



Release Notes for Cisco NCS 540 Series Routers, Cisco IOS XR Release 24.2.1

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Network Convergence System 540 Series Routers

What's New in Cisco IOS XR Release 24.2.1

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

Software Features Enhanced and Introduced

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

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

Feature	Description
Routing	
Support for NCS 540 routers as Seamless BFD reflector	<p>This feature introduces support for NCS 540 routers as a Seamless BFD (SBFD) reflector.</p> <p>Seamless BFD simplifies the negotiation and state establishment aspects of BFD by predetermining session discriminators and maintaining session state only at the headend. This approach ensures quicker connectivity tests and reduces complexity in session establishment.</p> <p>Previously, support for Seamless BFD reflector was not available.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <p>The sbfd command is extended to support NCS 540 routers.</p>
Segment Routing	

Feature	Description
Data Plane Validation for SR-MPLS IPv6-based Controller Instantiated LSPs	<p>You can now verify the network configuration and paths and policies set up, without interrupting or potentially disrupting live network traffic, for SR-MPLS (Segment Routing over Multiprotocol Label Switching) IPv6-based Label Switched Paths (LSPs). With this feature, you can validate controller instantiated LSPs programmed directly into the forwarding hardware.</p> <p>Previously, SR data plane validation was possible over IPv4-based LSPs.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <p>The dataplane-only keyword is introduced in the tracert sr-mpls and ping sr-mpls commands.</p> <p>YANG Data Models:</p> <ul style="list-style-type: none"> • <code>Cisco-IOS-XR-mpls-tracert-act.yang</code> • <code>Cisco-IOS-XR-mpls-ping-act.yang</code> <p>See (GitHub, Yang Data Models Navigator)</p>
Delay Measurement for IP Endpoint over SRv6 Network	<p>In Segment Routing over an IPv6 network (SRv6), you can measure packet delay from the source to a specific IP endpoint. You can use this information for troubleshooting, network maintenance, and optimizing network performance.</p> <p>Additionally, you can use flow labels to verify the delay of each subsequent hop path towards the IP endpoint of that path. So that, when network traffic is distributed across multiple available paths towards an IP endpoint, delay measurement tracks the delay of each of these paths towards the IP endpoint.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> • The source-address ipv6 keyword is introduced in the performance-measurement endpoint command. • The segment-list name keyword is introduced in the segment-routing traffic-eng explicit command. • The flow-label keyword is introduced in the performance-measurement delay-profile name command. <p>YANG Data Model:</p> <ul style="list-style-type: none"> • <code>Cisco-IOS-XR-um-performance-measurement-cfg</code> • <code>Cisco-IOS-XR-perf-meas-oper.yang</code> <p>(See GitHub, YANG Data Models Navigator)</p>

Feature	Description
Display Neighbor Router Capabilities in OSPF Networks	<p>You can now improve the user experience, understand the features and functionalities supported by neighboring routers, reduce operational work hours and human errors by gaining better visibility into the routing capabilities of directly connected neighboring routers in an OSPF network. These improvements are now possible when you enable Segment Routing on a neighboring connected router.</p> <p>Previously, there was no straightforward method to display the segment routing and other capabilities of neighboring routers in an OSPF network.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> The capabilities keyword is introduced in the show ospf neighbor command. <p>YANG Data Models:</p> <ul style="list-style-type: none"> <code>Cisco-IOS-XR-ipv4-ospf-oper.yang</code> <p>See (GitHub, Yang Data Models Navigator)</p>
Liveness Monitoring for IP Endpoint over SRv6 Network	<p>In Segment Routing over an IPv6 network (SRv6), you can keep track of the operational status of both the forward and reverse paths of a particular node or IP endpoint. You can use this information for troubleshooting, network maintenance, and optimizing network performance.</p> <p>Additionally, you can use flow labels to verify the liveness of each subsequent hop path toward the IP endpoint of that path. So that, when network traffic is distributed across multiple available paths towards an IP endpoint, liveness detection tracks the operational status of each of these paths towards the IP endpoint.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> The reverse-path and segment-list name keywords are introduced in the segment-routing traffic-eng explicit command. The source-address ipv6 is introduced in the performance-measurement endpoint command. <p>YANG Data Model:</p> <ul style="list-style-type: none"> <code>Cisco-IOS-XR-um-performance-measurement-cfg</code> <code>Cisco-IOS-XR-perf-meas-oper.yang</code> <p>(see GitHub, YANG Data Models Navigator)</p>

Feature	Description
MPLS OAM support for SR-TE Policies using MPLS IPv6-based LSPs	<p>You can now verify the network configuration and paths and SR-TE policies set up, without interrupting or potentially disrupting live network traffic, for SR-MPLS (Segment Routing over Multiprotocol Label Switching) IPv6-based Label Switched Paths (LSPs).</p> <p>Previously, MPLS OAM support was only for IPv4-based LSPs.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <p>The traceroute sr-mpls and ping sr-mpls commands are extended to support IPv6 nexthop addresses.</p> <p>YANG Data Models:</p> <ul style="list-style-type: none"> • <code>Cisco-IOS-XR-mpls-traceroute-act.yang</code> • <code>Cisco-IOS-XR-mpls-ping-act.yang</code> <p>See (GitHub, Yang Data Models Navigator)</p>
Multi-area Loopback Interface Support for OSPF	<p>You can save IP addresses and resources, prevent the use of multiple node SIDs for labels associated with loopback interfaces, and save time configuring multiple loopback interfaces for an Area Border Router (ABR) in a network. These improvements are possible as you can now configure a single loopback interface for multiple areas. With this feature, an ABR can use a single loopback interface for all areas it connects to, eliminating the need for separate loopback interfaces for each area.</p> <p>Previously, each loopback interface was linked to only one area.</p> <p>The feature introduces these changes:</p> <p>CLI:</p> <p>The multi-area-interface command is extended to support loopback interfaces.</p>
SRv6 Traffic Class DSCP Marking Enhancement for QoS	<p>This feature enables you to configure the traffic-class DSCP marking to 6-bits using the new policy-map-extend keyword in the</p> <p>hw-module profile segment-routing srv6 mode microsegment f3216 encapsulation traffic-class CLI in both the L2 and L3 traffic configurations for SRv6. This is a mutually inclusive feature for L2 and L3 traffic. Therefore, this feature cannot be used in the individual configuration for L2 and L3 traffic.</p> <p>When you use the policy-map-extend keyword in the hw-module profile segment-routing srv6 mode microsegment f3216 encapsulation traffic-class CLI, the existing 3-bit DSCP marking set by the hw-module profile segment-routing srv6 mode microsegment f3216 encapsulation traffic-class l3-traffic policy-map CLI in the L3 traffic configuration is modified to 6-bits.</p> <p>This feature introduces this change:</p> <p>CLI: The policy-map-extend keyword is introduced in the hw-module profile segment-routing srv6 mode microsegment f3216 encapsulation traffic-class command.</p>

Feature	Description
SR ECMP-FEC Optimization for IPv6 Prefixes	<p>You can now minimize ECMP-FEC resource consumption and duplication of resources during underlay programming for an SR-MPLS network for IPv6 prefixes. The feature supports sharing the same ECMP-FEC, regular FEC, and Egress Encapsulation DB (EEDB) entries for all paths with the same outgoing MPLS label among IPv6 prefixes. This improvement is now possible by using the hw-module fib mpls label lsr-optimized command.</p> <p>In earlier releases, ECMP-FEC optimization for IPv4 prefixes was available.</p>
User-Defined Generic Metric Support for IS-IS Flex Algo	<p>This feature adds support for user-defined generic metric as a metric type for IS-IS Flexible Algorithm.</p> <p>You can now have more control over traffic flows using user-defined generic metrics. You can define a family of user-defined generic metrics that can advertise different types of administrative metrics such as jitter, reliability, and fiscal cost depending on the traffic class for Flexible Algorithms. You can selectively define and assign semantics of these metrics as per the network requirement.</p> <p>The feature introduces the following changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> The feature introduces the generic-metric flex-algo and metric-type generic commands. <p>YANG Data Models:</p> <ul style="list-style-type: none"> Cisco-IOS-XR-um-router-isis-cfg.yang
L3VPN	
MPLS Layer 3 VPNs CLI Enhancements	<p>You can now verify that MPLS labels are correctly programmed in the control plane (or software) and the data plane (hardware forwarding tables) using the show mpls forwarding labels command.</p> <p>Previously the command only showed the MPLS label information for software, additional steps were required to verify the label status in the hardware, by checking in the SDK.</p>
Netflow	
Monitor GTP-U Traffic in 5G Network	<p>You can now export GTP-U traffic flow records using NetFlow v9 and IPFIX in 5G network. This enables you to monitor provides you with bidirectional traffic monitoring crucial for analytics and robust DDoS prevention strategies.</p> <p>This feature modifies the output of the show flow monitor command.</p>
Network Synchronization	

