Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 7.6.1

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What's New in Cisco IOS XR Release 7.6.1

Hardware	Description
Optics	**Note** Optics support varies across devices such as routers, line cards, and RPs. To know if an optics is compatible with a specific Cisco device, refer to the Transceiver Module Group (TMG) Compatibility Matrix. This release introduces the following optics: • Cisco 40GBASE Quad Small Form-Factor Pluggable (QSFP) • QSFP-40G-CSR-S • Cisco 25GBASE Small Form-Factor Pluggable (SFP28) • SFP-25G-AOCxM • SFP-H25G-CUxM • Cisco 100GBASE Quad Small Form-Factor Pluggable (QSFP) • QSFP-100G-DR-S

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

Feature	Description
IP Addresses and Services	

Feature	Description
Enable Ingress Interface Logging on ACE	Using the **log-input** keyword, you can now enable Access Control Entries (ACEs) to generate log messages that help you identify the interface through which a particular traffic stream ingresses the routers. This information aids in optimizing traffic flow across the network. There was no option to enable logging of ingress interfaces with an ACE in earlier releases. This feature introduces an optional keyword **log-input** for the following commands: • permit (IPv4) • permit (IPv6) • deny (IPv4) • deny (IPv6)
Modular QoS	
MPLS EXP Marking for EVPN Multi-Homed Services	You can now differentiate traffic in the MPLS forwarding domain and manage traffic from ingress PE to egress PE based on the MPLS EXP bit of the MPLS header for EVPN multi-home scenarios.
Multicast	
Access Pseudowire in VPLS Bridge Domains	You can configure EVPN in the access node under the same bridge domain as EVPN in the core and create a pseudowire (PW) to the nearest PE that binds the access circuits using EVPN. This PW between the access PE and the single-homed PE ensures that the access nodes can leverage the benefits of EVPN.
MPLS	
Enhanced Targeted LDP Session Scale Values	With the unidimensional scale parameter value increased to 1000 on the router, you can now configure more targeted LDP sessions, which use targeted "hello" messages to discover extended neighbors in an MPLS network.
Routing	

Feature	Description
IGP IP Flexible Algorithm for IS-IS Protocol	With IS-IS protocol extensions supporting Interior Gateway Protocol (IGP) Flexible Algorithm (Flex-Algorithm) on the IP data plane, you can now use the Algorithm to calculate IGP paths in an IP network without running Segment Routing. The IGP Flex-Algorithm allows for user-defined algorithms where the IGP computes paths based on a user-defined combination of metric type and constraints. Earlier, you could calculate IGP only using the Shortest Path First (SPF), which meant that you didn't have any choice except to use the default IGPpath calculated based on a native IGP metric. The following command is introduced: • data-plane ip The following commands are modified: • ipv4 address • ipv6 address • show isis topology
MPLS TE Preference for Tunnels	You can now configure the MPLS TE traffic for equal-cost multipath (ECMP) such that it flows only through TE tunnels. This is useful in scenarios where the hardware has resource constraints that limit the number of mixed ECMP routes. In earlier releases, IS-IS installed multiple ECMPs for a route in the Routing Information Base (RIB) through TE tunnels and physical interfaces by default. This feature introduces the following command: • **mpls traffic-eng tunnel preferred**
32 IS-IS Instances	You can now configure up to 32 IS-IS instances, thus enhancing the ability to isolate resources within your router and on the network. This ability enables you to configure more instances consuming network-wide resources at different rates, giving you more flexibility to manage your networks efficiently. In earlier releases, you could configure up to16 IS-IS instances.
System Setup and Software Installation	
Build Golden ISO (GISO) Using `gisobuild.py` Tool	This feature allows you to build your GISO image without support from Cisco. You can now select the install files, add your RPMs, repackage them as a custom image, and install the image. In previous releases, you had to contact Cisco to get your GISO built. **Note** Not supported on N540-24Q8L2DD-SYS variant.
L2VPN and Ethernet Services	

Feature	Description
CFM on EVPN ELAN	This feature introduces CFM support for single-homed EVPN Emulated Local Area Network (ELAN) services. This functionality helps you to monitor the ELAN services of users against their contractual service-level agreements (SLAs), thereby providing high speed Layer 2 and Layer 3 services with high resiliency and less operational complexity to different market segments.
EVPN Active/Active Multihome Source with IGMP Snooping	Supports multicast data packets from multihomed sources when the source is behind a BVI and the receivers at the core or on a bridge domain. **Note** Not supported on N540-24Q8L2DD-SYS variant.
Hierarchical EVPN Access Pseudowire	You can configure EVPN VPWS in the access node under the same bridge domain as EVPN in the core to build a PW to the nearest high-end PE that stitches those access circuits using EVPN. This allows the access nodes to leverage the benefits of EVPN. This feature also allows you to reduce the number of pseudowires (PWs) between the network provider edge (N-PE) devices by replacing PE devices with user provider edge (U-PE) and network provider edge (N-PE) devices. **Note** Not supported on N540-24Q8L2DD-SYS variant.
Enhancement to the **show ethernet cfm** command to include LTR and LTM statistics	This enhancement adds statistics for Linktrace Messages (LTM) and Linktrace Replies (LTR) in the **show ethernet cfm local meps verbose** command output. Using LTM and LTR count, you can trace the source of network failure and track the path to a unicast destination MAC address.
Configurable Recovery Time for EVPN Core Isolation Group	You can now configure the recovery time for the EVPN core isolation group after the core interfaces recover from a network failure. This functionality is important because post-failure recovery, you can provide sufficient time for the EVPN PE nodes to relearn the MAC addresses and BGP routes received from the remote PEs. There's also time to handle delays in exchanging EVPN routes after recovery. This feature introduces the **core-de-isolation** command under the EVPN Timers configuration mode.
Segment Routing	
Programming Non-Active Candidate Paths of an SR Policy	By programming non-active candidate paths (CPs) in the forwarding plane, you ensure that if the existing active CP is unavailable, the traffic switches quickly to the new CP, thus minimizing loss of traffic flow. In earlier releases, instantiating a non-active CP to the forwarding plane after the unavailability of the active CP could take a few seconds, resulting in potential loss of traffic flow. This feature introduces the following command: • **max-install-standby-cpaths**
Programmability	

Feature	Description
Accounting Records for NETCONF Operations	Depending on the accounting configuration command you use, every NETCONF operation that the router performs is reported to the local server as syslog messages or remote AAA servers like TACACS+ as accounting messages, or both.

