Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 24.1.1

First Published: 2024-03-14

Network Convergence System 540 Series Routers

What's New in Cisco IOS XR Release 24.1.1

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

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 router variants.

Feature	Description
Licensing	
Smart Licensing Using Policy	Cisco Smart Licensing Using Policy (SLP) is an enhancement to the existing Cisco Smart Licensing model. It streamlines the licensing process for Cisco IOS XR products by introducing a more flexible and automated approach. With SLP, you no longer need to register your device during installation, and there is no evaluation license state or period. This simplifies the licensing process and reduces complexity. To use SLP, your devices must establish trust and send the initial license usage report within 90 days. Starting with this release, **cslu** is the default communication transport mode. The feature introduces these changes: **YANG Data Models:** • Cisco-IOS-XR-smart-license-cfg.yang (see GitHub, YANG Data Models Navigator)
MPLS	

Feature	Description
Set Global RSVP Message Retransmission Interval	During Fast Reroute (FRR), an RSVP router sends multiple messages to neighbors. If a neighbor fails to acknowledge the messages due to an overload of RSVP message processing or a high frequency of failures, RSVP retransmits the messages, which can result in network congestion. You can now set a longer RSVP message retransmission interval to provide sufficient processing time for neighbors, reduce signaling overhead, and prevent network congestion. You can set this interval for all directly connected neighbors at once or remote neighbors connected through backup tunnels. Previously, you could only enable this option per interface. The feature introduces these changes: **CLI**: signalling refresh reduction reliable retransmit-time **YANG Data Model**: Cisco-IOS-XR-ip-rsvp-cfg.yang (see GitHub, YANG Data Models Navigator)
Interface and Hardware Component	
XR Interface Operational State in Linux Kernel	You can now use the ifconfig command to determine the operational status of the XR interface in the Linux kernel when its line protocol is UP. The IFF-RUNNING (RUNNING) flag in ifconfig command indicates that the interface is ready for data transmission and reception. Earlier, you could see the XR interface status as UP or Down using the show interfaces command.
Increased Interface Bandwidth on N540-24Q8L2DD-SYS	The supported bandwidth on the Cisco N540-24Q8L2DD-SYS router has been increased from 1Tbps to 1.1Tbps. You can manually set the speed of an interface using the **controller optics** command. The usage of the breakout interfaces can be better optimized with the 1.1Tbps bandwidth by enabling port combinations from these available 1/10/25/40/100/400GE interfaces on the router.
IP Addresses and Services	
View NPU Information to Troubleshoot Forwarding Issues	You can now easily access NPU informa0on such as the TCAM, Large Exact Match (LEM), Longest Prefix Match (LPM), Forwarding Equivalence Class (FEC) and Encapsula0on DB (EEDB) database informa0on for troubleshoo0ng forwarding issues. Before this release, obtaining NPU informa0on was a 0me-consuming process that required using the forwarding ASIC's diagnos0c shell u0lity with varying commands across forwarding ASICs. The feature introduces these changes: **CLI:** This feature modifies the **show mpls forwarding labels hardware** command. The **npu** keyword is added to it.
L2VPN and Ethernet Services	

Feature	Description
EVPN Non-Revertive Designated Forwarder Election	In a preference-based Designated Forwarder (DF) election, non-revertive mode prevents the traffic disruption that occurs during the recovery of a node in a port-active multihoming network. While recovering from a link failure, an EVPN ethernet-segment (ES) performs DF re-election and re-carves the services among the multihomed nodes, which causes traffic interruption and interface flapping, leading to traffic loss. In the non-revertive mode, the EVPN ES does not re-carve the services after the recovery, thus avoiding the traffic disruption. The feature introduces these changes: **CLI**: • **non-revertive** • **revert** • The **ethernet-segment interface** *interface-name* **revert** keyword is introduced in the **l2vpn evpn** command. **YANG Data Model**: • `Cisco-IOS-XR-evpn-oper.yang` • `Cisco-IOS-XR-l2vpn-cfg.yang` (see GitHub, YANG Data Models Navigator)
Programmability	
Certificate Common-Name For Dial-in Using gRPC Protocol	You can now specify a **common-name** for the certificate generated by the router while using gRPC dial-in and avoid failure during certificate verification. Earlier, the **common-name** in the certificate was fixed. The feature introduces these changes: **CLI:** • **gRPC certificate common-name** **YANG Data Model:** • `Cisco-IOS-XR-um-grpc-cfg.yang` • `Cisco-IOS-XR-man-ems-cfg` (see GitHub, YANG Data Models Navigator)
View Inconsistent OpenConfig Configuration	OpenConfig infrastructure now provides an operational data YANG model, `Cisco-IOS-XR-yiny-oper`, which can be queried to view the inconsistent OpenConfig configuration caused due to activities such as interface breakout operations, installation activities or insertion of a new line card. See GitHub, YANG Data Models Navigator

Feature	Description
gRPC Authentication Modes	This feature lists the four types of authentication mechanisms for Extensible Manageability Services (EMS) to ensure the security and integrity of data exchange are: Metadata with TLS, Metadata without TLS, Metadata with Mutual TLS, and Certificate based.
System Security	
MACsec capability for 1GbE Optical SFPs on NCS 540 fixed port routers	We now support MACcsec encryption on select 1 GbE optical SFP transceivers by encrypting Ethernet frames at the link layer to secure communication for all traffic in Ethernet-based networks. * This feature is supported on the following hardware:: • N540-24Z8Q2C-SYS • SFP-1G-SX (optical SFP) • SFP-1G-LH (optical SFP)
Support for Post-Quantum Security	The Internet Key Exchange Protocol Version 2 (IKEv2) is now enhanced to bring post-quantum security. Quantum computers are a threat to existing cryptographic algorithms, and to address this problem, Postquantum Preshared Keys (PPKs) are used. You can generate both manual and dynamic PPKs. This feature introduces the following changes: **CLI:** • The **ppk manual/dynamic** keyword is introduced in the keyring command. • The **keyring ppk** keyword is introduced in the ikev2 profile command. **YANG Data Model:** • Cisco-IOS-XR-um-ikev2-cfg.yang See (GitHub, Yang Data Models Navigator) **Supported Platforms:** • N540X-12Z16G-SYS-D • N540X-12Z16G-SYS-A
Multi-Factor Authentication for SSH	You can now deploy robust authentication mechanisms for SSH connections to your routers and reduce security risks due to compromised or weak passwords. We now support multi-factor authentication (MFA)—a secure access management solution that verifies the identity of a user using multiple verification factors—for SSH login on Cisco IOS XR routers. These verification factors include a combination of login credentials such as username and password and a token, a cryptographic device, or a mobile phone with MFA application installed. No new commands or data models were introduced or modified as part of this feature.