Feature	Description
Detect Packet Timing Signal Fail -unusable	<p>This feature allows the exclusion of Foreign Masters (FMs) with unstable timing from Best Master Clock Algorithm (BMCA). It enables the detection of clocks that are unusable due to Packet Timing Signal Fail (PTSF) and keeps them under surveillance for any timing stabilization. Once improvements are observed, these clocks can be reassessed and potentially reinstated as viable sources.</p> <p>The system's reliability is improved by regularly checking all Frequency Managers (FMs) for their Precision Time Protocol (PTP) timing accuracy, including those that are currently not selected. This allows for dynamic selection of time sources, which in turn improves service delivery and strengthens the resilience of the synchronization infrastructure..</p> <p>This feature introduces these changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> • detect-ptsf-unusable • The show ptp foreign-masters command output is enhanced to include phase difference values and servo status.
Delay Request-Response Mechanism for Passive Ports and PTP Phase Difference Alarm Triggering	<p>You can now enable the participation of passive ports in the Delay Request-Response Mechanism (DRRM), thus ensuring that in case the phase difference readings exceed the allowed threshold then syslogs are displayed.</p> <p>This feature enables you to detect potential errors such as fiber asymmetry or a clock failure in the PTP network by measuring the phase difference between passive port and secondary port.</p> <p>This feature introduces these changes:</p> <p>CLI:</p> <ul style="list-style-type: none"> • phase-difference-threshold-breach • The show ptp foreign-masters command output is enhanced to include phase difference values and servo status. <p>YANG Data Models:</p> <p>The following data models are enhanced:</p> <ul style="list-style-type: none"> • <code>Cisco-IOS-XR-ptp-cfg.yang</code> • <code>Cisco-IOS-XR-um-ptp-cfg.yang</code>
<p>System Management</p>	

Feature	Description
Advanced Network Latency Insights through Frame Delay Categorization	<p>By precisely measuring the frame delay range into widths, bins, minimum-delay and range percentile, you can now get a clearer picture of network speeds by sorting delays into groups. This helps make sure data flows smoothly and problems are found and fixed faster. Plus, it allows users to check if most data gets through the network quickly, making the network more reliable for everyone.</p> <p>This feature introduces these changes:</p> <p>CLI:</p> <p>frame delay width bins minimum-delay frame-delay-range percentile</p> <p>Yang Data Models:</p> <ul style="list-style-type: none"> • Cisco-IOS-XR-ethernet-sat-oper.yang • Cisco-IOS-XR-ethernet-sat-cfg.yang
Support For Default mode of Encapsulation	<p>Using the default encapsulation setting for Service Activation Tests (SAT) streamlines the activation process with its ease of configuration and uniform testing standards. It accelerates service rollout by diminishing the need for intricate adjustments and guarantees the consistency of test outcomes. This setting establishes a dependable benchmark for assessing performance, benefits from extensive vendor support, and ensures seamless interaction between diverse network elements, aiding in the efficient deployment and ongoing management of network services.</p>
User-Specified MTU Support for EMIX Traffic in Service Activation Tests	<p>Defining the MTU packet size in Service Activation Tests (SAT) allows for tailored testing that matches the network's maximum frame capacity. This precision testing ensures accurate service performance validation and a reliable network service rollout.</p> <p>This feature introduces the following changes:</p> <p>CLI:</p> <p>packet-size emix Sequence h</p>
System Security	
Support for Layer 2 Untagged Sub-interface configuration in IEEE 802.1X Port-based Authentication	<p>This feature allows you to configure the Layer 2 untagged sub-interfaces in the IEEE 802.1X port-based authentication.</p>
System Monitoring	
Traffic Statistics with Packet Drop Location	<p>We help you save debugging time to locate packet drops by automatically detecting nonzero traffic drops from the commands running in the background and giving you the exact location of the packet drop.</p> <p>In earlier releases, you used multiple show commands with their respective locations to detect packet drops.</p> <p>This feature introduces the show drops all command.</p>

YANG Data Models Introduced and Enhanced

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

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

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

Feature	Description
Programmability	
openconfig-local-routing.yang Version 2.0.1	The OpenConfig data model, which is part of the <code>openconfig-network-instance.yang</code> data model is revised from version 1.2.0 to 2.0.1. This revision enables you to configure the preference for the order selection when multiple sources, such as protocols and static routes, contribute to the same prefix entry. A lower number signifies a better preference. When the preference value is not specified, default preference value is considered which is one. This data model supports event-driven and Model-driven telemetry.
openconfig-sflow.yang Version 1.0.0	This OpenConfig data model is enhanced to support: <ul style="list-style-type: none"> • stream cadence-driven telemetry data for the total number of flow record packets sent to the collector using packets-sent leaf • Stream cadence-driven telemetry data for the total number of packets sampled from the interface using packets-sampled leaf This data model supports event-driven and Model-driven telemetry.
Cisco-IOS-XR-infra-statsd-oper.yang	The native yang data model streams cached counters using a TARGET_DEFINED subscription. It enables you to fetch interface statistics, such as bytes-received, packets-received and other details, from a cache which is periodically updated from hardware using generic-counters container. The hardware-timestamp field indicates the timestamp of the most recent hardware counter readings. If hardware-timestamp field is 0, the last-data-time field indicates the timestamp of the most recent counter readings, which could be either from hardware or software.

Feature	Description
openconfig-if-ip.yang Version 3.5.0	The OpenConfig data model has been updated from version 3.0.0 to 3.5.0. This data model helps you specify data structures for managing both configuration and operational state on IP interfaces, supporting IPv4 and IPv6. You can stream telemetry for the operational state of these interfaces using both model-driven and event-driven approaches.
Cisco-IOS-XR-ipv4-ospf-oper.yang	This native data model is enhanced with new leaves <i>sr-capable</i> , <i>ri-capabilities-tlv</i> , <i>te-capable</i> , <i>gr-capable</i> , <i>grh-capable</i> , and <i>host-name</i> in the <i>OSPF-SH-NEIGHBOR-DETAIL</i> and <i>OSPF-SH-NEIGHBOR</i> groupings to display neighbor router capabilities in OSPF networks.
Cisco-IOS-XR-evpn-oper.yang	This native data model is enhanced to stream event-driven telemetry (EDT) data for the operational state of Layer 2 Ethernet VPN (EVPN) MAC routes using mac container. EDT data is streamed when an on-change event on the MAC route is detected such as adding, deleting or modifying a MAC address.
Cisco-IOS-XR-mpls-traceroute-act.yang	This unified data model is enhanced with a new container, <i>ipv6</i> , and leaves such as <i>next-hop</i> , <i>lsp-endpoint</i> , and <i>force-ipv6-explicit-null</i> in the <i>type-ipv6-next-hop</i> interface to extend support to Segment Routing OAM to verify network configuration for SR-MPLS IPv6-based LSPs.
Cisco-IOS-XR-um-router-isis-cfg	This unified data model is enhanced with new containers <i>generic-metric</i> , and <i>generic-metric-level</i> to define a family of user-defined generic metrics that can advertise different types of administrative metrics such as jitter, reliability, and fiscal cost depending on the traffic class for Flexible Algorithms.

