Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 6.5.2

Revised: June 9, 2023

Network Convergence System 5500 Series Routers

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Cisco IOS XR Release 6.5.2 is a limited availability (LA) release. All Cisco IOS XR Release 6.5.2 features are available in Cisco IOS XR Release 6.5.3, which is a general availability (GA) release. For more information on IOS XR Release 6.5.3, see Release Notes for Cisco NCS 5500 Series Routers, Release 6.5.3

Software Features Introduced in this Release

Cisco IOS XR Release 6.5.2 contains all features released in Cisco IOS XR Release 6.5.1. Release 6.5.2 and Release 6.5.1 are limited availability (LA) releases. For more information on IOS XR Release 6.5.1 features, see *Release Notes for Cisco NCS 5500 Series Routers, Release 6.5.1*

IEEE 1588 PTP Support on NCS-55A1-24H Routers

The NCS-55A1-24H Routers support the following IEEE 1588 Precision Time Protocols (PTP):

- G.8273.2

- G.8275.1

- G.8275.2

For more information, see *Configuring Precision Time Protocol* chapter of the *System Management Configuration Guide for Cisco NCS 5500 Series Routers*.

MPP for Third-Party Applications

This release introduces the following changes for MPP for Third-Party Applications feature:

- Introduction of sub-mode protection under tpa sub-mode

- Only tcp and udp protocol can be specified as parameters for the **allow protocol** command

- The control-plane and management-plane configuration is now moved to protection sub-mode under tpa.

For more information about MPP, see the System Management Configuration Guide for Cisco NCS 5500 Series Routers.

SR-TE On-Demand Next Hops for 6PE and 6VPE

On Demand Next hop (ODN) leverages upon dynamic SR-TE capabilities and adds the path computation (PCE) capability to find and download the end to end path based on the requirements. Using the SR-TE On-Demand Next Hops for 6PE and 6VPE feature, you can trigger automatic SR-TE tunnels to route traffic based on specific constraints (for example delay and bandwidth) for 6PE and 6VPE services.

Software Feature Enhancements Introduced in this Release

File Transfer Using HTTP

Starting from Cisco IOS XR Release 6.5.2 onwards, the **copy** command supports transfer of files to or from a remote HTTP server. The syntax is *https: [//location]/filename*.

The following example shows how to copy a running-config to a HTTP server with VRF:

```
Router#copy running-config http://19.0.2.1/incoming/upload.php vrf httpupload
```

Behavior Change Introduced in this Release

Deprecated Commands

- Starting from Cisco IOS XR Release 6.5.2, the **install update** command is not supported and is replaced with the **install source** new command .

  The syntax of the **install source** command is:

  ```
  install source repository [rpm]
  ```
- Starting from Cisco IOS XR Release 6.5.2, the **hw-module profile mfib statistics** command is not supported.

Behavior Change due to ESI Label Assignment

To adhere to RFC 7432 recommendations, the encoding or decoding of MPLS label is modified for extended community. In previous releases, the lower 20 bits of extended community were used to encode the split-horizon group (SHG) label. Starting from Cisco IOS XR Release 6.5.2, the SHG label encoding uses from higher 20 bits of extended community.

For more information about this behavior change, see the *EVPN Features* chapter in the *L2VPN and Ethernet Services Configuration Guide for Cisco NCS 5500 Series Routers, IOS XR Release 6.5.x*.

New Hardware Introduced in this Release

This release introduces the following new hardware:

- Cisco NCS-55A2-MOD-HX-S—Temperature-hardened, conformal coated, fixed port, high density, two rack unit form-factor router that supports 24 SFP/SFP+ ports capable of supporting one Gigabit Ethernet or 10 Gigabit Ethernet, and 16 SFP/SFP+/SFP28 ports capable of supporting one Gigabit Ethernet, 10 Gigabit Ethernet, or 25 Gigabit Ethernet. The router also supports up to 2 modular port adapters (MPA).

  For more information, see the *Hardware Installation Guide for Cisco NCS 5500 Series Fixed-Port Routers* and the *Data Sheet*.