Feature	Description
Pre-upload Pinned-Domain Certificate	You can now pre-upload your Pinned-Domain Certificate (PDC) credentials before requesting OVs Ownership Vouchers (OVs) from the MASA server, thus making the voucher request process easier.
Interaction with MASA through gRPC	From this release, you can use the gRPC protocol to interact with MASA APIs in addition to the current HTTP protocols. Through structured serialization of data with gRPC's Protocol Buffers, the communication between services is made more efficient, type-safe, and consistent.
DSCP Marking from TCP Connection Phase for SSH Packets	We now prevent SSH client packet drops in the TCP connection (initial handshake) phase as they travel across transit routers in the network. This is because you can mark the DSCP values for SSH client packets in the TCP connection phase, which overrides the transit routers' policies to filter and drop packets with no DSCP value marked. Using a new command, you can also set the DSCP value from the TCP connection phase for SSH server packets. The feature introduces these changes: **CLI:** • **ssh server set-dscp-connection-phase** **YANG Data Model:** • New XPath, `set-dscp-connection-phase`, for `Cisco-IOS-XR-crypto-ssh-cfg.yang` (see GitHub, YANG Data Models Navigator)
System Management	
Combined Frame Delay and Frame Loss Measurement for Y.1564 Service Activation Test	We have enhanced the ITU-T Y.1564 Service Activation Testing (SAT) capabilities by enabling a comprehensive service quality measurement that includes network responsiveness, congestion, and other issues degrading network performance. This feature also allows a holistic testing of the QoS SLAs, which helps identify potential issues faster and troubleshoot effectively. This feature introduces the following change: **CLI:** The **measurement combined** keyword is added to the **ethernet service-activation-test profile** command. **YANG DATA Model**: • New XPaths for Cisco-IOS-XR-ethernet-sat-cfg.yang (see Github, YANG Data Models Navigator)

Feature	Description
Loopback Frames for Y.1564 Service Activation Test	This feature enables the redirection of test traffic from the destination router to the source router in loopback message (LBM) format. Loopback message enables the measurement of various parameters and performance metrics, such as frame delay, frame loss rates, and QoS settings, after the traffic has completed its round trip. Such comprehensive measurement helps identify issues within the network setup. You can also use it to ensure the service is running and meets the SLA. This feature introduces the following change: **CLI:** The **packet-format lbm** keyword is added to the **ethernet service-activation-test profile** command. **YANG DATA Model**: New XPaths for Cisco-IOS-XR-ethernet-sat-cfg.yang (see Github, YANG Data Models Navigator)
Optional Source MAC Address for Y.1564 Service Activation Test	By specifying the source MAC address to the ITU-T Y.1564 SAT, you can ensure that the test results are relevant and applicable to the specific service configuration for use in production and before deployment for your customers. This feature introduces the following change: **Modified CLI:** The **source** keyword is added to the **ethernet service-activation-test** command. **YANG DATA Model**: • New XPaths for Cisco-IOS-XR-ethernet-sat-act.yang (see Github, YANG Data Models Navigator)
Segment Routing	
SR-MPLSv6 Traffic Engineering	We have introduced the capability for SR Policy to support segment lists with IPv6 addresses, which can be either dynamically computed or explicitly set at the SRTE headend.
Identical Route Distinguisher (RD) for Interworking Gateways between MPLS and SRv6 Domains	You can now configure the same Route Distinguisher (RD) for interworking gateways catering to both MPLS and SRv6 domains that help conserve hardware resources, reduce the BGP table scale and minimize the processing load on routers. At the same time, it ensures seamless connectivity across SRv6 and MPLS L3 EVPN domains, thus promoting interoperability and efficiency in modern network environments. Previously, a unique RD was required to extend L3 services between MPLS and SRv6 domains resulting in higher router load and resource consumption, which could have affected performance.
Reporting of SR-TE Policies Using BGP-Link State for SRv6	You can gather the Traffic Engineering Policy information that is locally available in a node and advertise it in BGP-LS for SRv6. Previous versions only supported SR-MPLS. There are no changes to the configuration procedures from previous releases and works on the same configuration as the SR-MPLS feature.

Feature	Description
Calculate candidate paths and SR-TE policies with IP exclusion, while enforcing affinity and disjointness constraints	For new services using Pseudo-wire (PW) over SR-TE policies, you can now calculate, customize, and preview candidate paths. With this feature, you can now exclude network resources by IP address, and enforce affinity for a specific candidate path. Previously, affinity constraints and candidate path disjointness were mutually exclusive. The feature introduces these changes: **CLI:** • The feature introduces **shortest-path** and **exclude-resources** keywords in the **segment-routing traffic-eng policy** and **segment-routing traffic-eng on-demand color** commands. **YANG Data Models:** • Cisco-IOS-XR-infra-xtc-oper.yang • Cisco-IOS-XR-infra-xtc-agent-oper.yang • Cisco-IOS-XR-infra-xtc-agent-cfg.yang
Network Synchronization	
PTP-NTP Interworking	We have improved NTP synchronization and reliability to achieve nanosecond-level accuracy for applications that require high-precision timing. This is achieved by enabling NTP-PTP interworking which allows the use of PTP as the reference clock. As in previous releases, the NTP client continues to support polling NTP protocol-based external time servers to synchronize the local system clock and achieve accuracy within the millisecond range.

YANG Data Models Introduced and Enhanced

This release introduces or enhances the following data models. For detailed information about the supported and unsupported sensor paths of all the data models, see the Github repository. To get a comprehensive list of the data models supported in a release, navigate to the Available-Content.md file for the release in the Github repository. The unsupported sensor paths are documented as deviations. For example, `openconfig-acl.yang` provides details about the supported sensor paths, whereas `cisco-xr-openconfig-acl-deviations.yang` provides the unsupported sensor paths for `openconfig-acl.yang` on Cisco IOS XR routers.

You can also view the data model definitions using the YANG Data Models Navigator tool. This GUI-based and easy-to-use tool helps you explore the nuances of the data model and view the dependencies between various containers in the model. You can view the list of models supported across Cisco IOS XR releases and platforms, locate a specific model, view the containers and their respective lists, leaves, and leaf lists presented visually in a tree structure.

To get started with using data models, see the *Programmability Configuration Guide for Cisco NCS 540 Series Routers*.

Feature	Description
Programmability	
opcnconfig-mpls-ldp.yang Version 3.1.0	This OpenConfig data model introduces the following changes: • Enable and authenticate LDP signalling messages using **enable** and **authentication-key** leaves globally for all interfaces or for LDP neighbors. • Configure the global and neighbor label switch identifier for the router using **lsr-id** leaf • Define the time for which a neighbor adjacency will be kept by the router while it waits for a new "hello" message using **hello-holdtime** leaf • Define the interval for sending these "hello" messages on each link LDP adjacency using **hello-interval** leaf • Enable and configure the address family name for IPv4 and IPv6 interfaces using **enabled** and **afi-name** leaves • Configure the list of LDP configurations for each interface using **interface-id** leaf where the interface referenced is based on the interface and subinterface leaves within the **interface-ref** container • Define the list of LDP neighbors and their attributes using **label-space-id** leaf • Configure the list for attributes related to address families for targeted LDP using **afi-name** leaf • Specify the neighbor address of the targeted LDP session using **remote-address** leaf • Enable or disable the acceptance of targeted LDP "hello" messages using **hello-accept** leaf • Enable and configure the interval for which the remote LDP peers wait for the local node to reconnect gracefully after a failure using **enable** and **reconnect-time** leaves • Configure the time interval to gracefully restart a Label Switch Router's (LSR) forwarding when in recovery mode using **forwarding-holdtime** leaf

Feature	Description
Cisco-IOS-XR-um-ikev2-cfg.yang	This unified data model is enhanced to support post-quantum security enablement on IKEv2 encryption. The following data model changes will apply to the IKEv2 configuration on the initiator and responder of the IPsec tunnel: • New container **ppk** to configure post-quantum security, either manually or dynamically. • New leaf **keyring ppk** in the **ikev2profile** container to include the post-quantum preshared keys for IKEv2 negotiations.
Cisco-IOS-XR-evpn-oper.yang	This YANG model is modified to enable non-revertive mode on preference based EVPN DF election.
Cisco-IOS-XR-infra-xtc-agent-oper.yang	This native data model is enhanced with a new container, *excluded-resources* to display associated resource lists for policies.
Cisco-IOS-XR-infra-xtc-oper.yang	This native data model is enhanced with a new container, *constraints-information*, to exclude IP constraints for candidate paths and includes the shortest-path flag in the disjoint constraints.
Cisco-IOS-XR-infra-xtc-agent-cfg.yang	This native data model is enhanced with a new container, *resources*, and a new leaf, *exclude-resource-rule* in the *resources-rule-table* container to configure and associate resource lists as constraints to policies. Additionally, new leaves such as *shortest-path* and *fallback-disable* are added in the *disjoint-path* container to extend the disjoint constraint configuration.