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

Feature	Description
Modular QoS	
Scale Limits for H-QoS on Cisco NCS 540-24Q8L2DD-SYS Routers	With this release, 750 egress interfaces and subinterfaces are available for configuring QoS policies in the H-QoS model on Cisco NCS 540-24Q8L2DD-SYS routers. You can now achieve higher egress policy-map scales because of the increased number of VOQs available per subinterface. In earlier releases, 250 egress interfaces and subinterfaces were available for configuring QoS policies in the H-QoS model.
Interface and Hardware Component	
Local LAG hashing with PPPoE traffic	Load Balancing for Link Aggregation (LAG) AC and Equal Cost Multipath (ECMP) for PPPoE traffic is now available on Cisco NCS 540 routers and operates in the native and compatible modes. This load balancing is achieved by distributing PPPoE traffic on all available links. This feature is now supported on Cisco N540-24Q8L2DD-SYS router.
CFM Monitoring on EVPN	Ethernet Connectivity Fault Management (CFM) is a service-level OAM protocol that provides tools for monitoring and troubleshooting end-to-end Ethernet services per VLAN. With this release, CFM over EVPN is supported on Cisco N540-24Q8L2DD-SYS router and operate in compatibility mode.
SPAN over PW	Pseudowire-Switched Port Analyzer (PW-SPAN) is now available on Cisco N540-24Q8L2DD-SYS router and operate in the native mode. You can mirror designated traffic on the source port over a pseudo-wire to a central location with PW-SPAN. This functionality, also known as pseudo-wire traffic mirroring, allows the centralization of expensive network traffic analysis tools.
L2VPN and Ethernet Services	
MSTP and PVRST	This feature is now supported on Cisco N540-24Q8L2DD-SYS router and operate in native and compatibility modes.
Flow-Label Support on FAT-PW	This enhancement enables the MPLS OAM pings to work between Cisco devices and the third-party devices. Thus, allowing Flow-Aware Transport (FAT) Pseudowires (PW) to provide the load-balance capability across equal-cost multipath (ECMP) routes by adding a new label, called Flow Label, onto the bottom of the label stack. This feature is now supported on Cisco N540-24Q8L2DD-SYS router.
Segment Routing	

Feature	Description
SR Performance Measurement: Measurement Modes	This feature is now supported on Cisco N540-24Q8L2DD-SYS router and operate in native and compatibility modes. This feature supports one-way, two-way, and loopback measurement modes.
SR Performance Measurement: IP Endpoint Delay Measurement and Liveness Monitoring	This feature measures the end-to-end delay and monitors liveness of a specified IP endpoint node, including VRF-aware (awareness of multiple customers belonging to different VRFs), is now supported on Cisco N540-24Q8L2DD-SYS router.

The following feature is supported on N540-ACC-SYS, N540X-ACC-SYS, and N540-24Z8Q2C-SYS variants.

Feature	Description
System Security	
Reimage Protection for Routers	By disallowing USB and PXE boots at the BIOS level, this feature aims to prevent the resale of stolen routers. Such intervention ensures that attackers can't use the USB or PXE boot facility to erase the existing configuration and boot the stolen router with a fresh IOS XR image for resale. This feature introduces the **platform security reimage-protection enable** command and is supported on the following NCS 540 router variants: • N540-ACC-SYS • N540X-ACC-SYS • N540-24Z8Q2C-SYS

The following feature is supported on N540-ACC-SYS, N540X-ACC-SYS, N540-24Z8Q2C-SYS,N540-FH-CSR-SYS, N540-FH-AGG-SYS, N540X-16Z4G8Q2C-A/D, N540-12Z20G-SYS-A/D, and N540X-12Z16G-SYS-A/D variants.

Feature	Description
Network Synchronization	

Feature	Description
Synchronous Ethernet ESMC and SSM, and ITU-T G.8262.1	Ethernet Synchronization Message Channel (ESMC) allows you to transmit Synchronization Status Message (SSM) information by using the ESMC protocol data units (PDUs). In this release, Synchronous Ethernet ESMC and SSM are supported on the following Cisco NCS 540 router variants: • N540-ACC-SYS • N540X-ACC-SYS • N540-24Z8Q2C-SYS • N540-FH-CSR-SYS • N540-FH-AGG-SYS ITU-T G.8262.1 defines the Timing characteristics of a synchronous equipment slave clock. In this release, ITU-T G.8262.1 is supported on the following Cisco NCS 540 router variants: • N540-28Z4C-SYS-A/D • N540X-16Z4G8Q2C-A/D • N540-12Z20G-SYS-A/D • N540X-12Z16G-SYS-A/D • N540-ACC-SYS • N540X-ACC-SYS • N540-24Z8Q2C-SYS • N540-FH-CSR-SYS • N540-FH-AGG-SYS

Restrictions and Limitations on the Cisco NCS 540 Series Router

- Fabric multicast queue stats are not supported in N540X-8Z16G-SYS-A/D, N540X-6Z18G-SYS-A/D, and N540X-4Z14G2Q-A/D variants.
- Unlabeled BGP PIC EDGE for global prefixes is not supported.
- The **show inventory** and the **show diagnostic** commands do not display the fan serial number for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, and N540X-12Z16G-SYS-A/D variants.
- The interface ports 0/0/0/24 to 0/0/0/31 do not support 1G Copper SFPs on N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.

- The interface ports 0/0/0/20 to 0/0/0/27 do not support 1G Copper SFPs on N540X-16Z4G8Q2C-A and N540X-16Z4G8Q2C-D variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- Remove the speed settings on the 1G Copper optics when 10M/100M is configured and replaced with 1G SFP optics.
- The **hw-module profile mfib statistics** command is not supported.

Cisco IOS XR Caveats Release 7.6.1

Bug ID	Headline
CSCwb13103	IPv6 BFD packets getting control timer expired due to that ISIS OSPF protocols flapped during RPFO

IOS XR Base Images and Optional Packages

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

For general and ordering information see:

- Cisco Network Convergence System 540 Fronthaul Routers Data Sheet
- Cisco Network Convergence System 540 Large Density Router Data Sheet
- Cisco Network Convergence System 540 Medium Density Routers Data Sheet
- Cisco Network Convergence System 540 Small Density Router Data Sheet

To install the Cisco NCS 540 Series Routers, see Cisco NCS 540 Router Hardware Installation Guide.

Release 7.6.1 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, and N540-FH-AGG-SYS variants.
- The third table lists the supported software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D and N540X-6Z18G-SYS-A/D variants.

Table 1: Release 7.6.1 Software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Base Image	Filename	Description

IOS XR Base Image	ncs540-mini-x-7.6.1.iso	IOS XR manc
USB Boot Package	ncs540-usb_boot-7.6.1.zip	Package requi Includes the s
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r761.x86_64.rpm	Supports Exte gRPC and HT
IOS XR MPLS	ncs540-mpls-1.0.0.0-r761.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r761.x86_64.rpm	Supports MPI
IOS XR Security	ncs540-k9sec-1.0.0.0-r761.x86_64.rpm	Supports MA
IOS XR ISIS	ncs540-isis-1.0.0.0-r761.x86_64.rpm	Supports ISIS
IOS XR OSPF	ncs540-ospf-1.0.0.0-r761.x86_64.rpm	Supports OSP
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r761.x86_64.rpm	Supports Law
IOS XR Multicast	ncs540-mcast-1.0.0.0-r761.x86_64.rpm	Supports Mul
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r761.x86_64.rpm	Supports EIG
IOS XR LI-CTRL	ncs540-lictrl-1.0.0.0-r761.x86_64.rpm	Supports LI-C

Table 2: Release 7.6.1 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, and N540-FH-AGG-SYS