Hardware Introduced



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

Hardware	Description
Optics	<p>This release launches the following new optics on selective hardware within the product portfolio. For details and other new supported transceivers, refer to the Transceiver Module Group (TMG) Compatibility Matrix.</p> <ul style="list-style-type: none"> • Cisco 100GBASE QSFP-100G Modules <ul style="list-style-type: none"> • QSFP-100G-B20D4-I • QSFP-100G-B20U4-I • Cisco 10GBASE Dense Wavelength-Division Multiplexing SFP+ Modules <ul style="list-style-type: none"> • DWDM-SFP10G-C-I • Multirate GE, FE pluggable optics <ul style="list-style-type: none"> • ONS-SC-PTP-1510 • ONS-SC-PTP-1514 • Quad Small Form-factor Pluggable Double Density <ul style="list-style-type: none"> • DP04QSDD-ER1 • Cisco 400G QSFP-DD Cable and Transceiver Module <ul style="list-style-type: none"> • QDD-400G-SR8-S

Behavior Changes

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

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

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

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

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

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

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

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

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

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

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

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

Restrictions and Limitations on the Cisco NCS 540 Series Router

- The statistics collection may time out due to CPU overload during route churn. In such scenarios, statistics collection will resume when the CPU becomes available after the route churn is complete.
- Autonegotiation is disabled by default on the fixed GigE - 0/0/0/0 - 0/0/0/4 copper ports of N540X-16Z4G8Q2C-A/D and N540X-12Z16G-SYS-A/D router variants. To enable autonegotiation, use the **negotiation auto** command.
- If you're migrating from previous XR versions, then you must enable autonegotiation for fixed copper ports using the **negotiation auto** command before performing the software upgrade to avoid any links going down.
- Enabling or disabling frame preemption on the Time Sensitive Networking (TSN) port results in traffic drop for N540-FH-CSR-SYS. The port Twenty Five G0/0/12 is used as the TSN port.
- Fabric multicast queue stats are not supported in N540X-8Z16G-SYS-A/D, N540X-6Z18G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-4Z14G2Q-A/D variants.
- Unlabeled BGP PIC EDGE for global prefixes is not supported.
- The interface ports 0/0/0/24 to 0/0/0/31 do not support 1G Copper SFPs on N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.
- The interface ports 0/0/0/20 to 0/0/0/27 do not support 1G Copper SFPs on N540X-16Z4G8Q2C-A, N540X-16Z8Q2C-D, and N540X-16Z4G8Q2C-D variants. Also, these ports do not support Auto-Negotiation with 1GE optical SFPs and they cannot act as 1GE Synchronous Ethernet sources.

- Remove the speed settings on the 1G Copper optics when 10M/100M is configured and replaced with 1G SFP optics.
- The **hw-module profile mfib statistics** command is not supported.

Caveats

There are no caveats in this release.

IOS XR Base Images and Optional Packages

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

For general and ordering information see:

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

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

Release 24.2.1 Software

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

- The first table lists the supported software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS variants.
- The second table lists the supported software for N540-24Q8L2DD-SYS, N540X-16Z4G8Q2C-A/D, N540-28Z4C-SYS-A/D, N540X-12Z16G-SYS-A/D, N540-12Z20G-SYS-A/D, N540-FH-CSR-SYS, N540X-16Z8Q2C-D and N540-FH-AGG-SYS variants.
- The third table lists the supported software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-6Z18G-SYS-A/D variants.

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

Table 1: Release 24.2.1 Software for N540-24Z8Q2C-SYS, N540-ACC-SYS, and N540X-ACC-SYS

Base Image	Filename	Description
IOS XR Base Image	ncs540-mini-x-24.2.1.iso	IOS XR mandatory base image.
USB Boot Package	ncs540-usb_boot-24.2.1.zip	Package required to perform USB Boot. Includes the same packages as the base image.

Optional Packages not included in the base image		
Package	Filename	Description
IOS XR Manageability	ncs540-mgbl-1.0.0.0-r2421.x86_64.rpm	Supports Extensible Markup Language (XML) Parser, Telemetry, Netconf, gRPC and HTTP server
IOS XR MPLS	ncs540-mpls-1.0.0.0-r2421.x86_64.rpm ncs540-mpls-te-rsvp-1.0.0.0-r2421.x86_64.rpm	Supports MPLS and MPLS Traffic Engineering (MPLS-TE)
IOS XR Security	ncs540-k9sec-1.0.0.0-r2421.x86_64.rpm	Supports MACsec and 802.1X
IOS XR ISIS	ncs540-isis-1.0.0.0-r2421.x86_64.rpm	Supports ISIS
IOS XR OSPF	ncs540-ospf-1.0.0.0-r2421.x86_64.rpm	Supports OSPF
IOS XR Lawful Intercept	ncs540-li-1.0.0.0-r2421.x86_64.rpm	Supports Lawful Intercept (LI)
IOS XR Multicast	ncs540-mcast-1.0.0.0-r2421.x86_64.rpm	Supports Multicast
IOS XR EIGRP	ncs540-eigrp-1.0.0.0-r2421.x86_64.rpm	Supports EIGRP
IOS XR LI-CTRL	ncs540-lictrl-1.0.0.0-r2421.x86_64.rpm	Supports LI-CTRL

Table 2: Release 24.2.1 Software for N540-24Q8L2DD-SYS, N540X-16Z4G8Q2C-A/D, N540-28Z4C-SYS-A/D, N540X-12Z16G-SYS-A/D, N540-12Z20G-SYS-A/D, N540-FH-CSR-SYS, N540X-16Z8Q2C-D and N540-FH-AGG-SYS

Base Image	Filename	Description
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IOS XR Base Image	ncs540l-x64-24.2.1.iso	<p>IOS XR base image with mandatory packages.</p> <p>The base ISO image also includes the following optional packages:</p> <ul style="list-style-type: none"> • xr-bgp • xr-cdp • xr-eigrp • xr-ipsla • xr-is-is • xr-k9sec • xr-lictrl • xr-lldp • xr-mcast • xr-mpls-oam • xr-netflow • xr-ospf • xr-perf-meas • xr-perfmgmt • xr-rip • xr-telnet • xr-track <p>These optional packages are also included in NCS540l-iosxr-24.2.1.tar.</p>
USB Boot Package	ncs540l-usb_boot-24.2.1.zip	<p>Package required to perform USB Boot.</p> <p>Includes the same packages as the base image.</p>
Optional Packages not included in the base image		
Package	Filename	Description
IOS XR Telnet (xr-telnet)	NCS540l-iosxr-24.2.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-iosxr-24.2.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-iosxr-24.2.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-k9sec-rpms.24.2.1.tar	Supports 802.1X

IOS XR RIP (xr-rip)	NCS540l-iosxr-24.2.1.tar	Supports RIP
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Table 3: Release 24.2.1 Software for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-6Z18G-SYS-A/D

Base Image	Filename	Description
IOS XR Base Image	ncs540l-aarch64-24.2.1.iso	<p>IOS XR base image with mandatory packages.</p> <p>The ISO image also includes the following optional packages:</p> <ul style="list-style-type: none"> • xr-bgp • xr-cdp • xr-eigrp • xr-ipsla • xr-is-is • xr-k9sec • xr-lictrl • xr-lldp • xr-mcast • xr-mpls-oam • xr-ncs540l-mcast • xr-ncs540l-netflow • xr-netflow • xr-ospf • xr-perf-meas • xr-perfmgmt • xr-rip • xr-telnet • xr-track <p>These optional packages are also included in NCS540l aarch64 iosxr optional rpms-24.2.1.tar.</p>
USB Boot Package	ncs540l-aarch64-usb_boot-24.2.1.zip	<p>Package required to perform USB Boot.</p> <p>Includes the same packages as the base image.</p>

Optional Packages not included in the base image		
Package	Filename	Description
IOS XR Telnet (xr-telnet)	NCS540l-aarch64-iosxr-optional-rpms-24.2.1.tar	Supports Telnet
IOS XR EIGRP (xr-eigrp)	NCS540l-aarch64-iosxr-optional-rpms-24.2.1.tar	Supports EIGRP
IOS XR CDP (xr-cdp)	NCS540l-aarch64-iosxr-optional-rpms-24.2.1.tar	Supports CDP
IOS XR k9sec (xr-k9sec)	NCS540l-aarch64-k9sec-rpms.24.2.1.tar	Supports 802.1X
IOS XR RIP (xr-rip)	NCS540l-aarch64-iosxr-optional-rpms-24.2.1.tar	Supports RIP