Hardware Introduced

Note   Before you install the Cisco router, you must prepare your site for the installation, for more details on site planning and environmental requirements, see Hardware Installation Guide.

Hardware	Description
Cisco PON OLT SFP	This release supports configuration and management of the Cisco PON 10G OLT SFP+ transceiver on the following Cisco NCS 540 Series Routers: • N540-24Z8Q2C-SYS • N540-ACC-SYS • N540X-16Z4G8Q2C-A/D • N540-28Z4C-SYS-A/D • N540-24Q8L2DD-SYS The transceiver module plugs into the 10G port on the router. The combination of the tranceiver, PON Manager, PON Controller, and the MongoDB creates a network management solution for monitoring and managing OLTs and ONU devices in the network. With the help of the transceiver, the router functions as an OLT, this removes the requirement of a separate OLT Chassis. For more information, refer to Release Notes for *Cisco Routed PON, Cisco IOS XR Release 24.1.1*.

Behavior Changes

- From this release, the default order of authentication methods for SSH clients on Cisco IOS XR routers running Cisco IOS XR SSH is changed to: **public-key**, **keyboard-interactive**, and **password**.

  Prior to this release, the default order was: **public-key**, **password**, and **keyboard-interactive**.

- Cisco Secure DDoS Edge Protection is supported from Cisco IOS XR Release 7.10.1 on Cisco NCS 540 series routers. But the smart licensing usage and utilization reporting for the edge protection feature remains disabled. Usage details of the edge protection functionality will be enabled only in the future release. Hence, the **Smart Account In Use** utilization report for edge protection will show as 0 (zero) consumed.

- Prior to Cisco IOS XR Release 7.2.1, a segment of an explicit segment list can be configured as an IPv4 address (representing a Node or a Link) using the **index** *index***address ipv4** *address* command.

  Starting with Cisco IOS XR Release 7.2.1, an IPv4-based segment (representing a Node or a Link) can also be configured with the new **index** *index* **mpls adjacency***address* command. The configuration is stored in NVRAM in the same CLI format used to create it. There is no conversion from the old CLI to the new CLI.

  Starting with Cisco IOS XR Release 7.9.1, the old CLI has been deprecated. Old configurations stored in NVRAM will be rejected at boot-up.

  As a result, explicit segment lists with IPv4-based segments using the old CLI must be re-configured using the new CLI.

  There are no CLI changes for segments configured as MPLS labels using the **index** *index* **mpls label** *label* command.

- If you are on a release before Cisco IOS XR Release 7.4.1, you can configure SR-ODN with Flexible Algorithm constraints using the **segment-routing traffic-eng on-demand color** *color* **dynamic sid-algorithm** *algorithm-number* command.

  Starting with Cisco IOS XR Release 7.4.1, you can also configure SR-ODN with Flexible Algorithm constraints using the new **segment-routing traffic-eng on-demand color** *color* **constraints segments sid-algorithm** *algorithm-number* command.

  From Cisco IOS XR Release 7.9.1, the **segment-routing traffic-eng on-demand color** *color* **dynamic sid-algorithm** *algorithm-number* command is deprecated. Previous configurations stored in NVRAM will be rejected at boot-up.

  Hence, for Cisco IOS XR Release 7.9.1, you must reconfigure all SR-ODN configurations with Flexible Algorithm constraints that use the on-demand dynamic sid-algorithm with the on-demand constraints command.

Restrictions and Limitations on the Cisco NCS 540 Series Router

- Enabling or disabling frame preemption on the Time Sensitive Networking (TSN) port results in traffic drop for N540-FH-CSR-SYS. The port Twenty Five G0/0/12 is used as the TSN port.

- Fabric multicast queue stats are not supported in N540X-8Z16G-SYS-A/D, N540X-6Z18G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-4Z14G2Q-A/D variants.

- Unlabeled BGP PIC EDGE for global prefixes is not supported.

- 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, N540X-16Z8Q2C-D, 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
CSCwj07339	The call-home configurations displayed in the show run call-home command are missing in the show running-config command output.

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 24.1.1 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, N540-6Z18G-SYS-A/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 24.1.1 Software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Base Image	Filename	Description
IOS XR Base Image	ncs540-mini-x-24.1.1.iso	IOS XR mandatory base image.
USB Boot Package	ncs540-usb_boot-24.1.1.zip	Package required to perform USB Boot. Includes the same packages as the base image.
Optional Packages not included in the base image		
Package	Filename	Description
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r2411.x86_64.rpm	Supports Extensible Markup Language (XML) Parser, Telemetry, Netconf, gRPC and HTTP server
IOS XR MPLS	ncs540-mpls-1.0.0.0-r2411.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r2411.x86_64.rpm	Supports MPLS and MPLS Traffic Engineering (MPLS-TE)

IOS XR Security	ncs540-k9sec-1.0.0.0-r2411.x86_64.rpm	Supports MACsec and 802.1X
IOS XR ISIS	ncs540-isis-1.0.0.0-r2411.x86_64.rpm	Supports ISIS
IOS XR OSPF	ncs540-ospf-1.0.0.0-r2411.x86_64.rpm	Supports OSPF
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r2411.x86_64.rpm	Supports Lawful Intercept (LI)
IOS XR Multicast	ncs540-mcast-1.0.0.0-r2411.x86_64.rpm	Supports Multicast
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r2411.x86_64.rpm	Supports EIGRP
IOS XR LI-CTRL	ncs540-lictrl-1.0.0.0-r2411.x86_64.rpm	Supports LI-CTRL

Table 3: Release 24.1.1 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	Description

IOS XR Base Image	ncs540l-x64-24.1.1.iso	IOS XR base image with mandatory packages. The base ISO image also includes the following optional packages: • xr-bgp • xr-cdp • xr-eigrp • xr-ipsla • xr-is-is • xr-k9sec • xr-lictrl • xr-lldp • xr-mcast • xr-mpls-oam • xr-netflow • xr-ospf • xr-perf-meas • xr-perfmgmt • xr-rip • xr-telnet • xr-track These optional packages are also included in NCS540l-iosxr-24.1.1.tar.
USB Boot Package	ncs540l-usb_boot-24.1.1.zip	Package required to perform USB Boot. Includes the same packages as the base image.

Optional Packages not included in the base image

Package	Filename	Description
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-24.1.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-24.1.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-iosxr-24.1.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.24.1.1.tar	Supports 802.1X

| IOS XR RIP (xr-rip) | NCS540l-iosxr-24.1.1.tar | Supports RIP |

Table 4: Release 24.1.1 Software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-6Z18G-SYS-A/D

Base Image	Filename	Description
IOS XR Base Image	ncs540l-aarch64-24.1.1.iso	IOS XR base image with mandatory packages. The ISO image also includes the following optional packages: • xr-bgp • xr-cdp • xr-eigrp • xr-ipsla • xr-is-is • xr-k9sec • xr-lictrl • xr-lldp • xr-mcast • xr-mpls-oam • xr-ncs540l-mcast • xr-ncs540l-netflow • xr-netflow • xr-ospf • xr-perf-meas • xr-perfmgmt • xr-rip • xr-telnet • xr-track These optional packages are also included in NCS540l aarch64 iosxr optional rpms-24.1.1.tar.
USB Boot Package	ncs540l-aarch64-usb_boot-24.1.1.zip	Package required to perform USB Boot. Includes the same packages as the base image.

Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Telnet (xr-telnet)	NCS540l-aarch64-iosxr-optional-rpms-24.1.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-aarch64-iosxr-optional-rpms-24.1.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-aarch64-iosxr-optional-rpms-24.1.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-aarch64-k9sec-rpms.24.1.1.tar	Supports 802.1X
IOS XR RIP (xr-rip)	NCS540l-aarch64-iosxr-optional-rpms-24.1.1.tar	Supports RIP

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 24.1.1
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Mon Mar 11 20:03:59 PDT 2024
 Built Host   : iox-ucs-047
 Workspace    : /auto/srcarchive15/prod/24.1.1/ncs540/ws
 Version      : 24.1.1
 Location     : /opt/cisco/XR/packages/
 Label        : 24.1.1-iso

cisco NCS-540 () processor
System uptime is 21 hours 19 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 24.1.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Tue Mar 12 00:13:06 UTC 2024
 Build Host   : iox-ucs-054
 Workspace    : /auto/srcarchive15/prod/24.1.1/ncs540l/ws/
 Version      : 24.1.1
 Label        : 24.1.1

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540X-16Z4G8Q2C-A (C3708 @ 1.70GHz) processor with 8GB of memory
NCS540L uptime is 21 hours, 11 minutes
Cisco NCS 540 System with 16x10G+4x1GCu+8x25G+2x100G AC Chassis
```

Log in to the router and enter the **show version** command on the N540X-4Z14G2Q-A/D, N540-6Z18G-SYS-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-6Z18G-SYS-A/D variants:

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 24.1.1 LNT
```

```
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Tue Mar 12 00:13:06 UTC 2024
 Build Host   : iox-ucs-065
 Workspace    : /auto/srcarchive15/prod/24.1.1/ncs540l-aarch64/ws/
 Version      : 24.1.1
 Label        : 24.1.1

cisco NCS540L
cisco N540-6Z14S-SYS-D processor with 8GB of memory
ncs540l-aarch64 uptime is 22 hours, 7 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 24.1.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Tue Mar 12 00:13:06 UTC 2024
 Build Host   : iox-ucs-054
 Workspace    : /auto/srcarchive15/prod/24.1.1/ncs540l/ws/
 Version      : 24.1.1
 Label        : 24.1.1

cisco NCS540L (D1519 @ 1.50GHz)
cisco N540-24Q8L2DD-SYS (D1519 @ 1.50GHz) processor with 16GB of memory
ARCHES uptime is 21 hours, 38 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 24.1.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
 Built By     : swtools
 Built On     : Tue Mar 12 00:13:06 UTC 2024
 Build Host   : iox-ucs-054
 Workspace    : /auto/srcarchive15/prod/24.1.1/ncs540l/ws/
 Version      : 24.1.1
 Label        : 24.1.1

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-FH-CSR-SYS (C3708 @ 1.70GHz) processor with 8GB of memory
N540-FH uptime is 20 hours, 56 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
                               ===================================================
                                  Req    SW     Min Req  Min Req
Card Type               FPD Description           Reload Ver    SW Ver   Board Ver
================== ========================= ====== ======= ======== =========
--------------------------------------------------------------------------------
N540-24Z8Q2C-M          Bootloader(A)              YES    1.17     1.17      0.0
                        CPU-IOFPGA(A)              YES    0.10     0.10      0.0
                        MB-IOFPGA(A)               YES    0.28     0.28      0.0
                        MB-MIFPGA                  YES    0.08     0.08      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-M1100(A)              NO     50.00    50.00     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     1427.00  1427.00   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_32                NO     13.01    13.01     0.0
                        SSFP_E1F_33                NO     13.01    13.01     0.0
                        SSFP_E1F_34                NO     13.01    13.01     0.0
                        SSFP_E1F_35                NO     13.01    13.01     0.0
                        SSFP_E1F_36                NO     13.01    13.01     0.0
                        SSFP_E1F_37                NO     13.01    13.01     0.0
                        SSFP_E1F_38                NO     13.01    13.01     0.0
                        SSFP_E1F_39                NO     13.01    13.01     0.0
                        SSFP_E1F_4                 NO     13.01    13.01     0.0
```

```
SSFP_E1F_40            NO    13.01   13.01    0.0
SSFP_E1F_41            NO    13.01   13.01    0.0
SSFP_E1F_42            NO    13.01   13.01    0.0
SSFP_E1F_43            NO    13.01   13.01    0.0
SSFP_E1F_44            NO    13.01   13.01    0.0
SSFP_E1F_45            NO    13.01   13.01    0.0
SSFP_E1F_46            NO    13.01   13.01    0.0
SSFP_E1F_47            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_32       NO    12.01   12.01    0.0
SSFP_OC3_STM1_33       NO    12.01   12.01    0.0
SSFP_OC3_STM1_34       NO    12.01   12.01    0.0
SSFP_OC3_STM1_35       NO    12.01   12.01    0.0
SSFP_OC3_STM1_36       NO    12.01   12.01    0.0
SSFP_OC3_STM1_37       NO    12.01   12.01    0.0
SSFP_OC3_STM1_38       NO    12.01   12.01    0.0
SSFP_OC3_STM1_39       NO    12.01   12.01    0.0
SSFP_OC3_STM1_4        NO    12.01   12.01    0.0
SSFP_OC3_STM1_40       NO    12.01   12.01    0.0
SSFP_OC3_STM1_41       NO    12.01   12.01    0.0
SSFP_OC3_STM1_42       NO    12.01   12.01    0.0
SSFP_OC3_STM1_43       NO    12.01   12.01    0.0
SSFP_OC3_STM1_44       NO    12.01   12.01    0.0
SSFP_OC3_STM1_45       NO    12.01   12.01    0.0
SSFP_OC3_STM1_46       NO    12.01   12.01    0.0
SSFP_OC3_STM1_47       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
SSFP_STM1_TSOP_0       NO    13.00   13.00    0.0
SSFP_STM1_TSOP_1       NO    13.00   13.00    0.0
SSFP_STM1_TSOP_10      NO    13.00   13.00    0.0
```

```
                                SSFP_STM1_TSOP_11          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_12          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_13          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_14          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_15          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_16          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_17          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_18          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_19          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_2           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_20          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_21          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_22          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_23          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_24          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_25          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_26          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_27          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_28          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_29          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_3           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_30          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_31          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_32          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_33          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_34          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_35          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_36          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_37          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_38          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_39          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_4           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_40          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_41          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_42          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_43          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_44          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_45          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_46          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_47          NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_5           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_6           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_7           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_8           NO     13.00    13.00     0.0
                                SSFP_STM1_TSOP_9           NO     13.00    13.00     0.0
--------------------------------------------------------------------------------
N540-ACC-SYS            Bootloader(A)             YES     1.17     1.17     0.0
                        CPU-IOFPGA(A)             YES     0.10     0.10     0.0
                        MB-IOFPGA(A)              YES     0.28     0.28     0.0
                        MB-MIFPGA                 YES     0.08     0.08     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-M1100(A)             NO     50.00    50.00     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    1427.00  1427.00    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_32              NO    13.01    13.01     0.0
SSFP_E1F_33              NO    13.01    13.01     0.0
SSFP_E1F_34              NO    13.01    13.01     0.0
SSFP_E1F_35              NO    13.01    13.01     0.0
SSFP_E1F_36              NO    13.01    13.01     0.0
SSFP_E1F_37              NO    13.01    13.01     0.0
SSFP_E1F_38              NO    13.01    13.01     0.0
SSFP_E1F_39              NO    13.01    13.01     0.0
SSFP_E1F_4               NO    13.01    13.01     0.0
SSFP_E1F_40              NO    13.01    13.01     0.0
SSFP_E1F_41              NO    13.01    13.01     0.0
SSFP_E1F_42              NO    13.01    13.01     0.0
SSFP_E1F_43              NO    13.01    13.01     0.0
SSFP_E1F_44              NO    13.01    13.01     0.0
SSFP_E1F_45              NO    13.01    13.01     0.0
SSFP_E1F_46              NO    13.01    13.01     0.0
SSFP_E1F_47              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_32          NO    12.01    12.01    0.0
SSFP_OC3_STM1_33          NO    12.01    12.01    0.0
SSFP_OC3_STM1_34          NO    12.01    12.01    0.0
SSFP_OC3_STM1_35          NO    12.01    12.01    0.0
SSFP_OC3_STM1_36          NO    12.01    12.01    0.0
SSFP_OC3_STM1_37          NO    12.01    12.01    0.0
SSFP_OC3_STM1_38          NO    12.01    12.01    0.0
SSFP_OC3_STM1_39          NO    12.01    12.01    0.0
SSFP_OC3_STM1_4           NO    12.01    12.01    0.0
SSFP_OC3_STM1_40          NO    12.01    12.01    0.0
SSFP_OC3_STM1_41          NO    12.01    12.01    0.0
SSFP_OC3_STM1_42          NO    12.01    12.01    0.0
SSFP_OC3_STM1_43          NO    12.01    12.01    0.0
SSFP_OC3_STM1_44          NO    12.01    12.01    0.0
SSFP_OC3_STM1_45          NO    12.01    12.01    0.0
SSFP_OC3_STM1_46          NO    12.01    12.01    0.0
SSFP_OC3_STM1_47          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
SSFP_STM1_TSOP_0          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_1          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_10         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_11         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_12         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_13         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_14         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_15         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_16         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_17         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_18         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_19         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_2          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_20         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_21         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_22         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_23         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_24         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_25         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_26         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_27         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_28         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_29         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_3          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_30         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_31         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_32         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_33         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_34         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_35         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_36         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_37         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_38         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_39         NO    13.00    13.00    0.0
SSFP_STM1_TSOP_4          NO    13.00    13.00    0.0
```

```
                          SSFP_STM1_TSOP_40            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_41            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_42            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_43            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_44            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_45            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_46            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_47            NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_5             NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_6             NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_7             NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_8             NO      13.00       13.00        0.0
                          SSFP_STM1_TSOP_9             NO      13.00       13.00        0.0
--------------------------------------------------------------------------------
N540-PWR400-A             LIT-PriMCU-ACFW(A)           NO       0.04        0.04        0.0
                          LIT-SecMCU-ACFW(A)           NO       0.07        0.07        0.0
--------------------------------------------------------------------------------
N540-PWR400-D             LIT-PriMCU-DCFW(A)           NO       0.04        0.04        0.0
                          LIT-SecMCU-DCFW(A)           NO       0.06        0.06        0.0
                          SDG-PriMCU-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       1.17        1.17        0.0
                          CPU-IOFPGA(A)               YES       0.10        0.10        0.0
                          MB-IOFPGA(A)                YES       0.28        0.28        0.0
                          MB-MIFPGA                   YES       0.08        0.08        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-M1100(A)                NO      50.00       50.00        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    1427.00     1427.00        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_32                  NO      13.01       13.01        0.0
```

```
SSFP_E1F_33                        NO    13.01    13.01    0.0
SSFP_E1F_34                        NO    13.01    13.01    0.0
SSFP_E1F_35                        NO    13.01    13.01    0.0
SSFP_E1F_36                        NO    13.01    13.01    0.0
SSFP_E1F_37                        NO    13.01    13.01    0.0
SSFP_E1F_38                        NO    13.01    13.01    0.0
SSFP_E1F_39                        NO    13.01    13.01    0.0
SSFP_E1F_4                         NO    13.01    13.01    0.0
SSFP_E1F_40                        NO    13.01    13.01    0.0
SSFP_E1F_41                        NO    13.01    13.01    0.0
SSFP_E1F_42                        NO    13.01    13.01    0.0
SSFP_E1F_43                        NO    13.01    13.01    0.0
SSFP_E1F_44                        NO    13.01    13.01    0.0
SSFP_E1F_45                        NO    13.01    13.01    0.0
SSFP_E1F_46                        NO    13.01    13.01    0.0
SSFP_E1F_47                        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_32                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_33                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_34                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_35                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_36                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_37                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_38                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_39                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_4                    NO    12.01    12.01    0.0
SSFP_OC3_STM1_40                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_41                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_42                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_43                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_44                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_45                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_46                   NO    12.01    12.01    0.0
SSFP_OC3_STM1_47                   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