Base Image	**Filename**	**Description**

IOS XR Base Image	ncs540l-x64-7.6.1.iso	IOS XR base ima The base ISO ima • xr-bgp • xr-ipsla • xr-is-is • xr-lldp • xr-mcast • xr-mpls-oam • xr-ncs540l-n • xr-ncs540l-n • xr-netflow • xr-ospf • xr-perfmgmt • xr-track These optional pa
USB Boot Package	ncs540l-usb_boot-7.6.1.zip	Package required Includes the same
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-7.6.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-7.6.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-iosxr-7.6.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.7.6.1.tar	Supports 802.1X
IOS XR RIP (xr-rip)	NCS540l-iosxr-7.6.1.tar	Supports RIP

Table 3: Release 7.6.1 Software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D and N540X-6Z18G-SYS-A/D

Base Image	**Filename**	**Description**

IOS XR Base Image	ncs540l-aarch64-7.6.1.iso	IOS XR base The ISO imag • xr-bgp • xr-ipsla • xr-is-is • xr-lldp • xr-mcast • xr-mpls- • xr-ncs54 • xr-ncs54 • xr-netflo • xr-ospf • xr-perfm • xr-track These optiona NCS540l-aarc
USB Boot Package	ncs540l-aarch64-usb_boot-7.6.1.zip	Package requi Includes the s
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Telnet (xr-telnet)	NCS540l-aarch64-iosxr-optional-rpms-7.6.1.tar	Supports Teln
IOS XR EIGRP (xr-eigrp)	NCS540l-aarch64-iosxr-optional-rpms-7.6.1.tar	Supports EIG
IOS XR CDP (xr-cdp)	NCS540l-aarch64-iosxr-optional-rpms-7.6.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-aarch64-k9sec-rpms.7.6.1.tar	Supports 802.
IOS XR RIP (xr-rip)	NCS540l-aarch64-iosxr-optional-rpms-7.6.1.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 7.6.1
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
```

```
 Built By     : ingunawa
 Built On     : Sat Mar 26 19:42:00 PDT 2022
 Built Host   : iox-ucs-050
 Workspace    : /auto/srcarchive17/prod/7.6.1/ncs540/ws
 Version      : 7.6.1
 Location     : /opt/cisco/XR/packages/
 Label        : 7.6.1

cisco NCS-540 () processor
System uptime is 1 day 4 hours 21 minutes
```

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

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.6.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Sun Mar 27 01:29:19 UTC 2022
 Build Host   : iox-ucs-049
 Workspace    : /auto/srcarchive17/prod/7.6.1/ncs540l/ws
 Version      : 7.6.1
 Label        : 7.6.1

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540X-16Z4G8Q2C-A (C3708 @ 1.70GHz) processor with 8GB of memory
R4-EG-PE4 uptime is 1 day, 4 hours, 25 minutes
Cisco NCS 540 System with 16x10G+4x1GCu+8x25G+2x100G DC
```

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

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.6.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Sun Mar 27 01:22:05 UTC 2022
 Build Host   : iox-ucs-048
 Workspace    : /auto/srcarchive17/prod/7.6.1/ncs540l-aarch64/ws
 Version      : 7.6.1
 Label        : 7.6.1

cisco NCS540L
cisco N540X-6Z18G-SYS-A processor with 8GB of memory
R13-Darwin-CE1 uptime is 1 day, 1 hour, 43 minutes
Cisco NCS 540 Series Fixed Router 18x1G, 6x1/10G, AC
```

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

```
RP/0/RP0/CPU0:Router# show version
Cisco IOS XR Software, Version 7.6.1 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
Built By     : ingunawa
Built On     : Sun Mar 27 01:29:19 UTC 2022
Build Host   : iox-ucs-049
Workspace    : /auto/srcarchive17/prod/7.6.1/ncs540l/ws
Version      : 7.6.1
Label        : 7.6.1
```

```
cisco NCS540L (D1519 @ 1.50GHz)
cisco N540-24Q8L2DD-SYS (D1519 @ 1.50GHz) processor with 16GB of memory
R18_PE9_Arches uptime is 1 day, 9 hours, 36 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
Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure
                                                                                FPD Versions
                                                                               ==============
Location   Card type              HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------------
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   ADMConfig            CURRENT    5.00    5.00
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   IoFpga               CURRENT    0.17    0.17
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   IoFpgaGolden     B   NEED UPGD          0.15
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   Prim-BootLoader      CURRENT   20.04   20.04
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   StdbyFpga         S  CURRENT    1.09    1.09
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   StdbyFpgaGolden  BS  NEED UPGD          0.30
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   TamFw             S  CURRENT    6.05    6.05
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   TamFwGolden      BS  CURRENT            6.05
  0/RP0
```

Determine Firmware Support

Usethe 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:

```
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      1.16       1.16       0.0
                     CPU-IOFPGA(A)          YES      0.07       0.07       0.0
                     MB-IOFPGA(A)           YES      0.23       0.23       0.0
                     MB-MIFPGA              YES      0.05       0.05       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      71.00      71.00       0.0
                     SATA-M600-MCT(A)       NO       5.00       5.00       0.0
                     SATA-SMART-128G(A)     NO    1241.00    1241.00       0.0
                     SSFP_E1F_0             NO      13.01      13.01       0.0
                     SSFP_E1F_1             NO      13.01      13.01       0.0
                     SSFP_E1F_10            NO      13.01      13.01       0.0
```

```
                    SSFP_E1F_11               NO     13.01     13.01      0.0
                    SSFP_E1F_12               NO     13.01     13.01      0.0
                    SSFP_E1F_13               NO     13.01     13.01      0.0
                    SSFP_E1F_14               NO     13.01     13.01      0.0
                    SSFP_E1F_15               NO     13.01     13.01      0.0
                    SSFP_E1F_16               NO     13.01     13.01      0.0
                    SSFP_E1F_17               NO     13.01     13.01      0.0
                    SSFP_E1F_18               NO     13.01     13.01      0.0
                    SSFP_E1F_19               NO     13.01     13.01      0.0
                    SSFP_E1F_2                NO     13.01     13.01      0.0
                    SSFP_E1F_20               NO     13.01     13.01      0.0
                    SSFP_E1F_21               NO     13.01     13.01      0.0
                    SSFP_E1F_22               NO     13.01     13.01      0.0
                    SSFP_E1F_23               NO     13.01     13.01      0.0
                    SSFP_E1F_24               NO     13.01     13.01      0.0
                    SSFP_E1F_25               NO     13.01     13.01      0.0
                    SSFP_E1F_26               NO     13.01     13.01      0.0
                    SSFP_E1F_27               NO     13.01     13.01      0.0
                    SSFP_E1F_28               NO     13.01     13.01      0.0
                    SSFP_E1F_29               NO     13.01     13.01      0.0
                    SSFP_E1F_3                NO     13.01     13.01      0.0
                    SSFP_E1F_30               NO     13.01     13.01      0.0
                    SSFP_E1F_31               NO     13.01     13.01      0.0
                    SSFP_E1F_4                NO     13.01     13.01      0.0
                    SSFP_E1F_5                NO     13.01     13.01      0.0
                    SSFP_E1F_6                NO     13.01     13.01      0.0
                    SSFP_E1F_7                NO     13.01     13.01      0.0
                    SSFP_E1F_8                NO     13.01     13.01      0.0
                    SSFP_E1F_9                NO     13.01     13.01      0.0
                    SSFP_OC3_STM1_0           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_1           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_10          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_11          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_12          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_13          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_14          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_15          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_16          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_17          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_18          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_19          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_2           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_20          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_21          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_22          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_23          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_24          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_25          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_26          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_27          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_28          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_29          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_3           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_30          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_31          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_4           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_5           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_6           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_7           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_8           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_9           NO     12.01     12.01      0.0
--------------------------------------------------------------------------------
N540-ACC-SYS        Bootloader(A)             YES     1.16      1.16      0.0
                    CPU-IOFPGA(A)             YES     0.07      0.07      0.0
```