Determine Software Version

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

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 24.2.1
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
  Built By      : swtools
  Built On     : Tue Jun 11 09:05:57 PDT 2024
  Built Host   : iox-lnx-066
  Workspace    : /auto/srcarchive11/prod/24.2.1/ncs540/ws
  Version      : 24.2.1
  Location     : /opt/cisco/XR/packages/
  Label       : 24.2.1

cisco NCS-540 () processor
System uptime is 8 hours 59 minutes
```

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

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 24.2.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.

Build Information:
  Built By      : cisco
  Built On     : Tue Jun 11 13:58:26 UTC 2024
  Build Host   : iox-ucs-056
  Workspace    : /auto/srcarchive11/prod/24.2.1/ncs540l/ws/
  Version      : 24.2.1
  Label       : 24.2.1

cisco NCS540L (C3708 @ 1.70GHz)
cisco N540X-16Z4G8Q2C-A (C3708 @ 1.70GHz) processor with 8GB of memory
EG-PE41 uptime is 9 hours, 3 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-4Z14G2Q-A/D, N540-6Z18G-SYS-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, and N540X-6Z18G-SYS-A/D variants:

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 24.2.1 LNT
```


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Build Information:

```
Built By      : cisco
Built On     : Tue Jun 11 13:58:26 UTC 2024
Build Host   : iox-ucs-059
Workspace    : /auto/srcarchive11/prod/24.2.1/ncs5401-aarch64/ws/
Version     : 24.2.1
Label       : 24.2.1
```

```
cisco NCS540L
cisco N540X-6Z18G-SYS-A processor with 8GB of memory
PE5_540L uptime is 17 hours, 6 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 24.2.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : cisco
Built On     : Tue Jun 11 13:58:26 UTC 2024
Build Host   : iox-ucs-056
Workspace    : /auto/srcarchive11/prod/24.2.1/ncs5401/ws/
Version     : 24.2.1
Label       : 24.2.1
```

```
cisco NCS540L (D1519 @ 1.50GHz)
cisco N540-24Q8L2DD-SYS (D1519 @ 1.50GHz) processor with 16GB of memory
Arches-PE42 uptime is 9 hours, 24 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-AGG-SYS variant:

```
RP/0/RP0/CPU0:Router#show version
Cisco IOS XR Software, Version 24.2.1 LNT
Copyright (c) 2013-2024 by Cisco Systems, Inc.
```

Build Information:

```
Built By      : sajjshah
Built On     : Wed Jun 12 00:04:09 UTC 2024
Build Host   : iox-ucs-054
Workspace    :
/auto/ioxdepot6/GISO/giso_build_lindt/giso_custom_create/kalaisel_2024-06-12_07-01-59_UTC
Version     : 24.2.1
Label       : 24.2.1-iso
```

```
cisco NCS540L (C3708 @ 1.70GHz)
cisco N540-FH-AGG-SYS (C3708 @ 1.70GHz) processor with 8GB of memory
LION_PEL uptime is 9 hours, 16 minutes
Cisco NCS 540 FH System with 24xCPRI/25G/10G/TSN+4x100G
```

Determine Firmware Support

Use the show command in EXEC mode to view the hardware components with their current FPD version and status. The status of the hardware must be “CURRENT”; Running and Programed version must be the same. The Golden FPDs with “NEED UPGD” can be ignored, the Golden FPDs are not upgradable.

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



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

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

```
=====
```

Field Programmable Device Package					
Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
N540-24Z8Q2C-M	Bootloader (A)	YES	1.17	1.17	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.28	0.28	0.0
	MB-MIFPGA	YES	0.08	0.08	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M1100 (A)	NO	50.00	50.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1427.00	1427.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0
	SSFP_E1F_16	NO	13.01	13.01	0.0
	SSFP_E1F_17	NO	13.01	13.01	0.0
	SSFP_E1F_18	NO	13.01	13.01	0.0
	SSFP_E1F_19	NO	13.01	13.01	0.0
	SSFP_E1F_2	NO	13.01	13.01	0.0
	SSFP_E1F_20	NO	13.01	13.01	0.0
	SSFP_E1F_21	NO	13.01	13.01	0.0
	SSFP_E1F_22	NO	13.01	13.01	0.0
	SSFP_E1F_23	NO	13.01	13.01	0.0
	SSFP_E1F_24	NO	13.01	13.01	0.0
	SSFP_E1F_25	NO	13.01	13.01	0.0
	SSFP_E1F_26	NO	13.01	13.01	0.0
	SSFP_E1F_27	NO	13.01	13.01	0.0
	SSFP_E1F_28	NO	13.01	13.01	0.0
	SSFP_E1F_29	NO	13.01	13.01	0.0
	SSFP_E1F_3	NO	13.01	13.01	0.0
	SSFP_E1F_30	NO	13.01	13.01	0.0
	SSFP_E1F_31	NO	13.01	13.01	0.0
	SSFP_E1F_32	NO	13.01	13.01	0.0
	SSFP_E1F_33	NO	13.01	13.01	0.0
	SSFP_E1F_34	NO	13.01	13.01	0.0
	SSFP_E1F_35	NO	13.01	13.01	0.0
	SSFP_E1F_36	NO	13.01	13.01	0.0
	SSFP_E1F_37	NO	13.01	13.01	0.0
	SSFP_E1F_38	NO	13.01	13.01	0.0
	SSFP_E1F_39	NO	13.01	13.01	0.0
	SSFP_E1F_4	NO	13.01	13.01	0.0