                        SSFP_STM1_TSOP_0          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_1          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_10         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_11         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_12         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_13         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_14         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_15         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_16         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_17         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_18         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_19         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_2          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_20         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_21         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_22         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_23         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_24         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_25         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_26         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_27         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_28         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_29         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_3          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_30         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_31         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_32         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_33         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_34         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_35         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_36         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_37         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_38         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_39         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_4          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_40         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_41         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_42         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_43         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_44         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_45         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_46         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_47         NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_5          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_6          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_7          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_8          NO     13.00     13.00     0.0
                        SSFP_STM1_TSOP_9          NO     13.00     13.00     0.0
--------------------------------------------------------------------------------
N540X-ACC-SYS           Bootloader(A)             YES     1.17      1.17     0.0
                        CPU-IOFPGA(A)             YES     0.10      0.10     0.0
                        MB-IOFPGA(A)              YES     0.28      0.28     0.0
                        MB-MIFPGA                 YES     0.08      0.08     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-M1100(A)             NO     50.00     50.00     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   1427.00   1427.00      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_32                NO     13.01     13.01      0.0
SSFP_E1F_33                NO     13.01     13.01      0.0
SSFP_E1F_34                NO     13.01     13.01      0.0
SSFP_E1F_35                NO     13.01     13.01      0.0
SSFP_E1F_36                NO     13.01     13.01      0.0
SSFP_E1F_37                NO     13.01     13.01      0.0
SSFP_E1F_38                NO     13.01     13.01      0.0
SSFP_E1F_39                NO     13.01     13.01      0.0
SSFP_E1F_4                 NO     13.01     13.01      0.0
SSFP_E1F_40                NO     13.01     13.01      0.0
SSFP_E1F_41                NO     13.01     13.01      0.0
SSFP_E1F_42                NO     13.01     13.01      0.0
SSFP_E1F_43                NO     13.01     13.01      0.0
SSFP_E1F_44                NO     13.01     13.01      0.0
SSFP_E1F_45                NO     13.01     13.01      0.0
SSFP_E1F_46                NO     13.01     13.01      0.0
SSFP_E1F_47                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_32           NO    12.01    12.01    0.0
SSFP_OC3_STM1_33           NO    12.01    12.01    0.0
SSFP_OC3_STM1_34           NO    12.01    12.01    0.0
SSFP_OC3_STM1_35           NO    12.01    12.01    0.0
SSFP_OC3_STM1_36           NO    12.01    12.01    0.0
SSFP_OC3_STM1_37           NO    12.01    12.01    0.0
SSFP_OC3_STM1_38           NO    12.01    12.01    0.0
SSFP_OC3_STM1_39           NO    12.01    12.01    0.0
SSFP_OC3_STM1_4            NO    12.01    12.01    0.0
SSFP_OC3_STM1_40           NO    12.01    12.01    0.0
SSFP_OC3_STM1_41           NO    12.01    12.01    0.0
SSFP_OC3_STM1_42           NO    12.01    12.01    0.0
SSFP_OC3_STM1_43           NO    12.01    12.01    0.0
SSFP_OC3_STM1_44           NO    12.01    12.01    0.0
SSFP_OC3_STM1_45           NO    12.01    12.01    0.0
SSFP_OC3_STM1_46           NO    12.01    12.01    0.0
SSFP_OC3_STM1_47           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
SSFP_STM1_TSOP_0           NO    13.00    13.00    0.0
SSFP_STM1_TSOP_1           NO    13.00    13.00    0.0
SSFP_STM1_TSOP_10          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_11          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_12          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_13          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_14          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_15          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_16          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_17          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_18          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_19          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_2           NO    13.00    13.00    0.0
SSFP_STM1_TSOP_20          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_21          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_22          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_23          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_24          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_25          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_26          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_27          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_28          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_29          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_3           NO    13.00    13.00    0.0
SSFP_STM1_TSOP_30          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_31          NO    13.00    13.00    0.0
SSFP_STM1_TSOP_32          NO    13.00    13.00    0.0
```

```
                              SSFP_STM1_TSOP_33           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_34           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_35           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_36           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_37           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_38           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_39           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_4            NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_40           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_41           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_42           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_43           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_44           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_45           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_46           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_47           NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_5            NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_6            NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_7            NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_8            NO    13.00     13.00      0.0
                              SSFP_STM1_TSOP_9            NO    13.00     13.00      0.0
RP/0/RP0/CPU0:Router#show hw-module fpd
Auto-upgrade:Disabled

                                                                     FPD Versions
                                                                     ==============
Location    Card type          HWver  FPD device      ATR Status    Running   Programd
--------------------------------------------------------------------------------------
0/RP0       N540-ACC-SYS       1.0    MB-MIFPGA           CURRENT    0.08      0.08

0/RP0       N540-ACC-SYS       1.0    Bootloader          CURRENT    1.17      1.17

0/RP0       N540-ACC-SYS       1.0    CPU-IOFPGA          CURRENT    0.10      0.10

0/RP0       N540-ACC-SYS       1.0    MB-IOFPGA           CURRENT    0.28      0.28

0/RP0       N540-ACC-SYS       1.0    SATA-M500IT-MU-B    CURRENT    4.00      4.00

0/PM0       N540-PWR400-A             LIT-PriMCU-ACFW     NOT READY

0/PM0       N540-PWR400-A             LIT-SecMCU-ACFW     NOT READY

0/PM1       N540-PWR400-A      1.0    SDG-PriMCU-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
                                 ==================================================
                                       Req    SW       Min Req   Min Req
Card Type            FPD Description    Reload Ver      SW Ver    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    3.08     3.08      0.0
                     IoFpgaGolden               YES    2.07     2.03      0.0
                     Primary-BIOS               YES    1.49     1.49      0.0
                     StdbyFpga                  YES    0.50     0.50      0.0
                     StdbyFpgaGolden            YES    0.50     0.40      0.0
```

```
                          TamFw                     YES    4.13    4.13      0.0
                          TamFwGolden               YES    4.13    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    3.08    3.08      0.0
                          IoFpgaGolden              YES    2.07    2.03      0.0
                          Primary-BIOS              YES    1.49    1.49      0.0
                          StdbyFpga                 YES    0.50    0.50      0.0
                          StdbyFpgaGolden           YES    0.50    0.40      0.0
                          TamFw                     YES    4.13    4.13      0.0
                          TamFwGolden               YES    4.13    4.11      0.0
--------------------------------------------------------------------------------
N540-24Q8L2DD-SYS         ADM-DBConfig              NO     2.05    2.05      0.0
                          ADM-MBConfig              NO     2.05    2.05      0.0
                          IoFpga                    YES    2.12    2.12      0.0
                          IoFpgaGolden              YES    2.12    2.12      0.0
                          Primary-BIOS              YES    4.07    4.07      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    3.08    3.08      0.0
                          IoFpgaGolden              YES    2.07    2.03      0.0
                          JMAC1-Config              YES    3.00    3.00      0.0
                          JMAC2-Config              YES    3.00    3.00      0.0
                          JMAC3-Config              YES    3.00    3.00      0.0
                          JMAC4-Config              YES    3.00    3.00      0.0
                          JMAC5-Config              YES    3.00    3.00      0.0
                          Primary-BIOS              YES    1.49    1.49      0.0
                          StdbyFpga                 YES    0.50    0.50      0.0
                          StdbyFpgaGolden           YES    0.50    0.40      0.0
                          TamFw                     YES    4.13    4.13      0.0
                          TamFwGolden               YES    4.13    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    3.08    3.08      0.0
                          IoFpgaGolden              YES    2.07    2.03      0.0
                          JMAC1-Config              YES    3.00    3.00      0.0
                          JMAC2-Config              YES    3.00    3.00      0.0
                          JMAC3-Config              YES    3.00    3.00      0.0
                          JMAC4-Config              YES    3.00    3.00      0.0
                          JMAC5-Config              YES    3.00    3.00      0.0
                          Primary-BIOS              YES    1.49    1.49      0.0
                          StdbyFpga                 YES    0.50    0.50      0.0
                          StdbyFpgaGolden           YES    0.50    0.40      0.0
                          TamFw                     YES    4.13    4.13      0.0
                          TamFwGolden               YES    4.13    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    0.24    0.24      0.0
                          DpFpgaEth                 YES    1.22    1.22      0.0
                          IoFpga                    YES    1.30    1.30      0.0
                          IoFpgaGolden              YES    1.30    1.30      0.0
                          Primary-BIOS              YES    1.49    1.49      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    0.23    0.23    0.0
                         IoFpga                   YES    1.30    1.30    0.0
                         IoFpgaGolden             YES    1.30    1.30    0.0
                         Primary-BIOS             YES    1.49    1.49    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    3.08    3.08    0.0
                         IoFpgaGolden             YES    2.07    2.03    0.0
                         Primary-BIOS             YES    1.49    1.49    0.0
                         StdbyFpga                YES    0.50    0.50    0.0
                         StdbyFpgaGolden          YES    0.50    0.40    0.0
                         TamFw                    YES    4.13    4.13    0.0
                         TamFwGolden              YES    4.13    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    3.08    3.08    0.0
                         IoFpgaGolden             YES    2.07    2.03    0.0
                         Primary-BIOS             YES    1.49    1.49    0.0
                         StdbyFpga                YES    0.50    0.50    0.0
                         StdbyFpgaGolden          YES    0.50    0.40    0.0
                         TamFw                    YES    4.13    4.13    0.0
                         TamFwGolden              YES    4.13    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    3.08    3.08    0.0
                         IoFpgaGolden             YES    2.07    2.03    0.0
                         Primary-BIOS             YES    1.49    1.49    0.0
                         StdbyFpga                YES    0.50    0.50    0.0
                         StdbyFpgaGolden          YES    0.50    0.40    0.0
                         TamFw                    YES    4.13    4.13    0.0
                         TamFwGolden              YES    4.13    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    3.08    3.08    0.0
```

```
                              IoFpgaGolden              YES    2.07    2.03       0.0
                              Primary-BIOS              YES    1.49    1.49       0.0
                              StdbyFpga                 YES    0.50    0.50       0.0
                              StdbyFpgaGolden           YES    0.50    0.40       0.0
                              TamFw                     YES    4.13    4.13       0.0
                              TamFwGolden               YES    4.13    4.11       0.0
-------------------------------------------------------------------------------
N540X-16Z8Q2C-A               ADMConfig                 NO     1.05    1.05       0.0
                              IoFpga                    YES    3.08    3.08       0.0
                              IoFpgaGolden              YES    2.07    2.03       0.0
                              Primary-BIOS              YES    1.49    1.49       0.0
                              StdbyFpga                 YES    0.50    0.50       0.0
                              StdbyFpgaGolden           YES    0.50    0.40       0.0
                              TamFw                     YES    4.13    4.13       0.0
                              TamFwGolden               YES    4.13    4.11       0.0
-------------------------------------------------------------------------------
N540X-16Z8Q2C-D               ADMConfig                 NO     1.05    1.05       0.0
                              IoFpga                    YES    3.08    3.08       0.0
                              IoFpgaGolden              YES    2.07    2.03       0.0
                              Primary-BIOS              YES    1.49    1.49       0.0
                              StdbyFpga                 YES    0.50    0.50       0.0
                              StdbyFpgaGolden           YES    0.50    0.40       0.0
                              TamFw                     YES    4.13    4.13       0.0
                              TamFwGolden               YES    4.13    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 N540X-16Z4G8Q2C-A    0.3   ADM_FW               CURRENT  14.03   14.03
NOT REQ
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   ADMConfig            CURRENT   1.05    1.05
NOT REQ
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   IoFpga               CURRENT   3.08    3.08
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   IoFpgaGolden     B   NEED UPGD         1.31
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   Primary-BIOS     SA  CURRENT   1.49    1.49
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   StdbyFpga        S   CURRENT   0.50    0.50
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   StdbyFpgaGolden  BS  NEED UPGD         0.00
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   TamFw            S   CURRENT   4.13    4.13
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A    0.3   TamFwGolden      BS  NEED UPGD         0.00
  0/RP0
```

