.0	
SSFP_E1F_18	NO	13.01	13.01	0.0	
SSFP_E1F_19	NO	13.01	13.01	0.0	
SSFP_E1F_2	NO	13.01	13.01	0.0	
SSFP_E1F_20	NO	13.01	13.01	0.0	
SSFP_E1F_21	NO	13.01	13.01	0.0	
SSFP_E1F_22	NO	13.01	13.01	0.0	
SSFP_E1F_23	NO	13.01	13.01	0.0	
SSFP_E1F_24	NO	13.01	13.01	0.0	
SSFP_E1F_25	NO	13.01	13.01	0.0	
SSFP_E1F_26	NO	13.01	13.01	0.0	
SSFP_E1F_27	NO	13.01	13.01	0.0	
SSFP_E1F_28	NO	13.01	13.01	0.0	
SSFP_E1F_29	NO	13.01	13.01	0.0	
SSFP_E1F_3	NO	13.01	13.01	0.0	
SSFP_E1F_30	NO	13.01	13.01	0.0	
SSFP_E1F_31	NO	13.01	13.01	0.0	
SSFP_E1F_4	NO	13.01	13.01	0.0	
SSFP_E1F_5	NO	13.01	13.01	0.0	
SSFP_E1F_6	NO	13.01	13.01	0.0	
SSFP_E1F_7	NO	13.01	13.01	0.0	
SSFP_E1F_8	NO	13.01	13.01	0.0	
SSFP_E1F_9	NO	13.01	13.01	0.0	
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_26	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_31	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_4	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_5	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_6	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_7	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_8	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_9	NO	12.01	12.01	0.0	

N540X-ACC-SYS	Bootloader (A)	YES	1.16	1.16	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.26	0.26	0.0
	MB-MIFPGA	YES	0.05	0.05	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0

SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
SATA-M5100 (A)	NO	75.00	75.00	0.0
SATA-M600-MCT (A)	NO	5.00	5.00	0.0
SATA-M600-MU (A)	NO	6.00	6.00	0.0
SATA-Micron (A)	NO	1.00	1.00	0.0
SATA-SMART-128G (A)	NO	1241.00	1241.00	0.0
SSFP_E1F_0	NO	13.01	13.01	0.0
SSFP_E1F_1	NO	13.01	13.01	0.0
SSFP_E1F_10	NO	13.01	13.01	0.0
SSFP_E1F_11	NO	13.01	13.01	0.0
SSFP_E1F_12	NO	13.01	13.01	0.0
SSFP_E1F_13	NO	13.01	13.01	0.0
SSFP_E1F_14	NO	13.01	13.01	0.0
SSFP_E1F_15	NO	13.01	13.01	0.0
SSFP_E1F_16	NO	13.01	13.01	0.0
SSFP_E1F_17	NO	13.01	13.01	0.0
SSFP_E1F_18	NO	13.01	13.01	0.0
SSFP_E1F_19	NO	13.01	13.01	0.0
SSFP_E1F_2	NO	13.01	13.01	0.0
SSFP_E1F_20	NO	13.01	13.01	0.0
SSFP_E1F_21	NO	13.01	13.01	0.0
SSFP_E1F_22	NO	13.01	13.01	0.0
SSFP_E1F_23	NO	13.01	13.01	0.0
SSFP_E1F_24	NO	13.01	13.01	0.0
SSFP_E1F_25	NO	13.01	13.01	0.0
SSFP_E1F_26	NO	13.01	13.01	0.0
SSFP_E1F_27	NO	13.01	13.01	0.0
SSFP_E1F_28	NO	13.01	13.01	0.0
SSFP_E1F_29	NO	13.01	13.01	0.0
SSFP_E1F_3	NO	13.01	13.01	0.0
SSFP_E1F_30	NO	13.01	13.01	0.0
SSFP_E1F_31	NO	13.01	13.01	0.0
SSFP_E1F_4	NO	13.01	13.01	0.0
SSFP_E1F_5	NO	13.01	13.01	0.0
SSFP_E1F_6	NO	13.01	13.01	0.0
SSFP_E1F_7	NO	13.01	13.01	0.0
SSFP_E1F_8	NO	13.01	13.01	0.0
SSFP_E1F_9	NO	13.01	13.01	0.0
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0