```
MB-IOFPGA(A)                YES      0.23       0.23       0.0
MB-MIFPGA                   YES      0.05       0.05       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      71.00      71.00       0.0
SATA-M600-MCT(A)            NO       5.00       5.00       0.0
SATA-SMART-128G(A)          NO    1241.00    1241.00       0.0
SSFP_E1F_0                  NO      13.01      13.01       0.0
SSFP_E1F_1                  NO      13.01      13.01       0.0
SSFP_E1F_10                 NO      13.01      13.01       0.0
SSFP_E1F_11                 NO      13.01      13.01       0.0
SSFP_E1F_12                 NO      13.01      13.01       0.0
SSFP_E1F_13                 NO      13.01      13.01       0.0
SSFP_E1F_14                 NO      13.01      13.01       0.0
SSFP_E1F_15                 NO      13.01      13.01       0.0
SSFP_E1F_16                 NO      13.01      13.01       0.0
SSFP_E1F_17                 NO      13.01      13.01       0.0
SSFP_E1F_18                 NO      13.01      13.01       0.0
SSFP_E1F_19                 NO      13.01      13.01       0.0
SSFP_E1F_2                  NO      13.01      13.01       0.0
SSFP_E1F_20                 NO      13.01      13.01       0.0
SSFP_E1F_21                 NO      13.01      13.01       0.0
SSFP_E1F_22                 NO      13.01      13.01       0.0
SSFP_E1F_23                 NO      13.01      13.01       0.0
SSFP_E1F_24                 NO      13.01      13.01       0.0
SSFP_E1F_25                 NO      13.01      13.01       0.0
SSFP_E1F_26                 NO      13.01      13.01       0.0
SSFP_E1F_27                 NO      13.01      13.01       0.0
SSFP_E1F_28                 NO      13.01      13.01       0.0
SSFP_E1F_29                 NO      13.01      13.01       0.0
SSFP_E1F_3                  NO      13.01      13.01       0.0
SSFP_E1F_30                 NO      13.01      13.01       0.0
SSFP_E1F_31                 NO      13.01      13.01       0.0
SSFP_E1F_4                  NO      13.01      13.01       0.0
SSFP_E1F_5                  NO      13.01      13.01       0.0
SSFP_E1F_6                  NO      13.01      13.01       0.0
SSFP_E1F_7                  NO      13.01      13.01       0.0
SSFP_E1F_8                  NO      13.01      13.01       0.0
SSFP_E1F_9                  NO      13.01      13.01       0.0
SSFP_OC3_STM1_0             NO      12.01      12.01       0.0
SSFP_OC3_STM1_1             NO      12.01      12.01       0.0
SSFP_OC3_STM1_10            NO      12.01      12.01       0.0
SSFP_OC3_STM1_11            NO      12.01      12.01       0.0
SSFP_OC3_STM1_12            NO      12.01      12.01       0.0
SSFP_OC3_STM1_13            NO      12.01      12.01       0.0
SSFP_OC3_STM1_14            NO      12.01      12.01       0.0
SSFP_OC3_STM1_15            NO      12.01      12.01       0.0
SSFP_OC3_STM1_16            NO      12.01      12.01       0.0
SSFP_OC3_STM1_17            NO      12.01      12.01       0.0
SSFP_OC3_STM1_18            NO      12.01      12.01       0.0
SSFP_OC3_STM1_19            NO      12.01      12.01       0.0
SSFP_OC3_STM1_2             NO      12.01      12.01       0.0
SSFP_OC3_STM1_20            NO      12.01      12.01       0.0
SSFP_OC3_STM1_21            NO      12.01      12.01       0.0
SSFP_OC3_STM1_22            NO      12.01      12.01       0.0
SSFP_OC3_STM1_23            NO      12.01      12.01       0.0
SSFP_OC3_STM1_24            NO      12.01      12.01       0.0
SSFP_OC3_STM1_25            NO      12.01      12.01       0.0
SSFP_OC3_STM1_26            NO      12.01      12.01       0.0
SSFP_OC3_STM1_27            NO      12.01      12.01       0.0
SSFP_OC3_STM1_28            NO      12.01      12.01       0.0
SSFP_OC3_STM1_29            NO      12.01      12.01       0.0
SSFP_OC3_STM1_3             NO      12.01      12.01       0.0
```

	SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_9	NO	12.01	12.01	0.0
N540-PWR400-A	LIT-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	1.16	1.16	0.0
	CPU-IOFPGA(A)	YES	0.07	0.07	0.0
	MB-IOFPGA(A)	YES	0.23	0.23	0.0
	MB-MIFPGA	YES	0.05	0.05	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	71.00	71.00	0.0
	SATA-M600-MCT(A)	NO	5.00	5.00	0.0
	SATA-SMART-128G(A)	NO	1241.00	1241.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0
	SSFP_E1F_16	NO	13.01	13.01	0.0
	SSFP_E1F_17	NO	13.01	13.01	0.0
	SSFP_E1F_18	NO	13.01	13.01	0.0
	SSFP_E1F_19	NO	13.01	13.01	0.0
	SSFP_E1F_2	NO	13.01	13.01	0.0
	SSFP_E1F_20	NO	13.01	13.01	0.0
	SSFP_E1F_21	NO	13.01	13.01	0.0
	SSFP_E1F_22	NO	13.01	13.01	0.0
	SSFP_E1F_23	NO	13.01	13.01	0.0
	SSFP_E1F_24	NO	13.01	13.01	0.0
	SSFP_E1F_25	NO	13.01	13.01	0.0
	SSFP_E1F_26	NO	13.01	13.01	0.0
	SSFP_E1F_27	NO	13.01	13.01	0.0
	SSFP_E1F_28	NO	13.01	13.01	0.0
	SSFP_E1F_29	NO	13.01	13.01	0.0
	SSFP_E1F_3	NO	13.01	13.01	0.0
	SSFP_E1F_30	NO	13.01	13.01	0.0
	SSFP_E1F_31	NO	13.01	13.01	0.0
	SSFP_E1F_4	NO	13.01	13.01	0.0
	SSFP_E1F_5	NO	13.01	13.01	0.0
	SSFP_E1F_6	NO	13.01	13.01	0.0
	SSFP_E1F_7	NO	13.01	13.01	0.0
	SSFP_E1F_8	NO	13.01	13.01	0.0
	SSFP_E1F_9	NO	13.01	13.01	0.0
	SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
	SSFP_OC3_STM1_12	NO	12.01	12.01	0.0

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                    SSFP_OC3_STM1_13          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_14          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_15          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_16          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_17          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_18          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_19          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_2           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_20          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_21          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_22          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_23          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_24          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_25          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_26          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_27          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_28          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_29          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_3           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_30          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_31          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_4           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_5           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_6           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_7           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_8           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_9           NO     12.01     12.01      0.0
--------------------------------------------------------------------------------
N540X-ACC-SYS       Bootloader(A)             YES     1.16      1.16      0.0
                    CPU-IOFPGA(A)             YES     0.07      0.07      0.0
                    MB-IOFPGA(A)              YES     0.23      0.23      0.0
                    MB-MIFPGA                 YES     0.05      0.05      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     71.00     71.00      0.0
                    SATA-M600-MCT(A)          NO      5.00      5.00      0.0
                    SATA-SMART-128G(A)        NO   1241.00   1241.00      0.0
                    SSFP_E1F_0                NO     13.01     13.01      0.0
                    SSFP_E1F_1                NO     13.01     13.01      0.0
                    SSFP_E1F_10               NO     13.01     13.01      0.0
                    SSFP_E1F_11               NO     13.01     13.01      0.0
                    SSFP_E1F_12               NO     13.01     13.01      0.0
                    SSFP_E1F_13               NO     13.01     13.01      0.0
                    SSFP_E1F_14               NO     13.01     13.01      0.0
                    SSFP_E1F_15               NO     13.01     13.01      0.0
                    SSFP_E1F_16               NO     13.01     13.01      0.0
                    SSFP_E1F_17               NO     13.01     13.01      0.0
                    SSFP_E1F_18               NO     13.01     13.01      0.0
                    SSFP_E1F_19               NO     13.01     13.01      0.0
                    SSFP_E1F_2                NO     13.01     13.01      0.0
                    SSFP_E1F_20               NO     13.01     13.01      0.0
                    SSFP_E1F_21               NO     13.01     13.01      0.0
                    SSFP_E1F_22               NO     13.01     13.01      0.0
                    SSFP_E1F_23               NO     13.01     13.01      0.0
                    SSFP_E1F_24               NO     13.01     13.01      0.0
                    SSFP_E1F_25               NO     13.01     13.01      0.0
                    SSFP_E1F_26               NO     13.01     13.01      0.0
                    SSFP_E1F_27               NO     13.01     13.01      0.0
                    SSFP_E1F_28               NO     13.01     13.01      0.0
                    SSFP_E1F_29               NO     13.01     13.01      0.0
                    SSFP_E1F_3                NO     13.01     13.01      0.0
                    SSFP_E1F_30               NO     13.01     13.01      0.0
                    SSFP_E1F_31               NO     13.01     13.01      0.0
```