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540X-4Z14G2Q-A/D, N540-6Z18G-SYS-A/D, N540X-6Z18G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-8Z16G-SYS-A/D variants:

```
RP/0/RP0/CPU0:Router#show fpd package
================================= ==================================================
                                    Field Programmable Device Package
                                  ==================================================
                                    Req    SW      Min Req  Min Req
Card Type            FPD Description 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    20.08      20.08     0.0
                        IoFpga                     YES     0.08       0.08     0.0
                        IoFpgaGolden               YES     0.03       0.03     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-D        ADMConfig                  NO      5.03       5.03     0.0
                        BckUp-BootLoader           YES    20.08      20.08     0.0
                        IoFpga                     YES     0.08       0.08     0.0
                        IoFpgaGolden               YES     0.03       0.03     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-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
                        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    0.2    IoFpga              CURRENT   0.17   0.17
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    IoFpgaGolden     B  CURRENT          0.15
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    Prim-BootLoader  A  CURRENT  20.08  20.08
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    StdbyFpga        S  CURRENT   2.05   2.05
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    StdbyFpgaGolden  BS CURRENT          0.33
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    TamFw            S  CURRENT   6.05   6.05
  0/RP0
0/RP0/CPU0 N540-6Z14S-SYS-D    0.2    TamFwGolden      BS CURRENT          6.05
  0/RP0
```