```
=====
```

SSFP_E1F_40	NO	13.01	13.01	0.0
SSFP_E1F_41	NO	13.01	13.01	0.0
SSFP_E1F_42	NO	13.01	13.01	0.0
SSFP_E1F_43	NO	13.01	13.01	0.0
SSFP_E1F_44	NO	13.01	13.01	0.0
SSFP_E1F_45	NO	13.01	13.01	0.0
SSFP_E1F_46	NO	13.01	13.01	0.0
SSFP_E1F_47	NO	13.01	13.01	0.0
SSFP_E1F_5	NO	13.01	13.01	0.0
SSFP_E1F_6	NO	13.01	13.01	0.0
SSFP_E1F_7	NO	13.01	13.01	0.0
SSFP_E1F_8	NO	13.01	13.01	0.0
SSFP_E1F_9	NO	13.01	13.01	0.0
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
SSFP_OC3_STM1_32	NO	12.01	12.01	0.0
SSFP_OC3_STM1_33	NO	12.01	12.01	0.0
SSFP_OC3_STM1_34	NO	12.01	12.01	0.0
SSFP_OC3_STM1_35	NO	12.01	12.01	0.0
SSFP_OC3_STM1_36	NO	12.01	12.01	0.0
SSFP_OC3_STM1_37	NO	12.01	12.01	0.0
SSFP_OC3_STM1_38	NO	12.01	12.01	0.0
SSFP_OC3_STM1_39	NO	12.01	12.01	0.0
SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
SSFP_OC3_STM1_40	NO	12.01	12.01	0.0
SSFP_OC3_STM1_41	NO	12.01	12.01	0.0
SSFP_OC3_STM1_42	NO	12.01	12.01	0.0
SSFP_OC3_STM1_43	NO	12.01	12.01	0.0
SSFP_OC3_STM1_44	NO	12.01	12.01	0.0
SSFP_OC3_STM1_45	NO	12.01	12.01	0.0
SSFP_OC3_STM1_46	NO	12.01	12.01	0.0
SSFP_OC3_STM1_47	NO	12.01	12.01	0.0
SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
SSFP_OC3_STM1_9	NO	12.01	12.01	0.0
SSFP_STM1_TSOP_0	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_1	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_10	NO	13.00	13.00	0.0

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	SSFP_STM1_TSOP_11	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_12	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_13	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_14	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_15	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_16	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_17	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_18	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_19	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_2	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_20	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_21	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_22	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_23	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_24	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_25	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_26	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_27	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_28	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_29	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_3	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_30	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_31	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_32	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_33	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_34	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_35	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_36	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_37	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_38	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_39	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_4	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_40	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_41	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_42	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_43	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_44	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_45	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_46	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_47	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_5	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_6	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_7	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_8	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_9	NO	13.00	13.00	0.0

N540-ACC-SYS	Bootloader (A)	YES	1.17	1.17	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.28	0.28	0.0
	MB-MIFPGA	YES	0.08	0.08	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M1100 (A)	NO	50.00	50.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1427.00	1427.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0

SSFP_E1F_11	NO	13.01	13.01	0.0
SSFP_E1F_12	NO	13.01	13.01	0.0
SSFP_E1F_13	NO	13.01	13.01	0.0
SSFP_E1F_14	NO	13.01	13.01	0.0
SSFP_E1F_15	NO	13.01	13.01	0.0
SSFP_E1F_16	NO	13.01	13.01	0.0
SSFP_E1F_17	NO	13.01	13.01	0.0
SSFP_E1F_18	NO	13.01	13.01	0.0
SSFP_E1F_19	NO	13.01	13.01	0.0
SSFP_E1F_2	NO	13.01	13.01	0.0
SSFP_E1F_20	NO	13.01	13.01	0.0
SSFP_E1F_21	NO	13.01	13.01	0.0
SSFP_E1F_22	NO	13.01	13.01	0.0
SSFP_E1F_23	NO	13.01	13.01	0.0
SSFP_E1F_24	NO	13.01	13.01	0.0
SSFP_E1F_25	NO	13.01	13.01	0.0
SSFP_E1F_26	NO	13.01	13.01	0.0
SSFP_E1F_27	NO	13.01	13.01	0.0
SSFP_E1F_28	NO	13.01	13.01	0.0
SSFP_E1F_29	NO	13.01	13.01	0.0
SSFP_E1F_3	NO	13.01	13.01	0.0
SSFP_E1F_30	NO	13.01	13.01	0.0
SSFP_E1F_31	NO	13.01	13.01	0.0
SSFP_E1F_32	NO	13.01	13.01	0.0
SSFP_E1F_33	NO	13.01	13.01	0.0
SSFP_E1F_34	NO	13.01	13.01	0.0
SSFP_E1F_35	NO	13.01	13.01	0.0
SSFP_E1F_36	NO	13.01	13.01	0.0
SSFP_E1F_37	NO	13.01	13.01	0.0
SSFP_E1F_38	NO	13.01	13.01	0.0
SSFP_E1F_39	NO	13.01	13.01	0.0
SSFP_E1F_4	NO	13.01	13.01	0.0
SSFP_E1F_40	NO	13.01	13.01	0.0
SSFP_E1F_41	NO	13.01	13.01	0.0
SSFP_E1F_42	NO	13.01	13.01	0.0
SSFP_E1F_43	NO	13.01	13.01	0.0
SSFP_E1F_44	NO	13.01	13.01	0.0
SSFP_E1F_45	NO	13.01	13.01	0.0
SSFP_E1F_46	NO	13.01	13.01	0.0
SSFP_E1F_47	NO	13.01	13.01	0.0
SSFP_E1F_5	NO	13.01	13.01	0.0
SSFP_E1F_6	NO	13.01	13.01	0.0
SSFP_E1F_7	NO	13.01	13.01	0.0
SSFP_E1F_8	NO	13.01	13.01	0.0
SSFP_E1F_9	NO	13.01	13.01	0.0
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0

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SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
SSFP_OC3_STM1_32	NO	12.01	12.01	0.0
SSFP_OC3_STM1_33	NO	12.01	12.01	0.0
SSFP_OC3_STM1_34	NO	12.01	12.01	0.0
SSFP_OC3_STM1_35	NO	12.01	12.01	0.0
SSFP_OC3_STM1_36	NO	12.01	12.01	0.0
SSFP_OC3_STM1_37	NO	12.01	12.01	0.0
SSFP_OC3_STM1_38	NO	12.01	12.01	0.0
SSFP_OC3_STM1_39	NO	12.01	12.01	0.0
SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
SSFP_OC3_STM1_40	NO	12.01	12.01	0.0
SSFP_OC3_STM1_41	NO	12.01	12.01	0.0
SSFP_OC3_STM1_42	NO	12.01	12.01	0.0
SSFP_OC3_STM1_43	NO	12.01	12.01	0.0
SSFP_OC3_STM1_44	NO	12.01	12.01	0.0
SSFP_OC3_STM1_45	NO	12.01	12.01	0.0
SSFP_OC3_STM1_46	NO	12.01	12.01	0.0
SSFP_OC3_STM1_47	NO	12.01	12.01	0.0
SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
SSFP_OC3_STM1_9	NO	12.01	12.01	0.0
SSFP_STM1_TSOP_0	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_1	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_10	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_11	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_12	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_13	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_14	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_15	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_16	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_17	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_18	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_19	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_2	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_20	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_21	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_22	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_23	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_24	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_25	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_26	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_27	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_28	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_29	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_3	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_30	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_31	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_32	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_33	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_34	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_35	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_36	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_37	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_38	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_39	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_4	NO	13.00	13.00	0.0

	SSFP_STM1_TSOP_40	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_41	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_42	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_43	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_44	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_45	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_46	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_47	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_5	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_6	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_7	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_8	NO	13.00	13.00	0.0
