Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 7.4.2

First Published: 2022-02-15

Network Convergence System 540 Series Routers

Note *This software release has reached end-of-life status. For more information, see the* End-of-Life and End-of-Sale Notices.

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Note Cisco IOS XR Release 7.4.2 is an Extended Maintenance Release of Cisco IOS XR Release 7.4.1 for Cisco NCS 540 Series routers. For more details on the Cisco IOS XR release model and associated support, see Guidelines for Cisco IOS XR Software.

What's New in Cisco IOS XR Release 7.4.2

Feature	Description
Fronthaul	
Prioritize Transportation of Frames Using Frame Preemption	Based on IEEE 802.1Qbu-2016 and Time-Sensitive Networking (TSN) standards, Frame Preemption is now available on converged xHaul transport networks. This feature accelerates the transport of express frames such as radio packets or low latency service packets. This feature is available on N540-FH-CSR-SYS and N540-FH-AGG-SYS routers by transporting radio traffic and traditional enterprise access traffic. For more information, see Cisco NCS 540 Fronthaul Router Portfolio At-a-Glance.

Feature	Description
L2VPN	
EVPN Seamless Integration with VPWS	This feature enables you to seamlessly migrate the PE nodes from VPWS to EVPN-VPWS service without disruption in traffic. Such a migration offers your service providers the option to use VPWS or EVPN-VPWS services on PE nodes. This feature introduces the **vpws-seamless-integration** command.
Layer 2 Ingress QoS Matching for IPv4 and IPv6 Destination Addresses	Using this feature, you can match class maps to IPv4 and IPv6 destination addresses on Layer 2 networks. The Layer 2 interface service policy has the relevant class maps, actioning them for ingress QoS operations. This feature provides you with an additional level of classification for aggregated customer traffic at your ingress, thus giving you granular control on traffic flows. This feature introduces the following commands: • **match destination-address** • **hw-module profile qos l2-match-dest-addr-v4v6**
Segment Routing	
LDP over SRTE	This feature allows an LDP-targeted adjacency over a Segment Routing policy between two routers, enabling the collapsed forwarding function. This leads to simplified network topologies and reduced operating expenses.
SR Policy Path Protection	This feature enables path protection for SR policies. It allows you to configure an SR policy with working (active) and protect (backup) candidate paths pre-programmed in the forwarding. You can monitor these candidate paths using SR Policy Liveness Monitoring probes. When the head-end detects a liveness failure on the working candidate path, it triggers a switchover to the protect candidate path.
Hardware	
Support for General Purpose Input/Output (GPIO) External Alarm Port	With this release, you can enable external alarms, such as external doors, voltage, fire, thermal, and water sensors on the following variants of Cisco NCS 540 routers: • N540X-6Z18G-SYS-A/D • N540X-8Z16G-SYS-A/D • N540X-4Z14G2Q-A/D For more information, see the Cisco Network Convergence System 540 Small Density Routers Data Sheet.

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, and N540X-4Z14G2Q-A/D variants.

- Unlabeled BGP PIC EDGE for global prefixes is not supported.
- The **show inventory** and the **show diagnostic** commands do not display the fan serial number for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, and N540X-12Z16G-SYS-A/D variants.
- The interface ports 0/0/0/24 to 0/0/0/31 do not support 1G Copper SFPs on N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- The interface ports 0/0/0/20 to 0/0/0/27 do not support 1G Copper SFPs on N540X-16Z4G8Q2C-A and N540X-16Z4G8Q2C-D variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- Remove the speed settings on the 1G Copper optics when 10M/100M is configured and replaced with 1G SFP optics.
- The **hw-module profile mfib statistics** command is not supported.

Caveats

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

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

The bug IDs are sorted alphanumerically.

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

Cisco IOS XR Caveats Release 7.4.2

Bug ID	Headline
CSCwa35067	External error, xtc_api_connect log seen post RPFO.
CSCvz95369	Continuous BCMDPA_L1_PORT_CREATION_FAILURE messages post RPVM FO on router.

Bug Search Tool

Use the Cisco Bug Search Tool to access open and resolved bugs for a release.

The tool allows you to search for a specific bug ID, or for all bugs specific to a product and a release.