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
                                 ==================================================
                                 Req    SW       Min Req   Min Req
Card Type            FPD Description              Reload Ver      SW Ver    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    3.08     3.08       0.0
                     IoFpgaGolden              YES    2.07     2.03       0.0
```

```
                              Primary-BIOS          YES    1.49    1.49    0.0
                              StdbyFpga             YES    0.50    0.50    0.0
                              StdbyFpgaGolden       YES    0.50    0.40    0.0
                              TamFw                 YES    4.13    4.13    0.0
                              TamFwGolden           YES    4.13    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    3.08    3.08    0.0
                              IoFpgaGolden          YES    2.07    2.03    0.0
                              Primary-BIOS          YES    1.49    1.49    0.0
                              StdbyFpga             YES    0.50    0.50    0.0
                              StdbyFpgaGolden       YES    0.50    0.40    0.0
                              TamFw                 YES    4.13    4.13    0.0
                              TamFwGolden           YES    4.13    4.11    0.0
--------------------------------------------------------------------------------
N540-24Q8L2DD-SYS            ADM-DBConfig          NO     2.05    2.05    0.0
                              ADM-MBConfig          NO     2.05    2.05    0.0
                              IoFpga                YES    2.12    2.12    0.0
                              IoFpgaGolden          YES    2.12    2.12    0.0
                              Primary-BIOS          YES    4.07    4.07    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    3.08    3.08    0.0
                              IoFpgaGolden          YES    2.07    2.03    0.0
                              JMAC1-Config          YES    3.00    3.00    0.0
                              JMAC2-Config          YES    3.00    3.00    0.0
                              JMAC3-Config          YES    3.00    3.00    0.0
                              JMAC4-Config          YES    3.00    3.00    0.0
                              JMAC5-Config          YES    3.00    3.00    0.0
                              Primary-BIOS          YES    1.49    1.49    0.0
                              StdbyFpga             YES    0.50    0.50    0.0
                              StdbyFpgaGolden       YES    0.50    0.40    0.0
                              TamFw                 YES    4.13    4.13    0.0
                              TamFwGolden           YES    4.13    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    3.08    3.08    0.0
                              IoFpgaGolden          YES    2.07    2.03    0.0
                              JMAC1-Config          YES    3.00    3.00    0.0
                              JMAC2-Config          YES    3.00    3.00    0.0
                              JMAC3-Config          YES    3.00    3.00    0.0
                              JMAC4-Config          YES    3.00    3.00    0.0
                              JMAC5-Config          YES    3.00    3.00    0.0
                              Primary-BIOS          YES    1.49    1.49    0.0
                              StdbyFpga             YES    0.50    0.50    0.0
                              StdbyFpgaGolden       YES    0.50    0.40    0.0
                              TamFw                 YES    4.13    4.13    0.0
                              TamFwGolden           YES    4.13    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    0.24    0.24    0.0
                              DpFpgaEth             YES    1.22    1.22    0.0
                              IoFpga                YES    1.30    1.30    0.0
                              IoFpgaGolden          YES    1.30    1.30    0.0
                              Primary-BIOS          YES    1.49    1.49    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    0.23     0.23     0.0
                        IoFpga                 YES    1.30     1.30     0.0
                        IoFpgaGolden           YES    1.30     1.30     0.0
                        Primary-BIOS           YES    1.49     1.49     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    3.08     3.08     0.0
                        IoFpgaGolden           YES    2.07     2.03     0.0
                        Primary-BIOS           YES    1.49     1.49     0.0
                        StdbyFpga              YES    0.50     0.50     0.0
                        StdbyFpgaGolden        YES    0.50     0.40     0.0
                        TamFw                  YES    4.13     4.13     0.0
                        TamFwGolden            YES    4.13     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    3.08     3.08     0.0
                        IoFpgaGolden           YES    2.07     2.03     0.0
                        Primary-BIOS           YES    1.49     1.49     0.0
                        StdbyFpga              YES    0.50     0.50     0.0
                        StdbyFpgaGolden        YES    0.50     0.40     0.0
                        TamFw                  YES    4.13     4.13     0.0
                        TamFwGolden            YES    4.13     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    3.08     3.08     0.0
                        IoFpgaGolden           YES    2.07     2.03     0.0
                        Primary-BIOS           YES    1.49     1.49     0.0
                        StdbyFpga              YES    0.50     0.50     0.0
                        StdbyFpgaGolden        YES    0.50     0.40     0.0
                        TamFw                  YES    4.13     4.13     0.0
                        TamFwGolden            YES    4.13     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     3.08     3.08    0.0
                     IoFpgaGolden                    YES     2.07     2.03    0.0
                     Primary-BIOS                    YES     1.49     1.49    0.0
                     StdbyFpga                       YES     0.50     0.50    0.0
                     StdbyFpgaGolden                 YES     0.50     0.40    0.0
                     TamFw                           YES     4.13     4.13    0.0
                     TamFwGolden                     YES     4.13     4.11    0.0
---------------------------------------------------------------------------------
N540X-16Z8Q2C-A      ADMConfig                       NO      1.05     1.05    0.0
                     IoFpga                          YES     3.08     3.08    0.0
                     IoFpgaGolden                    YES     2.07     2.03    0.0
                     Primary-BIOS                    YES     1.49     1.49    0.0
                     StdbyFpga                       YES     0.50     0.50    0.0
                     StdbyFpgaGolden                 YES     0.50     0.40    0.0
                     TamFw                           YES     4.13     4.13    0.0
                     TamFwGolden                     YES     4.13     4.11    0.0
---------------------------------------------------------------------------------
N540X-16Z8Q2C-D      ADMConfig                       NO      1.05     1.05    0.0
                     IoFpga                          YES     3.08     3.08    0.0
                     IoFpgaGolden                    YES     2.07     2.03    0.0
                     Primary-BIOS                    YES     1.49     1.49    0.0
                     StdbyFpga                       YES     0.50     0.50    0.0
                     StdbyFpgaGolden                 YES     0.50     0.40    0.0
                     TamFw                           YES     4.13     4.13    0.0
                     TamFwGolden                     YES     4.13     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 N540-24Q8L2DD-SYS    3.0   ADM-DBConfig        CURRENT   2.05    2.05
NOT REQ
0/RP0/CPU0 N540-24Q8L2DD-SYS    3.0   ADM-MBConfig        CURRENT   2.05    2.05
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
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         2.24
  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        1.0   PrimMCU             CURRENT   1.02    1.02
NOT REQ
0/PM1      N540-PWR400-A        1.0   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
```