	SSFP_STM1_TSOP_9	NO	13.00	13.00	0.0

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

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

N540-X-24Z8Q2C-M	Bootloader (A)	YES	1.17	1.17	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.28	0.28	0.0
	MB-MIFPGA	YES	0.08	0.08	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M1100 (A)	NO	50.00	50.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0
	SATA-M5100 (A)	NO	75.00	75.00	0.0
	SATA-M600-MCT (A)	NO	5.00	5.00	0.0
	SATA-M600-MU (A)	NO	6.00	6.00	0.0
	SATA-Micron (A)	NO	1.00	1.00	0.0
	SATA-SMART-128G (A)	NO	1427.00	1427.00	0.0
	SSFP_E1F_0	NO	13.01	13.01	0.0
	SSFP_E1F_1	NO	13.01	13.01	0.0
	SSFP_E1F_10	NO	13.01	13.01	0.0
	SSFP_E1F_11	NO	13.01	13.01	0.0
	SSFP_E1F_12	NO	13.01	13.01	0.0
	SSFP_E1F_13	NO	13.01	13.01	0.0
	SSFP_E1F_14	NO	13.01	13.01	0.0
	SSFP_E1F_15	NO	13.01	13.01	0.0
	SSFP_E1F_16	NO	13.01	13.01	0.0
	SSFP_E1F_17	NO	13.01	13.01	0.0
	SSFP_E1F_18	NO	13.01	13.01	0.0
	SSFP_E1F_19	NO	13.01	13.01	0.0
	SSFP_E1F_2	NO	13.01	13.01	0.0
	SSFP_E1F_20	NO	13.01	13.01	0.0
	SSFP_E1F_21	NO	13.01	13.01	0.0
	SSFP_E1F_22	NO	13.01	13.01	0.0
	SSFP_E1F_23	NO	13.01	13.01	0.0
	SSFP_E1F_24	NO	13.01	13.01	0.0
	SSFP_E1F_25	NO	13.01	13.01	0.0
	SSFP_E1F_26	NO	13.01	13.01	0.0
	SSFP_E1F_27	NO	13.01	13.01	0.0
	SSFP_E1F_28	NO	13.01	13.01	0.0
	SSFP_E1F_29	NO	13.01	13.01	0.0
	SSFP_E1F_3	NO	13.01	13.01	0.0
	SSFP_E1F_30	NO	13.01	13.01	0.0
	SSFP_E1F_31	NO	13.01	13.01	0.0
	SSFP_E1F_32	NO	13.01	13.01	0.0

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SSFP_E1F_33	NO	13.01	13.01	0.0
SSFP_E1F_34	NO	13.01	13.01	0.0
SSFP_E1F_35	NO	13.01	13.01	0.0
SSFP_E1F_36	NO	13.01	13.01	0.0
SSFP_E1F_37	NO	13.01	13.01	0.0
SSFP_E1F_38	NO	13.01	13.01	0.0
SSFP_E1F_39	NO	13.01	13.01	0.0
SSFP_E1F_4	NO	13.01	13.01	0.0
SSFP_E1F_40	NO	13.01	13.01	0.0
SSFP_E1F_41	NO	13.01	13.01	0.0
SSFP_E1F_42	NO	13.01	13.01	0.0
SSFP_E1F_43	NO	13.01	13.01	0.0
SSFP_E1F_44	NO	13.01	13.01	0.0
SSFP_E1F_45	NO	13.01	13.01	0.0
SSFP_E1F_46	NO	13.01	13.01	0.0
SSFP_E1F_47	NO	13.01	13.01	0.0
SSFP_E1F_5	NO	13.01	13.01	0.0
SSFP_E1F_6	NO	13.01	13.01	0.0
SSFP_E1F_7	NO	13.01	13.01	0.0
SSFP_E1F_8	NO	13.01	13.01	0.0
SSFP_E1F_9	NO	13.01	13.01	0.0
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0
SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
SSFP_OC3_STM1_32	NO	12.01	12.01	0.0
SSFP_OC3_STM1_33	NO	12.01	12.01	0.0
SSFP_OC3_STM1_34	NO	12.01	12.01	0.0
SSFP_OC3_STM1_35	NO	12.01	12.01	0.0
SSFP_OC3_STM1_36	NO	12.01	12.01	0.0
SSFP_OC3_STM1_37	NO	12.01	12.01	0.0
SSFP_OC3_STM1_38	NO	12.01	12.01	0.0
SSFP_OC3_STM1_39	NO	12.01	12.01	0.0
SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
SSFP_OC3_STM1_40	NO	12.01	12.01	0.0
SSFP_OC3_STM1_41	NO	12.01	12.01	0.0
SSFP_OC3_STM1_42	NO	12.01	12.01	0.0
SSFP_OC3_STM1_43	NO	12.01	12.01	0.0
SSFP_OC3_STM1_44	NO	12.01	12.01	0.0
SSFP_OC3_STM1_45	NO	12.01	12.01	0.0
SSFP_OC3_STM1_46	NO	12.01	12.01	0.0
SSFP_OC3_STM1_47	NO	12.01	12.01	0.0

SSFP_OC3_STM1_5	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_6	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_7	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_8	NO	12.01	12.01	0.0	
SSFP_OC3_STM1_9	NO	12.01	12.01	0.0	
SSFP_STM1_TSOP_0	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_1	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_10	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_11	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_12	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_13	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_14	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_15	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_16	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_17	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_18	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_19	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_20	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_21	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_22	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_23	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_24	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_25	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_26	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_27	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_28	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_29	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_3	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_30	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_31	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_32	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_33	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_34	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_35	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_36	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_37	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_38	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_39	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_4	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_40	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_41	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_42	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_43	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_44	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_45	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_46	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_47	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_5	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_6	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_7	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_8	NO	13.00	13.00	0.0	
SSFP_STM1_TSOP_9	NO	13.00	13.00	0.0	

N540X-ACC-SYS	Bootloader (A)	YES	1.17	1.17	0.0
	CPU-IOFPGA (A)	YES	0.10	0.10	0.0
	MB-IOFPGA (A)	YES	0.28	0.28	0.0
	MB-MIFPGA	YES	0.08	0.08	0.0
	SATA-INTEL_240G (A)	NO	1132.00	1132.00	0.0
	SATA-INTEL_480G (A)	NO	1132.00	1132.00	0.0
	SATA-M1100 (A)	NO	50.00	50.00	0.0
	SATA-M500IT-MC (A)	NO	3.00	3.00	0.0
	SATA-M500IT-MU-A (A)	NO	5.00	5.00	0.0
	SATA-M500IT-MU-B (A)	NO	4.00	4.00	0.0

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SATA-M5100 (A)	NO	75.00	75.00	0.0
SATA-M600-MCT (A)	NO	5.00	5.00	0.0
SATA-M600-MU (A)	NO	6.00	6.00	0.0
SATA-Micron (A)	NO	1.00	1.00	0.0
SATA-SMART-128G (A)	NO	1427.00	1427.00	0.0
SSFP_E1F_0	NO	13.01	13.01	0.0
SSFP_E1F_1	NO	13.01	13.01	0.0
SSFP_E1F_10	NO	13.01	13.01	0.0
SSFP_E1F_11	NO	13.01	13.01	0.0
SSFP_E1F_12	NO	13.01	13.01	0.0
SSFP_E1F_13	NO	13.01	13.01	0.0
SSFP_E1F_14	NO	13.01	13.01	0.0
SSFP_E1F_15	NO	13.01	13.01	0.0
SSFP_E1F_16	NO	13.01	13.01	0.0
SSFP_E1F_17	NO	13.01	13.01	0.0
SSFP_E1F_18	NO	13.01	13.01	0.0
SSFP_E1F_19	NO	13.01	13.01	0.0
SSFP_E1F_2	NO	13.01	13.01	0.0
SSFP_E1F_20	NO	13.01	13.01	0.0
SSFP_E1F_21	NO	13.01	13.01	0.0
SSFP_E1F_22	NO	13.01	13.01	0.0
SSFP_E1F_23	NO	13.01	13.01	0.0
SSFP_E1F_24	NO	13.01	13.01	0.0
SSFP_E1F_25	NO	13.01	13.01	0.0
SSFP_E1F_26	NO	13.01	13.01	0.0
SSFP_E1F_27	NO	13.01	13.01	0.0
SSFP_E1F_28	NO	13.01	13.01	0.0
SSFP_E1F_29	NO	13.01	13.01	0.0
SSFP_E1F_3	NO	13.01	13.01	0.0
SSFP_E1F_30	NO	13.01	13.01	0.0
SSFP_E1F_31	NO	13.01	13.01	0.0
SSFP_E1F_32	NO	13.01	13.01	0.0
SSFP_E1F_33	NO	13.01	13.01	0.0
SSFP_E1F_34	NO	13.01	13.01	0.0
SSFP_E1F_35	NO	13.01	13.01	0.0
SSFP_E1F_36	NO	13.01	13.01	0.0
SSFP_E1F_37	NO	13.01	13.01	0.0
SSFP_E1F_38	NO	13.01	13.01	0.0
SSFP_E1F_39	NO	13.01	13.01	0.0
SSFP_E1F_4	NO	13.01	13.01	0.0
SSFP_E1F_40	NO	13.01	13.01	0.0
SSFP_E1F_41	NO	13.01	13.01	0.0
SSFP_E1F_42	NO	13.01	13.01	0.0
SSFP_E1F_43	NO	13.01	13.01	0.0
SSFP_E1F_44	NO	13.01	13.01	0.0
SSFP_E1F_45	NO	13.01	13.01	0.0
SSFP_E1F_46	NO	13.01	13.01	0.0
SSFP_E1F_47	NO	13.01	13.01	0.0
SSFP_E1F_5	NO	13.01	13.01	0.0
SSFP_E1F_6	NO	13.01	13.01	0.0
SSFP_E1F_7	NO	13.01	13.01	0.0
SSFP_E1F_8	NO	13.01	13.01	0.0
SSFP_E1F_9	NO	13.01	13.01	0.0
SSFP_OC3_STM1_0	NO	12.01	12.01	0.0
SSFP_OC3_STM1_1	NO	12.01	12.01	0.0
SSFP_OC3_STM1_10	NO	12.01	12.01	0.0
SSFP_OC3_STM1_11	NO	12.01	12.01	0.0
SSFP_OC3_STM1_12	NO	12.01	12.01	0.0
SSFP_OC3_STM1_13	NO	12.01	12.01	0.0
SSFP_OC3_STM1_14	NO	12.01	12.01	0.0
SSFP_OC3_STM1_15	NO	12.01	12.01	0.0
SSFP_OC3_STM1_16	NO	12.01	12.01	0.0
SSFP_OC3_STM1_17	NO	12.01	12.01	0.0
SSFP_OC3_STM1_18	NO	12.01	12.01	0.0

SSFP_OC3_STM1_19	NO	12.01	12.01	0.0
SSFP_OC3_STM1_2	NO	12.01	12.01	0.0
SSFP_OC3_STM1_20	NO	12.01	12.01	0.0
SSFP_OC3_STM1_21	NO	12.01	12.01	0.0
SSFP_OC3_STM1_22	NO	12.01	12.01	0.0
SSFP_OC3_STM1_23	NO	12.01	12.01	0.0
SSFP_OC3_STM1_24	NO	12.01	12.01	0.0
SSFP_OC3_STM1_25	NO	12.01	12.01	0.0
SSFP_OC3_STM1_26	NO	12.01	12.01	0.0
SSFP_OC3_STM1_27	NO	12.01	12.01	0.0
SSFP_OC3_STM1_28	NO	12.01	12.01	0.0
SSFP_OC3_STM1_29	NO	12.01	12.01	0.0
SSFP_OC3_STM1_3	NO	12.01	12.01	0.0
SSFP_OC3_STM1_30	NO	12.01	12.01	0.0
SSFP_OC3_STM1_31	NO	12.01	12.01	0.0
SSFP_OC3_STM1_32	NO	12.01	12.01	0.0
SSFP_OC3_STM1_33	NO	12.01	12.01	0.0