IOS XR 7.4.2 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 Medium Density Routers Data Sheet
- Cisco Network Convergence System 540 Small Density Router Data Sheet
- Cisco Network Convergence System 540 Large Density Router Data Sheet
- Cisco Network Convergence System 540 Fronthaul Routers Data Sheet

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

Release 7.4.2 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, and N540-12Z20G-SYS-A/D 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 7.4.2 Software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Base Image	**Filename**	**Description**
IOS XR Base Image	ncs540-mini-x-7.4.2.iso	IOS XR mandato
USB Boot Package	ncs540-usb_boot-7.4.2.zip	Package required Includes the same
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r742.x86_64.rpm	Supports Extensil gRPC and HTTP
IOS XR MPLS	ncs540-mpls-1.0.0.0-r742.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r742.x86_64.rpm	Supports MPLS a
IOS XR Security	ncs540-k9sec-1.0.0.0-r742.x86_64.rpm	Supports MACse
IOS XR ISIS	ncs540-isis-1.0.0.0-r742.x86_64.rpm	Supports ISIS

IOS XR OSPF	ncs540-ospf-1.0.0.0-r742.x86_64.rpm	Supports OSP
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r742.x86_64.rpm	Supports Law
IOS XR Multicast	ncs540-mcast-1.0.0.0-r742.x86_64.rpm	Supports Mul
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r742.x86_64.rpm	Supports EIG

Table 2: Release 7.4.2 Software for N540-24Q8L2DD-SYS, N540X-16Z4G8Q2C-A/D, N540-28Z4C-SYS-A/D, N540X-12Z16G-SYS-A/D, and N540-12Z20G-SYS-A/D

Base Image	**Filename**	**Description**
IOS XR Base Image	ncs540l-x64-7.4.2.iso	IOS XR base The base ISO • 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
USB Boot Package	ncs540l-usb_boot-7.4.2.zip	Package requi Includes the s
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-7.4.2.tar	Supports Teln
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-7.4.2.tar	Supports EIG
IOS XR CDP (xr-cdp)	NCS540l-iosxr-7.4.2.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.7.4.2.tar	Supports 802.

Table 3: Release 7.4.2 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-aarch64-7.4.2.iso	IOS XR base ima The ISO image al • 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 NCS540l-aarch64
USB Boot Package	ncs540l-aarch64-usb_boot-7.4.2.zip	Package required Includes the same
Optional Packages not included in the base image		
Package	**Filename**	**Description**
IOS XR Telnet (xr-telnet)	NCS540l-aarch64-iosxr-optional-rpms-7.4.2.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-aarch64-iosxr-optional-rpms-7.4.2.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-aarch64-iosxr-optional-rpms-7.4.2.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-aarch64-k9sec-rpms.7.4.2.tar	Supports 802.1X

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:R1_PE1#show version
Thu Feb 17 09:43:42.405 IST
Cisco IOS XR Software, Version 7.4.2
```

```
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Wed Feb 16 05:24:50 PST 2022
 Built Host   : iox-lnx-025
 Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540/ws
 Version      : 7.4.2
 Location     : /opt/cisco/XR/packages/
 Label        : 7.4.2

cisco NCS-540 () processor
System uptime is 29 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:R11_PE5_EG#show version
Thu Feb 17 09:46:40.990 IST
Cisco IOS XR Software, Version 7.4.2 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Wed Feb 16 12:00:31 UTC 2022
 Build Host   : iox-lnx-063
 Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540l/ws
 Version      : 7.4.2
 Label        : 7.4.2

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540X-16Z4G8Q2C-A (C3708 @ 1.70GHz) processor with 8GB of memory
BB3_EG uptime is 36 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 N540-24Q8L2DD-SYS variant:

```
RP/0/RP0/CPU0:R1_PE1#show version
Thu Feb 17 09:44:24.889 IST
Cisco IOS XR Software, Version 7.4.2 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Wed Feb 16 12:00:31 UTC 2022
 Build Host   : iox-lnx-063
 Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540l/ws
 Version      : 7.4.2
 Label        : 7.4.2

cisco NCS540L (D1519 @ 1.50GHz)
cisco N540-24Q8L2DD-SYS (D1519 @ 1.50GHz) processor with 16GB of memory
Arches_PE42 uptime is 48 minutes
Cisco NCS540 Series, Fixed Router 2x400G, 8x50G, 24x25G Chassis
```