```
                                        ===============================================
                                        Req    SW      Min Req  Min Req
Card Type             FPD Description   Reload Ver     SW Ver   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    3.08    3.08     0.0
                      IoFpgaGolden      YES    2.07    2.03     0.0
                      Primary-BIOS      YES    1.49    1.49     0.0
                      StdbyFpga         YES    0.50    0.50     0.0
                      StdbyFpgaGolden   YES    0.50    0.40     0.0
                      TamFw             YES    4.13    4.13     0.0
                      TamFwGolden       YES    4.13    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    3.08    3.08     0.0
                      IoFpgaGolden      YES    2.07    2.03     0.0
                      Primary-BIOS      YES    1.49    1.49     0.0
                      StdbyFpga         YES    0.50    0.50     0.0
                      StdbyFpgaGolden   YES    0.50    0.40     0.0
                      TamFw             YES    4.13    4.13     0.0
                      TamFwGolden       YES    4.13    4.11     0.0
--------------------------------------------------------------------------------
N540-24Q8L2DD-SYS     ADM-DBConfig      NO     2.05    2.05     0.0
                      ADM-MBConfig      NO     2.05    2.05     0.0
                      IoFpga            YES    2.12    2.12     0.0
                      IoFpgaGolden      YES    2.12    2.12     0.0
                      Primary-BIOS      YES    4.07    4.07     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    3.08    3.08     0.0
                      IoFpgaGolden      YES    2.07    2.03     0.0
                      JMAC1-Config      YES    3.00    3.00     0.0
                      JMAC2-Config      YES    3.00    3.00     0.0
                      JMAC3-Config      YES    3.00    3.00     0.0
                      JMAC4-Config      YES    3.00    3.00     0.0
                      JMAC5-Config      YES    3.00    3.00     0.0
                      Primary-BIOS      YES    1.49    1.49     0.0
                      StdbyFpga         YES    0.50    0.50     0.0
                      StdbyFpgaGolden   YES    0.50    0.40     0.0
                      TamFw             YES    4.13    4.13     0.0
                      TamFwGolden       YES    4.13    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    3.08    3.08     0.0
                      IoFpgaGolden      YES    2.07    2.03     0.0
                      JMAC1-Config      YES    3.00    3.00     0.0
                      JMAC2-Config      YES    3.00    3.00     0.0
                      JMAC3-Config      YES    3.00    3.00     0.0
                      JMAC4-Config      YES    3.00    3.00     0.0
                      JMAC5-Config      YES    3.00    3.00     0.0
                      Primary-BIOS      YES    1.49    1.49     0.0
                      StdbyFpga         YES    0.50    0.50     0.0
                      StdbyFpgaGolden   YES    0.50    0.40     0.0
                      TamFw             YES    4.13    4.13     0.0
```

	TamFwGolden	YES	4.13	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	0.24	0.24	0.0
	DpFpgaEth	YES	1.22	1.22	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	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	0.23	0.23	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	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	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	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	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	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     3.08    3.08     0.0
                      IoFpgaGolden             YES     2.07    2.03     0.0
                      Primary-BIOS             YES     1.49    1.49     0.0
                      StdbyFpga                YES     0.50    0.50     0.0
                      StdbyFpgaGolden          YES     0.50    0.40     0.0
                      TamFw                    YES     4.13    4.13     0.0
                      TamFwGolden              YES     4.13    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     3.08    3.08     0.0
                      IoFpgaGolden             YES     2.07    2.03     0.0
                      Primary-BIOS             YES     1.49    1.49     0.0
                      StdbyFpga                YES     0.50    0.50     0.0
                      StdbyFpgaGolden          YES     0.50    0.40     0.0
                      TamFw                    YES     4.13    4.13     0.0
                      TamFwGolden              YES     4.13    4.11     0.0
-------------------------------------------------------------------------------
N540X-16Z8Q2C-A      ADMConfig                NO     1.05    1.05     0.0
                      IoFpga                   YES     3.08    3.08     0.0
                      IoFpgaGolden             YES     2.07    2.03     0.0
                      Primary-BIOS             YES     1.49    1.49     0.0
                      StdbyFpga                YES     0.50    0.50     0.0
                      StdbyFpgaGolden          YES     0.50    0.40     0.0
                      TamFw                    YES     4.13    4.13     0.0
                      TamFwGolden              YES     4.13    4.11     0.0
-------------------------------------------------------------------------------
N540X-16Z8Q2C-D      ADMConfig                NO     1.05    1.05     0.0
                      IoFpga                   YES     3.08    3.08     0.0
                      IoFpgaGolden             YES     2.07    2.03     0.0
                      Primary-BIOS             YES     1.49    1.49     0.0
                      StdbyFpga                YES     0.50    0.50     0.0
                      StdbyFpgaGolden          YES     0.50    0.40     0.0
                      TamFw                    YES     4.13    4.13     0.0
                      TamFwGolden              YES     4.13    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    0.23    0.23
  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    1.49    1.49
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0    StdbyFpga       S  CURRENT    0.46    0.46
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0    StdbyFpgaGolden BS NEED UPGD          0.43
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0    TamFw           S  CURRENT    6.05    6.05
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0    TamFwGolden     BS CURRENT            6.05
  0/RP0
```

```
0/PM0      N540-PWR400-A      1.0    PrimMCU         CURRENT    1.02    1.02
NOT REQ
0/PM0      N540-PWR400-A      1.0    SecMCU          CURRENT    1.03    1.03
NOT REQ
```

Important Notes

Licensing

Starting with Cisco IOS XR Release 24.1.1, Smart Licensing Using Policy (SLP) is the default Licensing model. When you upgrade to the Cisco IOS XR Release 24.1.1 release or later, the Smart Licensing Using Policy is enabled by default.

You can migrate your devices to Smart Licensing with Policy model, see *Migrating from Smart Licensing to Smart Licensing Using Policy*, Smart Licensing Using Policy on Cisco IOS XR Routers.

We recommend that you update to the latest version of SSM On-Prem or Cisco Smart Licensing Utility.

Note SSM On-Prem and CSSM both support SLP devices and SL devices. SLP devices and SL devices can coexist in a network. The Smart Licensing (SL) model is available in releases Cisco IOS XR Release 7.11.1 and earlier.

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

Note For software installation and upgrades, refer to the respective upgrade/downgrade docs *.tar* files based on your 540 router varaint.

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-24.1.1.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-24.1.1.tar* file.

The upgrade document for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-6Z18G-SYS-A/D variants is available along with the software image in *NCS540l-aarch64-docs-24.1.1.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.

Cisco IOS XR Error messages

To view, search, compare, and download Cisco IOS XR Error Messages, refer to the Cisco IOS XR Error messages tool.

Cisco IOS XR MIBs

To determine the MIBs supported by platform and release, refer to the Cisco IOS XR MIBs tool.

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