- Cisco NC55-MPA-2TH-HX-S— This 2-port 100GE/200GE MPA provides 2 ports for CFP2-DCO transceivers. The temperature-hardened conformal-coated NC55-MPA-2TH-HX-S MPA operates within industrial temperature range when installed in the temperature-hardened routers.

  For more information, see the *Hardware Installation Guide for Cisco NCS 5500 Series Fixed-Port Routers* and the *Data Sheet*.

- NC55-A2-FAN-L-FW— This is a latch type fan tray.

  For more information, see the *Hardware Installation Guide for Cisco NCS 5500 Series Fixed-Port Routers* and the *Data Sheet*.

Supported Hardware

For a complete list of hardware and ordering information, see the *Cisco NCS 5500 Series Data Sheet*

Use the Cisco Optics-to-Device Compatibility Matrix tool to determine transceivers supported in Cisco hardware devices.

To install the Cisco NCS 5500 router, see *Hardware Installation Guide for Cisco NCS 5500 Series Routers*.

Release 6.5.2 Packages

This table lists the Cisco IOS XR Software feature set matrix (packages) with associated filenames.

Table 1: Release 6.5.2 Packages for Cisco NCS 5500 Series Router

Composite Package		
Feature Set	**Filename**	**Description**
Cisco IOS XR IP Unicast Routing Core Bundle	ncs5500-mini-x.iso	Contains base image contents that includes: • Host operating system • System Admin boot image • IOS XR boot image • BGP packages
Individually-Installable Optional Packages		
Feature Set	**Filename**	**Description**
Cisco IOS XR Manageability Package	ncs5500-mgbl-3.0.0.0-r652.x86_64.rpm	Extensible Markup Language (XML) Parser, Telemetry, Netconf, gRPC and HTTP server packages.

Cisco IOS XR MPLS Package	ncs5500-mpls-2.1.0.0-r652.x86_64.rpm	MPLS and MPLS Traffic Engineering (MPLS-TE) RPM.
	ncs5500-mpls-te-rsvp-2.2.0.0-r652.x86_64.rpm	
Cisco IOS XR Security Package	ncs5500-k9sec-3.1.0.0-r652.x86_64.rpm	Support for Encryption, Decryption, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI)
Cisco IOS XR ISIS package	ncs5500-isis-1.2.0.0-r652.x86_64.rpm	Support ISIS
Cisco IOS XR OSPF package	ncs5500-ospf-2.0.0.0-r652.x86_64.rpm	Support OSPF
Lawful Intercept (LI) Package	ncs5500-li-1.0.0.0-r652.x86_64.rpm	Includes LI software images
Multicast Package	ncs5500-mcast-1.0.0.0-r652.rpm	Support Multicast

Determine Software Version

Log in to the router and enter the **show version** command:

```
RP/0/RP0/CPU0:router# show version

Cisco IOS XR Software, Version 6.5.2
Copyright (c) 2013-2019 by Cisco Systems, Inc.

Build Information:
 Built By     : <username>
 Built On     : Wed Jan 30 18:42:12 PST 2019
 Built Host   : iox-ucs-027
 Workspace    : /auto/srcarchive13/prod/6.5.2/ncs5500/ws
 Version      : 6.5.2
 Location     : /opt/cisco/XR/packages/

cisco NCS-5500 () processor
System uptime is 2 hours 38 minutes
```

Caveats

Caveats describe unexpected behavior in Cisco IOS XR Software releases. Severity-1 caveats are the most critical caveats; severity-2 caveats are less critical.

Cisco IOS XR Caveats

There are no caveats specific to Cisco IOS XR Software Release.

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Caveats Specific to the NCS 5500 Routers

Caveats describe unexpected behavior in Cisco IOS XR Software releases.

Bug ID	Headline
CSCvo11053	Egress BFD packets are dropped with ACE match of 0.0.0.0/8 as source address.
CSCvn15539	Memory alarms are observed when restart SMU is added,activated

Determine Firmware Support

Use the **show hw-module fpd** command in Admin 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.