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                    SSFP_E1F_4                NO     13.01     13.01      0.0
                    SSFP_E1F_5                NO     13.01     13.01      0.0
                    SSFP_E1F_6                NO     13.01     13.01      0.0
                    SSFP_E1F_7                NO     13.01     13.01      0.0
                    SSFP_E1F_8                NO     13.01     13.01      0.0
                    SSFP_E1F_9                NO     13.01     13.01      0.0
                    SSFP_OC3_STM1_0           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_1           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_10          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_11          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_12          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_13          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_14          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_15          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_16          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_17          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_18          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_19          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_2           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_20          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_21          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_22          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_23          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_24          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_25          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_26          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_27          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_28          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_29          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_3           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_30          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_31          NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_4           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_5           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_6           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_7           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_8           NO     12.01     12.01      0.0
                    SSFP_OC3_STM1_9           NO     12.01     12.01      0.0
RP/0/RP0/CPU0:Router# show hw-module fpd

Auto-upgrade:Enabled
                                                                          FPD Versions
                                                                          ==============
Location   Card type              HWver FPD device       ATR Status    Running   Programd
-------------------------------------------------------------------------------------------
0/RP0      N540-ACC-SYS          1.0   MB-MIFPGA            CURRENT     0.05      0.05
0/RP0      N540-ACC-SYS          1.0   Bootloader           CURRENT     1.16      1.16
0/RP0      N540-ACC-SYS          1.0   CPU-IOFPGA           CURRENT     0.07      0.07
0/RP0      N540-ACC-SYS          1.0   MB-IOFPGA            CURRENT     0.23      0.23
0/RP0      N540-ACC-SYS          1.0   SATA-M500IT-MU-B     CURRENT     4.00      4.00
0/PM0      N540-PWR400-A         1.256 LIT-PriMCU-ACFW      CURRENT     0.04      0.04
0/PM0      N540-PWR400-A         1.256 LIT-SecMCU-ACFW      CURRENT     0.07      0.07
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 and N540X-16Z4G8Q2C-A/D variants:

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

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

Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
N540-12Z20G-SYS-A	ADMConfig	YES	1.05	1.05	0.0
	IoFpga	YES	2.07	2.07	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.33	1.33	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-12Z20G-SYS-D	ADMConfig	YES	1.05	1.05	0.0
	IoFpga	YES	2.07	2.07	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.33	1.33	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-24Q8L2DD-SYS	ADM-DBConfig	YES	2.03	2.03	0.0
	ADM-MBConfig	YES	2.01	2.01	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.12	2.12	0.0
	Primary-BIOS	YES	1.08	1.08	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	ADMConfig	YES	1.05	1.05	0.0
	IoFpga	YES	2.07	2.07	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.33	1.33	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-28Z4C-SYS-D	ADMConfig	YES	1.05	1.05	0.0
	IoFpga	YES	2.07	2.07	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.33	1.33	0.0
	StdbyFpga	YES	0.40	0.40	0.0
	StdbyFpgaGolden	YES	0.40	0.40	0.0
	TamFw	YES	4.11	4.11	0.0
	TamFwGolden	YES	4.11	4.11	0.0
N540-FH-AGG-SYS	ADM1_Config	YES	1.02	1.02	1.0
	ADM2_Config	YES	1.02	1.02	1.0
	DpFpgaCpri	YES	0.22	0.22	0.0
	DpFpgaEth	YES	1.20	1.20	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.33	1.33	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	YES	0.09	0.09	0.0
	ADM1_Config	YES	1.01	1.01	2.0

```
                    ADM2_Config                YES     0.09      0.09      0.0
                    ADM2_Config                YES     1.01      1.01      2.0
                    DpFpga                     YES     0.21      0.21      0.0
                    IoFpga                     YES     1.30      1.30      0.0
                    IoFpgaGolden               YES     1.30      1.30      0.0
                    Primary-BIOS               YES     1.33      1.33      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  ADMConfig                  YES     1.05      1.05      0.0
                    IoFpga                     YES     2.07      2.07      0.0
                    IoFpgaGolden               YES     2.07      2.03      0.0
                    Primary-BIOS               YES     1.33      1.33      0.0
                    StdbyFpga                  YES     0.40      0.40      0.0
                    StdbyFpgaGolden            YES     0.40      0.40      0.0
                    TamFw                      YES     4.11      4.11      0.0
                    TamFwGolden                YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-12Z16G-SYS-D  ADMConfig                  YES     1.05      1.05      0.0
                    IoFpga                     YES     2.07      2.07      0.0
                    IoFpgaGolden               YES     2.07      2.03      0.0
                    Primary-BIOS               YES     1.33      1.33      0.0
                    StdbyFpga                  YES     0.40      0.40      0.0
                    StdbyFpgaGolden            YES     0.40      0.40      0.0
                    TamFw                      YES     4.11      4.11      0.0
                    TamFwGolden                YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-16Z4G8Q2C-A   ADMConfig                  YES     1.05      1.05      0.0
                    IoFpga                     YES     2.07      2.07      0.0
                    IoFpgaGolden               YES     2.07      2.03      0.0
                    Primary-BIOS               YES     1.33      1.33      0.0
                    StdbyFpga                  YES     0.40      0.40      0.0
                    StdbyFpgaGolden            YES     0.40      0.40      0.0
                    TamFw                      YES     4.11      4.11      0.0
                    TamFwGolden                YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-16Z4G8Q2C-D   ADMConfig                  YES     1.05      1.05      0.0
                    IoFpga                     YES     2.07      2.07      0.0
                    IoFpgaGolden               YES     2.07      2.03      0.0
                    Primary-BIOS               YES     1.33      1.33      0.0
                    StdbyFpga                  YES     0.40      0.40      0.0
                    StdbyFpgaGolden            YES     0.40      0.40      0.0
                    TamFw                      YES     4.11      4.11      0.0
                    TamFwGolden                YES     4.11      4.11      0.0

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