SSFP_OC3_STM1_34	NO	12.01	12.01	0.0
SSFP_OC3_STM1_35	NO	12.01	12.01	0.0
SSFP_OC3_STM1_36	NO	12.01	12.01	0.0
SSFP_OC3_STM1_37	NO	12.01	12.01	0.0
SSFP_OC3_STM1_38	NO	12.01	12.01	0.0
SSFP_OC3_STM1_39	NO	12.01	12.01	0.0
SSFP_OC3_STM1_4	NO	12.01	12.01	0.0
SSFP_OC3_STM1_40	NO	12.01	12.01	0.0
SSFP_OC3_STM1_41	NO	12.01	12.01	0.0
SSFP_OC3_STM1_42	NO	12.01	12.01	0.0
SSFP_OC3_STM1_43	NO	12.01	12.01	0.0
SSFP_OC3_STM1_44	NO	12.01	12.01	0.0
SSFP_OC3_STM1_45	NO	12.01	12.01	0.0
SSFP_OC3_STM1_46	NO	12.01	12.01	0.0
SSFP_OC3_STM1_47	NO	12.01	12.01	0.0
SSFP_OC3_STM1_5	NO	12.01	12.01	0.0
SSFP_OC3_STM1_6	NO	12.01	12.01	0.0
SSFP_OC3_STM1_7	NO	12.01	12.01	0.0
SSFP_OC3_STM1_8	NO	12.01	12.01	0.0
SSFP_OC3_STM1_9	NO	12.01	12.01	0.0
SSFP_STM1_TSOP_0	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_1	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_10	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_11	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_12	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_13	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_14	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_15	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_16	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_17	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_18	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_19	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_2	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_20	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_21	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_22	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_23	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_24	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_25	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_26	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_27	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_28	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_29	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_3	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_30	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_31	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_32	NO	13.00	13.00	0.0

Determine Firmware Support

SSFP_STM1_TSOP_33	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_34	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_35	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_36	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_37	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_38	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_39	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_4	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_40	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_41	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_42	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_43	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_44	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_45	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_46	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_47	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_5	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_6	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_7	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_8	NO	13.00	13.00	0.0
SSFP_STM1_TSOP_9	NO	13.00	13.00	0.0

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

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					Running	Programd
0/RP0	N540-24Z8Q2C-M	1.0	MB-MIFPGA	CURRENT	0.08	0.08
0/RP0	N540-24Z8Q2C-M	1.0	Bootloader	CURRENT	1.17	1.17
0/RP0	N540-24Z8Q2C-M	1.0	CPU-IOFPGA	CURRENT	0.10	0.10
0/RP0	N540-24Z8Q2C-M	1.0	MB-IOFPGA	CURRENT	0.28	0.28
0/RP0	N540-24Z8Q2C-M	1.0	SATA-M500IT-MU-B	CURRENT	4.00	4.00
0/PM0	N540-PWR400-A	1.0	SDG-PrimMCU-ACFW	CURRENT	0.04	0.04
0/PM0	N540-PWR400-A	1.0	SDG-SecMCU-ACFW	CURRENT	0.07	0.07

Log in to the router and enter the **show fpd package** and **show hw-module fpd** commands on the Cisco N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, N540X-16Z8Q2C-D, and N540X-16Z4G8Q2C-A/D variants:

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

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=====
                          Field Programmable Device Package
=====
Card Type                FPD Description                Req   SW   Min Req  Min Req
=====                =====                Reload Ver   SW Ver  Board Ver
=====                =====                =====
N540-12Z20G-SYS-A      ADM_FW                          YES   14.03  14.03   0.0
                        ADMConfig                       NO    1.05   1.05   0.0
                        IoFpga                          YES   3.08   3.08   0.0
                        IoFpgaGolden                     YES   2.07   2.03   0.0
                        Primary-BIOS                      YES   1.49   1.49   0.0
                        StdbyFpga                       YES   0.50   0.50   0.0
                        StdbyFpgaGolden                  YES   0.50   0.40   0.0
                        TamFw                          YES   4.13   4.13   0.0
                        TamFwGolden                     YES   4.13   4.11   0.0
-----
N540-12Z20G-SYS-D      ADM_FW                          YES   14.03  14.03   0.0

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	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-24Q8L2DD-SYS	ADM-DBConfig	NO	2.05	2.05	0.0
	ADM-MBConfig	NO	2.05	2.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.12	2.12	0.0
	Primary-BIOS	YES	4.07	4.07	0.0
	SsdSAMSA64G3	YES	12.41	12.41	0.0
	StdbyFpga	YES	2.59	2.59	0.0
	StdbyFpgaGolden	YES	2.56	2.39	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-28Z4C-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.24	0.24	0.0
	DpFpgaEth	YES	1.22	1.22	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0

Determine Firmware Support

	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.23	0.23	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

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

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

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

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

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-12Z16G-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0

	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

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

Auto-upgrade:Enabled

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

							FPD Versions	
							=====	
Location	Card type	HWver	FPD device	ATR	Status	Running	Programd	
Reload Loc								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	ADM_FW		CURRENT	14.03	14.03	
NOT REQ								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	ADMConfig		CURRENT	1.05	1.05	
NOT REQ								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	IoFpga		CURRENT	3.08	3.08	
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	SA	CURRENT	1.49	1.49	
0/RP0								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	StdbyFpga	S	CURRENT	0.50	0.50	
0/RP0								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	StdbyFpgaGolden	BS	CURRENT		0.50	
0/RP0								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	TamFw	S	CURRENT	4.13	4.13	
0/RP0								
0/RP0/CPU0	N540X-16Z4G8Q2C-A	0.2	TamFwGolden	BS	CURRENT		4.13	
0/RP0								

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

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

Field Programmable Device Package						
=====						
Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver	
=====						
N540-6Z14S-SYS-D	ADMConfig	NO	5.03	5.03	0.0	
	BckUp-BootLoader	YES	20.08	20.08	0.0	
	IoFpga	YES	0.17	0.17	0.0	
	IoFpgaGolden	YES	0.15	0.15	0.0	
	Prim-BootLoader	YES	20.08	20.08	0.0	

Determine Firmware Support

	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540-6Z18G-SYS-A	ADMConfig	NO	5.03	5.03	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.08	0.08	0.0
	IoFpgagolden	YES	0.03	0.03	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540-6Z18G-SYS-D	ADMConfig	NO	5.03	5.03	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.08	0.08	0.0
	IoFpgagolden	YES	0.03	0.03	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540X-4Z14G2Q-A	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgagolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540X-4Z14G2Q-D	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgagolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540X-6Z18G-SYS-A	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgagolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0

N540X-6Z18G-SYS-D	ADMConfig	NO	5.00	5.00	0.0
	BckUp-BootLoader	YES	20.08	20.08	0.0
	IoFpga	YES	0.17	0.17	0.0
	IoFpgagolden	YES	0.15	0.15	0.0
	Prim-BootLoader	YES	20.08	20.08	0.0
	Stdbypfpga	YES	2.05	2.05	0.0
	Stdbypfpgagolden	YES	0.33	0.33	0.0
	Tamfw	YES	6.05	6.05	0.0
	Tamfwgolden	YES	6.05	6.05	0.0