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

```
RP/0/RP0/CPU0:R1_PE1#show version
Thu Feb 17 09:48:31.844 IST
Cisco IOS XR Software, Version 7.4.2 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
```

```
 Built On     : Wed Feb 16 14:35:17 UTC 2022
 Build Host   : iox-lnx-021
 Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540l-aarch64/ws
 Version      : 7.4.2
 Label        : 7.4.2

cisco NCS540L
cisco N540X-8Z16G-SYS-A processor with 8GB of memory
Galapagos_SRv6_PE67 uptime is 26 minutes
Cisco NCS 540 Series Fixed Router 12x1G, 4xCu, 8x1/10G, AC
```

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

```
RP/0/RP0/CPU0:R1_PE1#show version
Thu Feb 17 10:31:19.046 IST
Cisco IOS XR Software, Version 7.4.2 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
Built By     : ingunawa
Built On     : Wed Feb 16 12:00:31 UTC 2022
Build Host   : iox-lnx-063
Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540l/ws
Version      : 7.4.2
Label        : 7.4.2

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-FH-AGG-SYS (C3708 @ 1.70GHz) processor with 8GB of memory
CE7-Lion uptime is 6 minutes
Cisco NCS 540 FH System with 24xCPRI/25G/10G/TSN+4x100G
```

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

```
RP/0/RP0/CPU0:R1_PE1#show version
Thu Feb 17 10:29:18.084 IST
Cisco IOS XR Software, Version 7.4.2 LNT
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
Built By     : ingunawa
Built On     : Wed Feb 16 12:00:31 UTC 2022
Build Host   : iox-lnx-063
Workspace    : /auto/srcarchive15/prod/7.4.2/ncs540l/ws
Version      : 7.4.2
Label        : 7.4.2

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-FH-CSR-SYS (C3708 @ 1.70GHz) processor with 8GB of memory
CE8-Jaguar uptime is 4 minutes
N540-FH-CSR-SYS
```

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 location all fpd** commands on the Cisco N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants:

```
RP/0/RP0/CPU0:R1_PE1# show fpd package
Thu Feb 17 09:43:45.683 IST

================================ ================================================
```

```
                                        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     1.14      1.14      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
-------------------------------------------------------------------------------
N540-ACC-SYS         Bootloader(A)               YES     1.14      1.14      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
-------------------------------------------------------------------------------
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     1.14      1.14      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
-------------------------------------------------------------------------------
N540X-ACC-SYS        Bootloader(A)               YES     1.14      1.14      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

RP/0/RP0/CPU0:R1_PE1# show hw-module location all fpd
Thu Feb 17 09:43:49.733 IST

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     0.05      0.05
0/RP0      N540-ACC-SYS          1.0   Bootloader           CURRENT     1.14      1.14
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 location all 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:R11_PE5_EG#show fpd package
Thu Feb 17 09:46:49.339 IST

============================== ===============================================
                                       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     0.20      0.20      0.0
                    DpFpgaEth                 YES     1.18      1.18      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     0.19      0.19      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-IP65-SYS    DpFpga                    YES     0.19      0.19      0.0
                    IoFpga                    YES     1.24      1.24      0.0
                    IoFpgaGolden              YES     1.24      1.24      0.0
                    Primary-BIOS              YES     1.17      1.17      0.0
                    StdbyFpga                 YES     0.43      0.43      0.0
                    StdbyFpgaGolden           YES     0.43      0.43      0.0
                    TamFw                     YES     6.05      6.05      0.0
                    TamFwGolden               YES     6.05      6.05      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
--------------------------------------------------------------------------------
PWR-400W-ACPI       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
--------------------------------------------------------------------------------
PWR-400W-DCPI       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
--------------------------------------------------------------------------------
PWR-750W-ACPI       EM-PrimMCU                 NO      1.02      1.02      0.0
                    EM-SecMCU                  NO      1.03      1.03      0.0
--------------------------------------------------------------------------------
PWR-750W-DCPI       EM-PrimMCU                 NO      1.03      1.03      0.0
                    EM-SecMCU                  NO      3.01      3.01      0.0

RP/0/RP0/CPU0:R1_PE1# show hw-module location all fpd
Thu Feb 17 09:46:54.223 IST

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     1.0   ADMConfig            CURRENT    1.05    1.05
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   IoFpga               CURRENT    2.07    2.07
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   IoFpgaGolden     B   NEED UPGD          1.31
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   Primary-BIOS      S  CURRENT    1.33    1.33
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   StdbyFpga         S  CURRENT    0.40    0.40
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   StdbyFpgaGolden  BS  NEED UPGD          0.37
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   TamFw             S  CURRENT    4.11    4.11
  0/RP0
0/RP0/CPU0 N540X-16Z4G8Q2C-A     1.0   TamFwGolden      BS  CURRENT            4.11
  0/RP0
```