```
Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure
                                                                       FPD Versions
                                                                      ==============
Location   Card type              HWver FPD device       ATR Status   Running Programd
Reload Loc
-------------------------------------------------------------------------------------------
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   ADMConfig            CURRENT    1.05    1.05
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   IoFpga               CURRENT    2.07    2.07
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   IoFpgaGolden     B   CURRENT            2.03
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   Primary-BIOS      S  CURRENT    1.33    1.33
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   StdbyFpga         S  CURRENT    0.40    0.40
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   StdbyFpgaGolden  BS  NEED UPGD          0.00
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   TamFw             S  CURRENT    4.11    4.11
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     0.2   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-6Z18G-SYS-A/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
=================== ========================= ====== ======= ======== =========
--------------------------------------------------------------------------------
N540-6Z14G-SYS-D     ADMConfig                  YES     5.03     5.03       0.0
                     BckUp-BootLoader           YES    20.04    20.04       0.0
                     IoFpga                     YES     0.17     0.17       0.0
                     IoFpgaGolden               YES     0.17     0.17       0.0
                     Prim-BootLoader            YES    20.04    20.04       0.0
                     StdbyFpga                  YES     1.09     1.09       0.0
                     StdbyFpgaGolden            YES     1.09     1.09       0.0
                     TamFw                      YES     6.05     6.05       0.0
                     TamFwGolden                YES     6.05     6.05       0.0
--------------------------------------------------------------------------------
N540X-4Z14G2Q-A      ADMConfig                  YES     5.00     5.00       0.0
                     BckUp-BootLoader           YES    20.04    20.04       0.0
                     IoFpga                     YES     0.17     0.17       0.0
                     IoFpgaGolden               YES     0.17     0.17       0.0
                     Prim-BootLoader            YES    20.04    20.04       0.0
                     StdbyFpga                  YES     1.09     1.09       0.0
                     StdbyFpgaGolden            YES     0.34     0.34       0.0
                     TamFw                      YES     6.05     6.05       0.0
                     TamFwGolden                YES     6.05     6.05       0.0
--------------------------------------------------------------------------------
N540X-4Z14G2Q-D      ADMConfig                  YES     5.00     5.00       0.0
                     BckUp-BootLoader           YES    20.04    20.04       0.0
                     IoFpga                     YES     0.17     0.17       0.0
                     IoFpgaGolden               YES     0.17     0.17       0.0
                     Prim-BootLoader            YES    20.04    20.04       0.0
                     StdbyFpga                  YES     1.09     1.09       0.0
                     StdbyFpgaGolden            YES     0.34     0.34       0.0
                     TamFw                      YES     6.05     6.05       0.0
                     TamFwGolden                YES     6.05     6.05       0.0
```

```
--------------------------------------------------------------------------------
N540X-6Z18G-SYS-A    ADMConfig                 YES     5.00      5.00      0.0
                     BckUp-BootLoader          YES    20.04     20.04      0.0
                     IoFpga                    YES     0.17      0.17      0.0
                     IoFpgaGolden              YES     0.17      0.17      0.0
                     Prim-BootLoader           YES    20.04     20.04      0.0
                     StdbyFpga                 YES     1.09      1.09      0.0
                     StdbyFpgaGolden           YES     0.34      0.34      0.0
                     TamFw                     YES     6.05      6.05      0.0
                     TamFwGolden               YES     6.05      6.05      0.0
--------------------------------------------------------------------------------
N540X-6Z18G-SYS-D    ADMConfig                 YES     5.00      5.00      0.0
                     BckUp-BootLoader          YES    20.04     20.04      0.0
                     IoFpga                    YES     0.17      0.17      0.0
                     IoFpgaGolden              YES     0.17      0.17      0.0
                     Prim-BootLoader           YES    20.04     20.04      0.0
                     StdbyFpga                 YES     1.09      1.09      0.0
                     StdbyFpgaGolden           YES     0.34      0.34      0.0
                     TamFw                     YES     6.05      6.05      0.0
                     TamFwGolden               YES     6.05      6.05      0.0
--------------------------------------------------------------------------------
N540X-8Z16G-SYS-A    ADMConfig                 YES     5.00      5.00      0.0
                     BckUp-BootLoader          YES    20.04     20.04      0.0
                     IoFpga                    YES     0.17      0.17      0.0
                     IoFpgaGolden              YES     0.17      0.17      0.0
                     Prim-BootLoader           YES    20.04     20.04      0.0
                     StdbyFpga                 YES     1.09      1.09      0.0
                     StdbyFpgaGolden           YES     0.34      0.34      0.0
                     TamFw                     YES     6.05      6.05      0.0
                     TamFwGolden               YES     6.05      6.05      0.0
--------------------------------------------------------------------------------
N540X-8Z16G-SYS-D    ADMConfig                 YES     5.00      5.00      0.0
                     BckUp-BootLoader          YES    20.04     20.04      0.0
                     IoFpga                    YES     0.17      0.17      0.0
                     IoFpgaGolden              YES     0.17      0.17      0.0
                     Prim-BootLoader           YES    20.04     20.04      0.0
                     StdbyFpga                 YES     1.09      1.09      0.0
                     StdbyFpgaGolden           YES     0.34      0.34      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
                                                                      FPD Versions
                                                                     ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
--------------------------------------------------------------------------------------------
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   ADMConfig            CURRENT    5.00    5.00
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   IoFpga               CURRENT    0.17    0.17
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   IoFpgaGolden     B   NEED UPGD           0.15
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   Prim-BootLoader      CURRENT   20.04   20.04
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   StdbyFpga         S  CURRENT    1.09    1.09
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   StdbyFpgaGolden   BS NEED UPGD           0.30
  0/RP0
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3   TamFw              S  CURRENT    6.05    6.05
  0/RP0
```