Determine Firmware Support

```

SSFP_OC3_STM1_31      NO      12.01      12.01      0.0
SSFP_OC3_STM1_4      NO      12.01      12.01      0.0
SSFP_OC3_STM1_5      NO      12.01      12.01      0.0
SSFP_OC3_STM1_6      NO      12.01      12.01      0.0
SSFP_OC3_STM1_7      NO      12.01      12.01      0.0
SSFP_OC3_STM1_8      NO      12.01      12.01      0.0
SSFP_OC3_STM1_9      NO      12.01      12.01      0.0

```

```

RP/0/RP0/CPU0:Router# show hw-module fpd
Auto-upgrade:Enabled

```

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					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	1.16	1.16
0/RP0	N540-24Z8Q2C-M	1.0	CPU-IOFPGA	CURRENT	0.10	0.10
0/RP0	N540-24Z8Q2C-M	1.0	MB-IOFPGA	CURRENT	0.26	0.26
0/RP0	N540-24Z8Q2C-M	1.0	SATA-M500IT-MU-B	CURRENT	4.00	4.00
0/PM0	N540-PWR400-A	1.0	SDG-PrimMCU-ACFW	CURRENT	0.00	0.00
0/PM0	N540-PWR400-A	1.0	SDG-SecMCU-ACFW	CURRENT	0.00	0.00
0/PM1	N540-PWR400-A	1.0	SDG-PrimMCU-ACFW	CURRENT	0.00	0.00
0/PM1	N540-PWR400-A	1.0	SDG-SecMCU-ACFW	CURRENT	0.00	0.00

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, N540X-16Z8Q2C-D, and N540X-16Z4G8Q2C-A/D variants:

```

RP/0/RP0/CPU0:Router# show fpd package

```

```

=====
Field Programmable Device Package
=====
Card Type          FPD Description          Req  SW   Min Req  Min Req
=====  =====  =====  =====  =====  =====
N540-12Z20G-SYS-A  ADM_FW                   YES   14.03  14.03    0.0
                  ADMConfig                NO    1.05   1.05    0.0
                  IoFpga                   YES   2.12   2.12    0.0
                  IoFpgaGolden             YES   2.07   2.03    0.0
                  Primary-BIOS             YES   1.42   1.42    0.0
                  StdbypFpga              YES   0.40   0.40    0.0
                  StdbypFpgaGolden        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  ADM_FW                   YES   14.03  14.03    0.0
                  ADMConfig                NO    1.05   1.05    0.0
                  IoFpga                   YES   2.12   2.12    0.0
                  IoFpgaGolden             YES   2.07   2.03    0.0
                  Primary-BIOS             YES   1.42   1.42    0.0
                  StdbypFpga              YES   0.40   0.40    0.0
                  StdbypFpgaGolden        YES   0.40   0.40    0.0
                  TamFw                   YES   4.11   4.11    0.0
                  TamFwGolden             YES   4.11   4.11    0.0
-----
N540-24Q8L2DD-SYS ADM-DBConfig            NO    2.03   2.03    0.0
                  ADM-MBConfig            NO    2.02   2.02    0.0
                  IoFpga                   YES   2.12   2.12    0.0
                  IoFpgaGolden             YES   2.12   2.12    0.0
                  Primary-BIOS             YES   4.06   4.06    0.0
                  SsdSAMS64G3            YES  12.41  12.41    0.0
                  StdbypFpga              YES   2.59   2.59    0.0
                  StdbypFpgaGolden        YES   2.56   2.39    0.0
                  TamFw                   YES   6.05   6.05    0.0

```

	TamFwGolden	YES	6.05	6.05	0.0

N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.22	0.22	0.0
	DpFpgaEth	YES	1.20	1.20	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0
	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.21	0.21	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-PWR400-A	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.02	1.02	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR400-D	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.03	1.03	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR750-A	EM-PrimMCU	NO	1.02	1.02	0.0
	EM-SecMCU	NO	1.03	1.03	0.0

N540-PWR750-D	EM-PrimMCU	NO	1.03	1.03	0.0
	EM-SecMCU	NO	3.01	3.01	0.0

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0

Determine Firmware Support

	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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

RP/0/RP0/CPU0:Router# show hw-module fpd
 Auto-upgrade:Enabled
 Attribute codes: B golden, P protect, S secure, A Anti Theft aware