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

```
RP/0/RP0/CPU0:R1_PE1# show fpd package
Thu Feb 17 09:44:27.123 IST

================================ ================================================
                                          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     0.20      0.20       0.0
                     DpFpgaEth                           YES     1.18      1.18       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     0.19      0.19      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-IP65-SYS    DpFpga                     YES     0.19      0.19      0.0
                    IoFpga                     YES     1.24      1.24      0.0
                    IoFpgaGolden               YES     1.24      1.24      0.0
                    Primary-BIOS               YES     1.17      1.17      0.0
                    StdbyFpga                  YES     0.43      0.43      0.0
                    StdbyFpgaGolden            YES     0.43      0.43      0.0
                    TamFw                      YES     6.05      6.05      0.0
                    TamFwGolden                YES     6.05      6.05      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
--------------------------------------------------------------------------------
PWR-400W-ACPI       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
--------------------------------------------------------------------------------
PWR-400W-DCPI       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
--------------------------------------------------------------------------------
PWR-750W-ACPI        EM-PrimMCU                 NO      1.02      1.02      0.0
                     EM-SecMCU                  NO      1.03      1.03      0.0
--------------------------------------------------------------------------------
PWR-750W-DCPI        EM-PrimMCU                 NO      1.03      1.03      0.0
                     EM-SecMCU                  NO      3.01      3.01      0.0

RP/0/RP0/CPU0:R1_PE1# show hw-module location all fpd
Thu Feb 17 09:44:32.816 IST

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         CURRENT    2.03    2.03
  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          0.00
  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
```

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

```
RP/0/RP0/CPU0:R1_PE1# show fpd package
Thu Feb 17 09:48:35.981 IST

================================ ================================================
                                          Field Programmable Device Package
                                 ================================================
                                                Req     SW      Min Req   Min Req
Card Type            FPD Description            Reload  Ver     SW Ver  Board Ver
==================== ========================== ====== ======= ======== =========
--------------------------------------------------------------------------------
N540X-4Z14G2Q-A      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     0.33      0.33      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      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     0.33      0.33      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   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     0.33      0.33      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   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     0.33      0.33      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   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     0.33      0.33      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   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     0.33      0.33      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:R1_PE1# show hw-module location all fpd
Thu Feb 17 09:48:40.779 IST

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-8Z16G-SYS-A     0.2   IoFpga               CURRENT    0.17    0.17
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     0.2   IoFpgaGolden     B   NEED UPGD          0.00
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     0.2   Prim-BootLoader      CURRENT   20.04   20.04
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     0.2   StdbyFpga         S  CURRENT    0.34    0.34
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     0.2   StdbyFpgaGolden  BS  NEED UPGD          0.25
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     0.2   TamFw             S  CURRENT    6.05    6.05
  0/RP0
0/RP0/CPU0 N540X-8Z16G-SYS-A     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-FH-AGG-SYS variant:

```
RP/0/RP0/CPU0:R1_PE1# show fpd package
Thu Feb 17 10:32:43.297 IST

================================ ================================================
                                          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     0.20      0.20      0.0
                     DpFpgaEth                   YES     1.18      1.18      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     0.19      0.19      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-IP65-SYS    DpFpga                    YES     0.19      0.19      0.0
                    IoFpga                    YES     1.24      1.24      0.0
                    IoFpgaGolden              YES     1.24      1.24      0.0
                    Primary-BIOS              YES     1.17      1.17      0.0
                    StdbyFpga                 YES     0.43      0.43      0.0
                    StdbyFpgaGolden           YES     0.43      0.43      0.0
                    TamFw                     YES     6.05      6.05      0.0
                    TamFwGolden               YES     6.05      6.05      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
```

```
--------------------------------------------------------------------------------
PWR-400W-ACPI        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
--------------------------------------------------------------------------------
PWR-400W-DCPI        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
--------------------------------------------------------------------------------
PWR-750W-ACPI        EM-PrimMCU                NO      1.02      1.02      0.0
                     EM-SecMCU                 NO      1.03      1.03      0.0
--------------------------------------------------------------------------------
PWR-750W-DCPI        EM-PrimMCU                NO      1.03      1.03      0.0
                     EM-SecMCU                 NO      3.01      3.01      0.0

RP/0/RP0/CPU0:R1_PE1# show hw-module fpd
Thu Feb 17 10:32:39.110 IST

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-AGG-SYS       1.0   ADM1_Config          NEED UPGD  0.91    0.91
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   ADM2_Config          NEED UPGD  0.91    0.91
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   DpFpgaCpri           NOT READY  0.00    0.20
    N/A
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   DpFpgaEth            CURRENT    1.18    1.18
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   IoFpga               CURRENT    1.30    1.30
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   IoFPgaGolden     B   NEED UPGD          1.23
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   Primary-BIOS      S  CURRENT    1.33    1.33
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   StdbyFpga         S  CURRENT    0.46    0.46
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   StdbyFpgaGolden  BS  NEED UPGD          0.00
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   TamFw             S  CURRENT    6.05    6.05
  0/RP0
0/RP0/CPU0 N540-FH-AGG-SYS       1.0   TamFwGolden      BS  NEED UPGD          0.26
  0/RP0
0/PM1      N540-PWR750-A         0.0   PrimMCU              NOT READY  1.02    1.02
    N/A
0/PM1      N540-PWR750-A         0.0   SecMCU               NOT READY  1.03    1.03
    N/A
```

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:R1_PE1# show fpd package
Thu Feb 17 10:29:23.162 IST

================================ ================================================
                                        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     0.20      0.20      0.0
                     DpFpgaEth                  YES     1.18      1.18      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     0.19      0.19      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-IP65-SYS    DpFpga                    YES     0.19      0.19      0.0
                    IoFpga                    YES     1.24      1.24      0.0
                    IoFpgaGolden              YES     1.24      1.24      0.0
                    Primary-BIOS              YES     1.17      1.17      0.0
                    StdbyFpga                 YES     0.43      0.43      0.0
                    StdbyFpgaGolden           YES     0.43      0.43      0.0
                    TamFw                     YES     6.05      6.05      0.0
                    TamFwGolden               YES     6.05      6.05      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
--------------------------------------------------------------------------------
PWR-400W-ACPI       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
--------------------------------------------------------------------------------
PWR-400W-DCPI       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
--------------------------------------------------------------------------------
```

```
PWR-750W-ACPI        EM-PrimMCU                NO      1.02      1.02      0.0
                     EM-SecMCU                 NO      1.03      1.03      0.0
--------------------------------------------------------------------------------
PWR-750W-DCPI        EM-PrimMCU                NO      1.03      1.03      0.0
                     EM-SecMCU                 NO      3.01      3.01      0.0

RP/0/RP0/CPU0:R1_PE1# show hw-module fpd
Thu Feb 17 10:29:20.355 IST

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          NEED UPGD  0.07    0.07
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   ADM2_Config          NEED UPGD  0.07    0.07
  0/RP0
0/RP0/CPU0 N540-FH-CSR-SYS       1.0   DpFpga               CURRENT    0.19    0.19
  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          1.19
  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          0.00
  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  NEED UPGD          5.03
  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
```

Other Important Information

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-7.4.2.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-7.4.2.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-7.4.2.tar* file.

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.

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