```
0/RP0/CPU0 N540X-4Z14G2Q-A       0.3    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    ADMConfig                 YES     1.05      1.05       0.0
                     IoFpga                    YES     2.07      2.07       0.0
                     IoFpgaGolden              YES     2.07      2.03       0.0
                     Primary-BIOS              YES     1.33      1.33       0.0
                     StdbyFpga                 YES     0.40      0.40       0.0
                     StdbyFpgaGolden           YES     0.40      0.40       0.0
                     TamFw                     YES     4.11      4.11       0.0
                     TamFwGolden               YES     4.11      4.11       0.0
------------------------------------------------------------------------------
N540-12Z20G-SYS-D    ADMConfig                 YES     1.05      1.05       0.0
                     IoFpga                    YES     2.07      2.07       0.0
                     IoFpgaGolden              YES     2.07      2.03       0.0
                     Primary-BIOS              YES     1.33      1.33       0.0
                     StdbyFpga                 YES     0.40      0.40       0.0
                     StdbyFpgaGolden           YES     0.40      0.40       0.0
                     TamFw                     YES     4.11      4.11       0.0
                     TamFwGolden               YES     4.11      4.11       0.0
------------------------------------------------------------------------------
N540-24Q8L2DD-SYS    ADM-DBConfig              YES     2.03      2.03       0.0
                     ADM-MBConfig              YES     2.01      2.01       0.0
                     IoFpga                    YES     2.12      2.12       0.0
                     IoFpgaGolden              YES     2.12      2.12       0.0
                     Primary-BIOS              YES     1.08      1.08       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     ADMConfig                 YES     1.05      1.05       0.0
                     IoFpga                    YES     2.07      2.07       0.0
                     IoFpgaGolden              YES     2.07      2.03       0.0
                     Primary-BIOS              YES     1.33      1.33       0.0
                     StdbyFpga                 YES     0.40      0.40       0.0
                     StdbyFpgaGolden           YES     0.40      0.40       0.0
                     TamFw                     YES     4.11      4.11       0.0
                     TamFwGolden               YES     4.11      4.11       0.0
------------------------------------------------------------------------------
N540-28Z4C-SYS-D     ADMConfig                 YES     1.05      1.05       0.0
                     IoFpga                    YES     2.07      2.07       0.0
                     IoFpgaGolden              YES     2.07      2.03       0.0
                     Primary-BIOS              YES     1.33      1.33       0.0
                     StdbyFpga                 YES     0.40      0.40       0.0
                     StdbyFpgaGolden           YES     0.40      0.40       0.0
                     TamFw                     YES     4.11      4.11       0.0
                     TamFwGolden               YES     4.11      4.11       0.0
------------------------------------------------------------------------------
N540-FH-AGG-SYS      ADM1_Config               YES     1.02      1.02       1.0
                     ADM2_Config               YES     1.02      1.02       1.0
                     DpFpgaCpri                YES     0.22      0.22       0.0
                     DpFpgaEth                 YES     1.20      1.20       0.0
```

```
                     IoFpga                    YES     1.30      1.30      0.0
                     IoFpgaGolden              YES     1.30      1.30      0.0
                     Primary-BIOS              YES     1.33      1.33      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               YES     0.09      0.09      0.0
                     ADM1_Config               YES     1.01      1.01      2.0
                     ADM2_Config               YES     0.09      0.09      0.0
                     ADM2_Config               YES     1.01      1.01      2.0
                     DpFpga                    YES     0.21      0.21      0.0
                     IoFpga                    YES     1.30      1.30      0.0
                     IoFpgaGolden              YES     1.30      1.30      0.0
                     Primary-BIOS              YES     1.33      1.33      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   ADMConfig                 YES     1.05      1.05      0.0
                     IoFpga                    YES     2.07      2.07      0.0
                     IoFpgaGolden              YES     2.07      2.03      0.0
                     Primary-BIOS              YES     1.33      1.33      0.0
                     StdbyFpga                 YES     0.40      0.40      0.0
                     StdbyFpgaGolden           YES     0.40      0.40      0.0
                     TamFw                     YES     4.11      4.11      0.0
                     TamFwGolden               YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-12Z16G-SYS-D   ADMConfig                 YES     1.05      1.05      0.0
                     IoFpga                    YES     2.07      2.07      0.0
                     IoFpgaGolden              YES     2.07      2.03      0.0
                     Primary-BIOS              YES     1.33      1.33      0.0
                     StdbyFpga                 YES     0.40      0.40      0.0
                     StdbyFpgaGolden           YES     0.40      0.40      0.0
                     TamFw                     YES     4.11      4.11      0.0
                     TamFwGolden               YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-16Z4G8Q2C-A    ADMConfig                 YES     1.05      1.05      0.0
                     IoFpga                    YES     2.07      2.07      0.0
                     IoFpgaGolden              YES     2.07      2.03      0.0
                     Primary-BIOS              YES     1.33      1.33      0.0
                     StdbyFpga                 YES     0.40      0.40      0.0
                     StdbyFpgaGolden           YES     0.40      0.40      0.0
                     TamFw                     YES     4.11      4.11      0.0
                     TamFwGolden               YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
```

```
N540X-16Z4G8Q2C-D    ADMConfig                 YES     1.05      1.05      0.0
                     IoFpga                    YES     2.07      2.07      0.0
                     IoFpgaGolden              YES     2.07      2.03      0.0
                     Primary-BIOS              YES     1.33      1.33      0.0
                     StdbyFpga                 YES     0.40      0.40      0.0
                     StdbyFpgaGolden           YES     0.40      0.40      0.0
                     TamFw                     YES     4.11      4.11      0.0
                     TamFwGolden               YES     4.11      4.11      0.0

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

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure
                                                                              FPD Versions
                                                                             ==============
Location   Card type             HWver FPD device       ATR Status   Running Programd
Reload Loc
-----------------------------------------------------------------------------------------------
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   ADM-DBConfig         NEED UPGD  1.51    1.51
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   ADM-MBConfig         CURRENT    2.01    2.01
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   IoFpga               CURRENT    2.12    2.12
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   IoFpgaGolden     B   NEED UPGD          2.10
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   Primary-BIOS      S  CURRENT    1.08    1.08
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   StdbyFpga         S  CURRENT    2.59    2.59
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   StdbyFpgaGolden  BS  NEED UPGD          0.00
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   TamFw             S  CURRENT    6.05    6.05
  0/RP0
0/RP0/CPU0 N540-24Q8L2DD-SYS     2.0   TamFwGolden      BS  NEED UPGD          0.00
  0/RP0
0/PM0      N540-PWR400-A         0.0   PrimMCU              CURRENT    1.02    1.02
NOT REQ
0/PM0      N540-PWR400-A         0.0   SecMCU               CURRENT    1.03    1.03
NOT REQ
```

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

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

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure
                                                                              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
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   ADM2_Config          CURRENT    0.09    0.09
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   DpFpga               CURRENT    0.21    0.21
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   IoFpga               CURRENT    1.30    1.30
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   IoFpgaGolden     B   NEED UPGD          1.23
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   Primary-BIOS      S  CURRENT    1.33    1.33
  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/PM1      N540-PWR400-A         0.0   PrimMCU               NEED UPGD  0.02    0.02
NOT REQ
0/PM1      N540-PWR400-A         0.0   SecMCU                NEED UPGD  0.02    0.02
NOT REQ
RP/0/RP0/CPU0:Felidae-PE7#sh
show  shutdown
```