		FPD Versions			
		=====			
Location	Card type	HWver	FPD device	ATR Status	Running Programd
Reload Loc					

0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	ADM_FW		CURRENT	14.03	14.03
NOT REQ						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	ADMConfig		CURRENT	1.05	1.05
NOT REQ						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	IoFpga		CURRENT	2.12	2.12
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	IoFpgaGolden	B	CURRENT		2.07
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	Primary-BIOS	S	CURRENT	1.42	1.42
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	StdbyFpga	S	CURRENT	0.40	0.40
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	StdbyFpgaGolden	BS	CURRENT		0.40
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	TamFw	S	CURRENT	4.11	4.11
0/RP0						
0/RP0/CPU0 N540-28Z4C-SYS-A	4.0	TamFwGolden	BS	CURRENT		4.11
0/RP0						

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540X-6Z18G-SYS-A/D, and N540X-8Z16G-SYS-A/D variants:

RP/0/RP0/CPU0:Router# show fpd package

```

=====
                                Field Programmable Device Package
                                =====
Card Type                FPD Description                Req  SW   Min Req  Min Req
                               Reload Ver      SW Ver  Board Ver
=====
-----
N540-6Z14S-SYS-D        ADMConfig                        NO    5.03   5.03     0.0
                        BckUp-BootLoader                YES   20.08  20.08     0.0
                        IoFpga                          YES    0.17   0.17     0.0
                        IoFpgaGolden                    YES    0.15   0.15     0.0
                        Prim-BootLoader                YES   20.08  20.08     0.0
                        StdbyFpga                      YES    2.05   2.05     0.0
                        StdbyFpgaGolden                YES    0.33   0.33     0.0
                        TamFw                          YES    6.05   6.05     0.0
                        TamFwGolden                    YES    6.05   6.05     0.0
-----
N540-6Z18G-SYS-A        ADMConfig                        NO    5.03   5.03     0.0
                        BckUp-BootLoader                YES   20.07  20.07     0.0
                        IoFpga                          YES    0.05   0.05     0.0
                        IoFpgaGolden                    YES    0.03   0.03     0.0
                        Prim-BootLoader                YES   20.07  20.07     0.0
                        StdbyFpga                      YES    2.05   2.05     0.0
                        StdbyFpgaGolden                YES    0.33   0.33     0.0
                        TamFw                          YES    6.05   6.05     0.0
                        TamFwGolden                    YES    6.05   6.05     0.0
-----
N540-6Z18G-SYS-D        ADMConfig                        NO    5.03   5.03     0.0
                        BckUp-BootLoader                YES   20.07  20.07     0.0
                        IoFpga                          YES    0.05   0.05     0.0
                        IoFpgaGolden                    YES    0.03   0.03     0.0
                        Prim-BootLoader                YES   20.07  20.07     0.0
                        StdbyFpga                      YES    2.05   2.05     0.0
                        StdbyFpgaGolden                YES    0.33   0.33     0.0
                        TamFw                          YES    6.05   6.05     0.0
                        TamFwGolden                    YES    6.05   6.05     0.0
-----
N540X-4Z14G2Q-A        ADMConfig                        NO    5.00   5.00     0.0
                        BckUp-BootLoader                YES   20.08  20.08     0.0
                        IoFpga                          YES    0.17   0.17     0.0
                        IoFpgaGolden                    YES    0.15   0.15     0.0
                        Prim-BootLoader                YES   20.08  20.08     0.0

```

Determine Firmware Support

	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540X-4Z14G2Q-D	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgaGolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540X-6Z18G-SYS-A	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgaGolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540X-6Z18G-SYS-D	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgaGolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540X-8Z16G-SYS-A	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgaGolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540X-8Z16G-SYS-D	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgaGolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	StdbyFpga	YES	2.05	2.05	0.0
	StdbyFpgaGolden	YES	0.33	0.33	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

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

Auto-upgrade:Enabled

Attribute codes: B golden, P protect, S secure, A Anti Theft aware

				FPD Versions	
				=====	
Location	Card type	HWver	FPD device	ATR Status	Running Programd
Reload Loc					