```

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

```

```

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

```

Location	Card type	HWver	FPD device	ATR	Status	FPD Versions	
						Running	Programd
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	ADMConfig		CURRENT	5.00	5.00
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	IoFpga		CURRENT	0.17	0.17
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	IoFpgaGolden	B	CURRENT		0.15
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	Prim-BootLoader	A	CURRENT	20.08	20.08
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	StdbyFpga	S	CURRENT	2.05	2.05
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	StdbyFpgaGolden	BS	CURRENT		0.32
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	TamFw	S	CURRENT	6.05	6.05
0/RP0/CPU0	N540X-6Z18G-SYS-A	1.0	TamFwGolden	BS	CURRENT		6.05

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

```

RP/0/RP0/CPU0:Router#show fpd package
=====
                          Field Programmable Device Package
=====
Card Type                FPD Description          Req  SW   Min Req  Min Req
=====                =====                =====
N540-12Z20G-SYS-A      ADM_FW                    YES  14.03  14.03    0.0
                        ADMConfig                 NO   1.05   1.05    0.0
                        IoFpga                    YES  3.08   3.08    0.0
                        IoFpgaGolden              YES  2.07   2.03    0.0
                        Primary-BIOS                YES  1.49   1.49    0.0
                        StdbyFpga                  YES  0.50   0.50    0.0
                        StdbyFpgaGolden            YES  0.50   0.40    0.0
                        TamFw                      YES  4.13   4.13    0.0
=====

```

Determine Firmware Support

	TamFwGolden	YES	4.13	4.11	0.0

N540-12Z20G-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-24Q8L2DD-SYS	ADM-DBConfig	NO	2.05	2.05	0.0
	ADM-MBConfig	NO	2.05	2.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.12	2.12	0.0
	Primary-BIOS	YES	4.07	4.07	0.0
	SsdSAMSA64G3	YES	12.41	12.41	0.0
	StdbypFpga	YES	2.59	2.59	0.0
	StdbypFpgaGolden	YES	2.56	2.39	0.0
	TamFw	YES	6.05	6.05	0.0
TamFwGolden	YES	6.05	6.05	0.0	

N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-28Z4C-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.24	0.24	0.0
	DpFpgaEth	YES	1.22	1.22	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0
	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.23	0.23	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.46	0.46	0.0
	StdbyFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

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

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

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

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

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-12Z16G-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0

Determine Firmware Support

	Primary-BIOS	YES	1.49	1.49	0.0
	Stdbypfpga	YES	0.50	0.50	0.0
	Stdbypfpgagolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	Stdbypfpga	YES	0.50	0.50	0.0
	Stdbypfpgagolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	Stdbypfpga	YES	0.50	0.50	0.0
	Stdbypfpgagolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

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

Auto-upgrade:Enabled

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

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

0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	ADM-DBConfig	CURRENT	2.05	2.05
NOT REQ						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	ADM-MBConfig	CURRENT	2.05	2.05
NOT REQ						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	IoFpga	CURRENT	2.12	2.12
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	IoFpgaGolden	B CURRENT		2.12
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	Primary-BIOS	S CURRENT	4.07	4.07
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	SsdSAMSA64G3	S CURRENT	12.41	12.41
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	Stdbypfpga	S CURRENT	2.59	2.59
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	Stdbypfpgagolden	BS CURRENT		2.59
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	TamFw	S CURRENT	6.05	6.05
0/RP0						
0/RP0/CPU0	N540-24Q8L2DD-SYS	4.0	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:Router#show fpd package

```

=====
                          Field Programmable Device Package
=====
Card Type                FPD Description                Req  SW  Min Req  Min Req
=====  =====  =====  =====  =====  =====
N540-12Z20G-SYS-A      ADM_FW                          YES  14.03  14.03  0.0

```

	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-12Z20G-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-24Q8L2DD-SYS	ADM-DBConfig	NO	2.05	2.05	0.0
	ADM-MBConfig	NO	2.05	2.05	0.0
	IoFpga	YES	2.12	2.12	0.0
	IoFpgaGolden	YES	2.12	2.12	0.0
	Primary-BIOS	YES	4.07	4.07	0.0
	SsdSAMSA64G3	YES	12.41	12.41	0.0
	StdbyFpga	YES	2.59	2.59	0.0
	StdbyFpgaGolden	YES	2.56	2.39	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-28Z4C-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-28Z4C-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	JMAC1-Config	YES	3.00	3.00	0.0
	JMAC2-Config	YES	3.00	3.00	0.0
	JMAC3-Config	YES	3.00	3.00	0.0
	JMAC4-Config	YES	3.00	3.00	0.0
	JMAC5-Config	YES	3.00	3.00	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540-FH-AGG-SYS	ADM1_Config	NO	1.02	1.02	1.0
	ADM2_Config	NO	1.02	1.02	1.0
	DpFpgaCpri	YES	0.24	0.24	0.0
	DpFpgaEth	YES	1.22	1.22	0.0

Determine Firmware Support

	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

N540-FH-CSR-SYS	ADM1_Config	NO	0.09	0.09	0.0
	ADM1_Config	NO	1.01	1.01	2.0
	ADM2_Config	NO	0.09	0.09	0.0
	ADM2_Config	NO	1.01	1.01	2.0
	DpFpga	YES	0.23	0.23	0.0
	IoFpga	YES	1.30	1.30	0.0
	IoFpgaGolden	YES	1.30	1.30	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.46	0.46	0.0
	StdbypFpgaGolden	YES	0.46	0.46	0.0
	TamFw	YES	6.05	6.05	0.0
	TamFwGolden	YES	6.05	6.05	0.0

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

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

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

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

N540X-12Z16G-SYS-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-12Z16G-SYS-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-A	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbypFpga	YES	0.50	0.50	0.0
	StdbypFpgaGolden	YES	0.50	0.40	0.0

	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z4G8Q2C-D	ADM_FW	YES	14.03	14.03	0.0
	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-A	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

N540X-16Z8Q2C-D	ADMConfig	NO	1.05	1.05	0.0
	IoFpga	YES	3.08	3.08	0.0
	IoFpgaGolden	YES	2.07	2.03	0.0
	Primary-BIOS	YES	1.49	1.49	0.0
	StdbyFpga	YES	0.50	0.50	0.0
	StdbyFpgaGolden	YES	0.50	0.40	0.0
	TamFw	YES	4.13	4.13	0.0
	TamFwGolden	YES	4.13	4.11	0.0

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

Auto-upgrade:Enabled

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

Location	Card type	HWver	FPD device	ATR	Status	FPD Versions	
						Running	Programd
0/RP0/CPU0	N540-FH-AGG-SYS	1.0	ADM1_Config		CURRENT	1.02	1.02
NOT REQ							
0/RP0/CPU0	N540-FH-AGG-SYS	1.0	ADM2_Config		CURRENT	1.02	1.02
NOT REQ							
0/RP0/CPU0	N540-FH-AGG-SYS	1.0	DpFpgaCpri		CURRENT	0.24	0.24
0/RP0							
0/RP0/CPU0	N540-FH-AGG-SYS	1.0	DpFpgaEth		CURRENT	1.22	1.22
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	CURRENT		1.20
0/RP0							
0/RP0/CPU0	N540-FH-AGG-SYS	1.0	Primary-BIOS	SA	CURRENT	1.49	1.49
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	CURRENT		0.35
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	CURRENT		6.04
0/RP0							
0/PM0	N540-PWR750-A	1.0	EM-PrimMCU		CURRENT	1.02	1.02
NOT REQ							
0/PM0	N540-PWR750-A	1.0	EM-SecMCU		CURRENT	1.03	1.03
NOT REQ							

O/PM1	N540-PWR750-A	1.0	EM-PrimMCU	CURRENT	1.03	1.03
NOT REQ						
O/PM1	N540-PWR750-A	1.0	EM-SecMCU	CURRENT	1.03	1.03
NOT REQ						

Important Notes

Licensing

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

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

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



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

Supported Transceiver Modules

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

Upgrading Cisco IOS XR Software



Note For software installation and upgrades, refer to the respective upgrade/downgrade docs *.tar* files based on your [540 router variant](#).

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

The upgrade document for N540-24Z8Q2C-SYS, N540X-ACC-SYS, and N540-ACC-SYS variants is available along with the software image in *NCS540-docs-24.2.1.tar* file.

The upgrade document for N540-28Z4C-SYS-A/D, N540-12Z20G-SYS-A/D, N540X-12Z16G-SYS-A/D, N540X-16Z4G8Q2C-A/D, N540-24Q8L2DD-SYS, N540-FH-AGG-SYS, N540X-16Z8Q2C-D, and N540-FH-CSR-SYS variants is available along with the software image in *NCS540l-docs-24.2.1.tar* file.

The upgrade document for N540X-4Z14G2Q-A/D, N540X-8Z16G-SYS-A/D, N540-6Z14S-SYS-D, N540-6Z18G-SYS-A/D, and N540X-6Z18G-SYS-A/D variants is available along with the software image in *NCS540l-aarch64-docs-24.2.1.tar* file.



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

Production Software Maintenance Updates (SMUs)

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

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

Cisco IOS XR Error messages

To view, search, compare, and download Cisco IOS XR Error Messages, refer to the [Cisco IOS XR Error messages](#) tool.

Cisco IOS XR MIBs

To determine the MIBs supported by platform and release, refer to the [Cisco IOS XR MIBs](#) tool.

Related Documentation

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

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

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