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

================================ ==============================================
                                        Field Programmable Device Package
                                 ==============================================
                                              Req      SW       Min Req   Min Req
Card Type            FPD Description          Reload   Ver      SW Ver    Board Ver
================== ========================== ====== ======= ========= =========
------------------------------------------------------------------------------
N540-12Z20G-SYS-A    ADMConfig                  YES     1.05      1.05      0.0
                     IoFpga                     YES     2.07      2.07      0.0
                     IoFpgaGolden               YES     2.07      2.03      0.0
                     Primary-BIOS               YES     1.33      1.33      0.0
                     StdbyFpga                  YES     0.40      0.40      0.0
                     StdbyFpgaGolden            YES     0.40      0.40      0.0
                     TamFw                      YES     4.11      4.11      0.0
                     TamFwGolden                YES     4.11      4.11      0.0
------------------------------------------------------------------------------
N540-12Z20G-SYS-D    ADMConfig                  YES     1.05      1.05      0.0
                     IoFpga                     YES     2.07      2.07      0.0
                     IoFpgaGolden               YES     2.07      2.03      0.0
                     Primary-BIOS               YES     1.33      1.33      0.0
                     StdbyFpga                  YES     0.40      0.40      0.0
                     StdbyFpgaGolden            YES     0.40      0.40      0.0
                     TamFw                      YES     4.11      4.11      0.0
                     TamFwGolden                YES     4.11      4.11      0.0
------------------------------------------------------------------------------
N540-24Q8L2DD-SYS    ADM-DBConfig               YES     2.03      2.03      0.0
                     ADM-MBConfig               YES     2.01      2.01      0.0
                     IoFpga                     YES     2.12      2.12      0.0
                     IoFpgaGolden               YES     2.12      2.12      0.0
                     Primary-BIOS               YES     1.08      1.08      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     ADMConfig                  YES     1.05      1.05      0.0
                     IoFpga                     YES     2.07      2.07      0.0
                     IoFpgaGolden               YES     2.07      2.03      0.0
                     Primary-BIOS               YES     1.33      1.33      0.0
                     StdbyFpga                  YES     0.40      0.40      0.0
                     StdbyFpgaGolden            YES     0.40      0.40      0.0
                     TamFw                      YES     4.11      4.11      0.0
                     TamFwGolden                YES     4.11      4.11      0.0
------------------------------------------------------------------------------
N540-28Z4C-SYS-D     ADMConfig                  YES     1.05      1.05      0.0
                     IoFpga                     YES     2.07      2.07      0.0
                     IoFpgaGolden               YES     2.07      2.03      0.0
                     Primary-BIOS               YES     1.33      1.33      0.0
```

```
                    StdbyFpga                YES     0.40      0.40      0.0
                    StdbyFpgaGolden          YES     0.40      0.40      0.0
                    TamFw                    YES     4.11      4.11      0.0
                    TamFwGolden              YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540-FH-AGG-SYS     ADM1_Config              YES     1.02      1.02      1.0
                    ADM2_Config              YES     1.02      1.02      1.0
                    DpFpgaCpri               YES     0.22      0.22      0.0
                    DpFpgaEth                YES     1.20      1.20      0.0
                    IoFpga                   YES     1.30      1.30      0.0
                    IoFpgaGolden             YES     1.30      1.30      0.0
                    Primary-BIOS             YES     1.33      1.33      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              YES     0.09      0.09      0.0
                    ADM1_Config              YES     1.01      1.01      2.0
                    ADM2_Config              YES     0.09      0.09      0.0
                    ADM2_Config              YES     1.01      1.01      2.0
                    DpFpga                   YES     0.21      0.21      0.0
                    IoFpga                   YES     1.30      1.30      0.0
                    IoFpgaGolden             YES     1.30      1.30      0.0
                    Primary-BIOS             YES     1.33      1.33      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  ADMConfig                YES     1.05      1.05      0.0
                    IoFpga                   YES     2.07      2.07      0.0
                    IoFpgaGolden             YES     2.07      2.03      0.0
                    Primary-BIOS             YES     1.33      1.33      0.0
                    StdbyFpga                YES     0.40      0.40      0.0
                    StdbyFpgaGolden          YES     0.40      0.40      0.0
                    TamFw                    YES     4.11      4.11      0.0
                    TamFwGolden              YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-12Z16G-SYS-D  ADMConfig                YES     1.05      1.05      0.0
                    IoFpga                   YES     2.07      2.07      0.0
                    IoFpgaGolden             YES     2.07      2.03      0.0
                    Primary-BIOS             YES     1.33      1.33      0.0
                    StdbyFpga                YES     0.40      0.40      0.0
                    StdbyFpgaGolden          YES     0.40      0.40      0.0
                    TamFw                    YES     4.11      4.11      0.0
                    TamFwGolden              YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
```

```
N540X-16Z4G8Q2C-A    ADMConfig                YES     1.05      1.05      0.0
                     IoFpga                   YES     2.07      2.07      0.0
                     IoFpgaGolden             YES     2.07      2.03      0.0
                     Primary-BIOS             YES     1.33      1.33      0.0
                     StdbyFpga                YES     0.40      0.40      0.0
                     StdbyFpgaGolden          YES     0.40      0.40      0.0
                     TamFw                    YES     4.11      4.11      0.0
                     TamFwGolden              YES     4.11      4.11      0.0
--------------------------------------------------------------------------------
N540X-16Z4G8Q2C-D    ADMConfig                YES     1.05      1.05      0.0
                     IoFpga                   YES     2.07      2.07      0.0
                     IoFpgaGolden             YES     2.07      2.03      0.0
                     Primary-BIOS             YES     1.33      1.33      0.0
                     StdbyFpga                YES     0.40      0.40      0.0
                     StdbyFpgaGolden          YES     0.40      0.40      0.0
                     TamFw                    YES     4.11      4.11      0.0
                     TamFwGolden              YES     4.11      4.11      0.0
```

Important Notes

Supported Transceiver Modules

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

Upgrading Cisco IOS XR Software

Cisco IOS XR Software is installed and activated from modular packages, allowing specific features or software patches to be installed, upgraded, or downgraded without affecting unrelated processes.

The upgrade document for N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants is available along with the software image in *NCS540-docs-7.6.1.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, and N540-FH-CSR-SYS variants is available along with the software image in *NCS540l-docs-7.6.1.tar* file.

The upgrade document for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, and N540X-6Z18G-SYS-A/D variants is available along with the software image in *NCS540l-aarch64-docs-7.6.1.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.

Use user-class Option 'xr-config' Instead Of 'exr-config' To Provision ZTP

In Cisco IOS XR Release 7.3.1 and earlier, the system accepts the device sending **user-class = "exr-config"**; however starting Cisco IOS XR Release 7.3.2 and later, you must use only **user-class = "xr-config"**.

In Cisco IOS XR Release 7.3.2 and later, use:

```
host cisco-rp0 {
   hardware ethernet e4:c7:22:be:10:ba;
   fixed-address 172.30.12.54;
   if exists user-class and option user-class = "iPXE" {
      filename = "http://172.30.0.22/boot.ipxe";
   } elsif exists user-class and option user-class = "xr-config" {
      filename = "http://172.30.0.22/scripts/cisco-rp0_ztp.sh";
   }
}
```

Additional References

Supported MIBs

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