0/RP0/CPU0	N540-6Z14S-SYS-D	0.2	ADMConfig	CURRENT	5.03 5.03
NOT REQ					

0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	IoFpga		CURRENT	0.17	0.17
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	IoFpgaGolden	B	CURRENT		0.15
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	Prim-BootLoader	A	CURRENT	20.08	20.08
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	StdbyFpga	S	CURRENT	2.05	2.05
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	StdbyFpgaGolden	BS	CURRENT		0.33
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	TamFw	S	CURRENT	6.05	6.05
0/RP0/CPU0 N540-6Z14S-SYS-D 0/RP0	0.2	TamFwGolden	BS	CURRENT		6.05

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540-24Q8L2DD-SYS variant:

```
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	ADM_FW	YES	14.03	14.03	0.0	
	ADMConfig	NO	1.05	1.05	0.0	
	IoFpga	YES	2.12	2.12	0.0	
	IoFpgaGolden	YES	2.07	2.03	0.0	
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0	
	ADMConfig	NO	1.05	1.05	0.0	
	IoFpga	YES	2.12	2.12	0.0	
	IoFpgaGolden	YES	2.07	2.03	0.0	
	Primary-BIOS	YES	1.42	1.42	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	
N540-24Q8L2DD-SYS	ADM-DBConfig	NO	2.03	2.03	0.0	
	ADM-MBConfig	NO	2.02	2.02	0.0	
	IoFpga	YES	2.12	2.12	0.0	
	IoFpgaGolden	YES	2.12	2.12	0.0	
	Primary-BIOS	YES	4.06	4.06	0.0	
	SsdSAMSA64G3	YES	12.41	12.41	0.0	
	StdbyFpga	YES	2.59	2.59	0.0	
	StdbyFpgaGolden	YES	2.56	2.39	0.0	
	TamFw	YES	6.05	6.05	0.0	
	TamFwGolden	YES	6.05	6.05	0.0	
N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0	
	ADMConfig	NO	1.05	1.05	0.0	
	IoFpga	YES	2.12	2.12	0.0	
	IoFpgaGolden	YES	2.07	2.03	0.0	
	Primary-BIOS	YES	1.42	1.42	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	

```
=====
```

Determine Firmware Support

	TamFwGolden	YES	4.11	4.11	0.0

N540-28Z4C-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbypFpga	YES	0.40	0.40	0.0
	StdbypFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0

N540-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.22	0.22	0.0
	DpFpgaEth	YES	1.20	1.20	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0
	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.21	0.21	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-PWR400-A	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.02	1.02	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR400-D	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.03	1.03	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR750-A	EM-PrimMCU	NO	1.02	1.02	0.0
	EM-SecMCU	NO	1.03	1.03	0.0

N540-PWR750-D	EM-PrimMCU	NO	1.03	1.03	0.0
	EM-SecMCU	NO	3.01	3.01	0.0

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbypFpga	YES	0.40	0.40	0.0
	StdbypFpgaGolden	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	ADM_FW	YES	14.03	14.03	0.0

	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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

RP/0/RP0/CPU0:Router# show hw-module fpd
 Auto-upgrade:Enabled
 Attribute codes: B golden, P protect, S secure, A Anti Theft aware

Location	Card type	HWver	FPD device	ATR	Status	FPD Versions	
						Running	Programd
Reload Loc							

0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	ADM-DBConfig		CURRENT	2.03	2.03
	NOT REQ						
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	ADM-MBConfig		CURRENT	2.02	2.02
	NOT REQ						
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	IoFpga		CURRENT	2.12	2.12
	0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	IoFpgaGolden	B	CURRENT		2.12
	0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	Primary-BIOS	S	NOT READY	1.05	1.05
	N/A						

Determine Firmware Support

0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	StdbyFpga	S	CURRENT	2.59	2.59
0/RP0							
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	StdbyFpgaGolden	BS	NEED UPGD		0.00
0/RP0							
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	TamFw	S	CURRENT	6.05	6.05
0/RP0							
0/RP0/CPU0	N540-24Q8L2DD-SYS	3.0	TamFwGolden	BS	NEED UPGD		0.00
0/RP0							
0/PM1	N540-PWR400-A	0.0	PrimMCU		CURRENT	1.02	1.02
NOT REQ							
0/PM1	N540-PWR400-A	0.0	SecMCU		CURRENT	1.03	1.03
NOT REQ							

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540-FH-CSR-SYS variant:

```
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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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
N540-24Q8L2DD-SYS	ADM-DBConfig	NO	2.03	2.03	0.0
	ADM-MBConfig	NO	2.02	2.02	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.12	2.12	0.0
	Primary-BIOS	YES	4.06	4.06	0.0
	SsdSAMSA64G3	YES	12.41	12.41	0.0
	StdbyFpga	YES	2.59	2.59	0.0
	StdbyFpgaGolden	YES	2.56	2.39	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0
N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.22	0.22	0.0
	DpFpgaEth	YES	1.20	1.20	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0
	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.21	0.21	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.42	1.42	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-PWR400-A	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.02	1.02	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR400-D	LI-PrimMCU	NO	0.04	0.04	0.0
	LI-SecMCU	NO	0.06	0.06	0.0
	PrimMCU	NO	1.03	1.03	0.0
	SecMCU	NO	1.03	1.03	0.0

N540-PWR750-A	EM-PrimMCU	NO	1.02	1.02	0.0
	EM-SecMCU	NO	1.03	1.03	0.0

N540-PWR750-D	EM-PrimMCU	NO	1.03	1.03	0.0
	EM-SecMCU	NO	3.01	3.01	0.0

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0

Determine Firmware Support

	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.42	1.42	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

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

Auto-upgrade:Enabled

Attribute codes: B golden, P protect, S secure, A Anti Theft aware

		FPD Versions				
		=====				
Location	Card type	HWver	FPD device	ATR Status	Running Programd	

Reload Loc						
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	ADM1_Config	CURRENT	0.09	0.09
	NOT REQ					
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	ADM2_Config	CURRENT	0.09	0.09
	NOT REQ					
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	DpFpga	CURRENT	0.21	0.21
	0/RP0					
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	IoFpga	CURRENT	1.30	1.30
	0/RP0					
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	IoFpgaGolden	B NEED UPGD		1.23
	0/RP0					
0/RP0/CPU0	N540-FH-CSR-SYS	1.0	Primary-BIOS	SA CURRENT	1.42	1.42
	0/RP0					

0/RP0/CPU0 0/RP0	N540-FH-CSR-SYS	1.0	StdbyFpga	S	CURRENT	0.46	0.46
0/RP0/CPU0 0/RP0	N540-FH-CSR-SYS	1.0	StdbyFpgaGolden	BS	NEED UPGD		0.43
0/RP0/CPU0 0/RP0	N540-FH-CSR-SYS	1.0	TamFw	S	CURRENT	6.05	6.05
0/RP0/CPU0 0/RP0	N540-FH-CSR-SYS	1.0	TamFwGolden	BS	CURRENT		6.05
0/PM0 NOT REQ	N540-PWR400-A	0.0	PrimMCU		CURRENT	1.02	1.02
0/PM0 NOT REQ	N540-PWR400-A	0.0	SecMCU		CURRENT	1.03	1.03

Important Notes

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 N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants is available along with the software image in [NCS540-docs-7.8.1.tar](#) file.

The upgrade document for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, N540X-16Z4G8Q2C-A/D, N540-24Q8L2DD-SYS, N540-FH-AGG-SYS, N540X-16Z8Q2C-D, and N540-FH-CSR-SYS variants is available along with the software image in [NCS540l-docs-7.8.1.tar](#) file.

The upgrade document for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-6Z18G-SYS-A/D variants is available along with the software image in [NCS540l-aarch64-docs-7.8.1.tar](#) file.



Note Quad configurations will be lost when you perform a software downgrade on Cisco NCS 540 Routers that support quad configurations from IOS XR Release 7.5.1 onwards to a release prior to IOS XR Release 7.5.1 due to a non-backward compatibility change. The lost configuration can be applied manually after the downgrade.

Production Software Maintenance Updates (SMUs)

A production SMU is a SMU that is formally requested, developed, tested, and released. Production SMUs are intended for use in a live network environment and are formally supported by the Cisco TAC and the relevant development teams. Software bugs identified through software recommendations or Bug Search Tools are not a basis for production SMU requests.

For information on production SMU types, refer the [Production SMU Types](#) section of the *IOS XR Software Maintenance Updates (SMUs)* guide.

Related Documentation

The most current Cisco NCS 540 router documentation is located at the following URL:

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs-540-series-routers.html>