This sample **show hw-module fpd** command output is taken from NCS 5508 chassis:

```
(sysadmin-vm)#show hw-module fpd

                                                              FPD Versions
                                                              ===============
Location  Card type           HWver FPD device      ATR Status  Run   Programd
-------------------------------------------------------------------------------
0/4       NC55-36X100G-A-SE 1.0    Bootloader           CURRENT  0.13  0.13
0/4       NC55-36X100G-A-SE 1.0    DBFPGA               CURRENT  0.14  0.14
0/4       NC55-36X100G-A-SE 1.0    IOFPGA               CURRENT  0.21  0.21
0/RP0     NC55-RP           1.1    Bootloader           CURRENT  9.28  9.28
0/RP0     NC55-RP           1.1    IOFPGA               CURRENT  0.09  0.09
0/RP1     NC55-RP           1.1    Bootloader           CURRENT  9.28  9.28
0/RP1     NC55-RP           1.1    IOFPGA               CURRENT  0.09  0.09
0/FC0     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC0     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/FC1     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC1     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/FC2     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC2     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/FC3     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC3     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/FC4     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC4     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/FC5     NC55-5508-FC      1.2    Bootloader           CURRENT  1.74  1.74
0/FC5     NC55-5508-FC      1.2    IOFPGA               CURRENT  0.16  0.16
0/SC0     NC55-SC           1.5    Bootloader           CURRENT  1.74  1.74
0/SC0     NC55-SC           1.5    IOFPGA               CURRENT  0.10  0.10
0/SC1     NC55-SC           1.5    Bootloader           CURRENT  1.74  1.74
0/SC1     NC55-SC           1.5    IOFPGA               CURRENT  0.10  0.10
```

Note The FPD versions on board shipped by manufacturer may have higher versions than the FPD package integrated in the IOS XR.

Other Important Information

- The total number of bridge-domains (2*BDs) and GRE tunnels put together should not exceed 1518.

  Here the number 1518 represents the multi-dimensional scale value.

- MLD Snooping is not supported until Cisco IOS XR Release 6.5.3. The support will be available in future releases.

- The SRLB (Segment Routing Local Block) inconsistency and allocation failure error is observed when a non-default values of SRLB and SRGB (Segment Routing Global Block) are configured and a commit-replace is followed by configuration re-application. This issue impacts data forwarding as the SR labels are not properly programmed.

  To prevent the issue, use the **clear segment-routing local-block discrepancy all** command to clear the label conflicts.

- The offline diagnostics functionality is not supported in NCS 5500 platform. Therefore, the **hw-module service offline location** command will not work. However, you can use the **(sysadmin)# hw-module shutdown location** command to bring down the LC.

- The warning message that the smart licensing evaluation period has expired is displayed in the console every hour. There is, however, no functionality impact on the device. The issue is seen on routers that do not have the Flexible Consumption licensing model enabled. To stop the repetitive messaging, register the device with the smart licensing server and enable the Flexible Consumption model. Later load a new registration token.

  To register the device with the smart licensing server, follow the instructions provided in this link: Register and Activate Your Device.

  However, if you do not want to enable the Flexible Consumption licensing model then install the CSCvk45026 SMU to stop the repetitive messages.

Supported Transceiver Modules

To determine the transceivers that Cisco hardware device supports, refer to the Transceiver Module Group (TMG) Compatibility Matrix tool.

Supported Modular Port Adapters

For the compatibility details of Modular Port Adapters (MPAs) on the line cards, see the datasheet of that specific line card.

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. Software packages can be upgraded or downgraded on all supported card types, or on a single card (node).

Before starting the software upgrade, use the **show install health** command in the admin mode. This command validates if the statuses of all relevant parameters of the system are ready for the software upgrade without interrupting the system.

Related Documentation

The most current Cisco Network Convergence System 5500 Series documentation is located at this URL:

http://www.cisco.com/c/en/us/support/routers/network-convergence-system-5500-series/tsd-products-support-series-home.html

The document containing Cisco IOS XR System Error Messages (SEM) is located at this URL:

https://www.cisco.com/c/en/us/td/docs/ios_xr_sw/error/message/ios-xr-sem-guide.html

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.

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Cisco Bug Search Tool

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