Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.6.2

Network Convergence System 5500 Series Routers

What's New in Cisco IOS XR Release 7.6.2

Cisco is continuously enhancing the software with every release, and this section covers a brief description of key features and enhancements. It also includes links to detailed documentation, where available. To get a general feature understanding, please refer to the Cisco NCS 5500 documentation.

Software Features Enhanced and Introduced

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

Unless specified the following features are not supported on the Cisco 5700 series fixed port routers and the Cisco NCS 5500 series routers that have the Cisco NC57 line cards installed and operating in the native or compatibility mode.

To enable the native mode on Cisco NCS 5500 series routers having Cisco NC57 line cards, use the **hw-module profile npu native-mode-enable** command in the configuration mode. Ensure that you reload the router after configuring the native mode.

Feature	Description
MPLS	
Configure Autoroute Tunnel as Designated Path	Simplify the path selection for a traffic class and split traffic among multiple TE tunnels to achieve many benefits such as security and service-level agreements. You can now exclusively specify an autoroute tunnel to forward traffic to a particular tunnel destination address without considering the IS-IS metric for traffic path selection.
	Earlier, MPLS-TE considered either the Forwarding Adjacency (FA) or Autoroute (AA) tunnel to forward traffic based only on IS-IS metric.
	The feature introduces the **mpls traffic-eng tunnel restricted** command.

Hardware Introduced

There are no new hardware introduced in this release.

Features Supported on Cisco NC57 Line Cards and NCS 5700 Fixed Routers

For the complete list of parity features supported on Cisco NC57 line cards until Cisco IOS XR Release 7.6.2, see:

- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.6.1
- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.5.1
- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.4.2
- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.4.1
- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.3.1
- Release Notes for Cisco NCS 5500 Series Routers, IOS XR Release 7.2.2

Caveats

Table 1: Cisco NCS 5500 Series and NCS 5700 Series Routers Specific Bugs

Bug ID	Headline
CSCwc58448	IP-in-IP: ipv4 ping got full drop after enable tunnel-ip interface on device

Release Package

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

Visit the Cisco Software Download page to download the Cisco IOS XR software images.

Table 2: Release 7.6.2 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-r762.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-r762.x86_64.rpm ncs5500-mpls-te-rsvp-2.2.0.0-r762.x86_64.rpm	MPLS and MPLS Traffic Engineering (MPLS-TE) RPM.
Cisco IOS XR Security Package	ncs5500-k9sec-3.1.0.0-r762.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-r762.x86_64.rpm	Support ISIS
Cisco IOS XR OSPF package	ncs5500-ospf-2.0.0.0-r762.x86_64.rpm	Support OSPF

Lawful Intercept (LI) Package	ncs5500-li-1.0.0.0-r762.x86_64.rpm	Includes LI software images
Multicast Package	ncs5500-mcast-1.0.0.0-r762.rpm	Support Multicast

Table 3: Release 7.6.2 TAR files for Cisco NCS 5500 Series Router

Feature Set	Filename
NCS 5500 IOS XR Software 3DES	NCS5500-iosxr-k9-7.6.2.tar
NCS 5500 IOS XR Software	NCS5500-iosxr-7.6.2.tar
NCS 5500 IOS XR Software	NCS5500-docs-7.6.2.tar

Table 4: Release 7.6.2 Packages for Cisco NCS 5700 Series Router

Feature Set	Filename
NCS 5700 IOS XR Software	ncs5700-x64-7.6.2.iso
NCS 5700 IOS XR Software (only k9 RPMs)	ncs5700-k9sec-rpms.7.6.2.tar
NCS 5700 IOS XR Software Optional Package	NCS5700-optional-rpms.7.6.2.tar This TAR file contains the following RPMS: • optional-rpms/cdp/* • optional-rpms/eigrp/* • optional-rpms/telnet/*

Determine Software Version

To verify the software version running on the router, use **show version** command in the EXEC mode.

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

Cisco IOS XR Software, Version 7.6.2
Copyright (c) 2013-2022 by Cisco Systems, Inc.

Build Information:
 Built By     : ingunawa
 Built On     : Sat Aug  6 10:40:37 PDT 2022
 Built Host   : iox-ucs-047
 Workspace    : /auto/srcarchive14/prod/7.6.2/ncs5500/ws
 Version      : 7.6.2
 Location     : /opt/cisco/XR/packages/
 Label        : 7.6.2

cisco NCS-5500 () processor
System uptime is 2 days 17 hours 40 minutes
```

Determine Firmware Support

Use the **show hw-module fpd** command in EXEC and 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.

✎

Note   You can also use the **show fpd package** command in Admin mode to check the fpd versions.

This sample output is for **show hw-module fpd** command from the Admin mode:

```
sysadmin-vm:0_RP0# show hw-module fpd
                        FPD Versions
                        ==============
Location  Card type           HWver FPD device     ATR Status     Run      Programd
--------------------------------------------------------------------------------
0/0       NC55-36X100G-A-SE 1.0   Bootloader          CURRENT    0.15      0.15
0/0       NC55-36X100G-A-SE 1.0   DBFPGA              CURRENT    0.14      0.14
0/0       NC55-36X100G-A-SE 1.0   IOFPGA              CURRENT    0.26      0.26
0/0       NC55-36X100G-A-SE 1.0   SATA-M500IT-MU-A    CURRENT    5.00      5.00
0/1       NC55-24X100G-SE   1.1   Bootloader          CURRENT    1.20      1.20
0/1       NC55-24X100G-SE   1.1   IOFPGA              CURRENT    0.13      0.13
0/1       NC55-24X100G-SE   1.1   SATA-M600-MCT       CURRENT    5.00      5.00
0/3       NC57-18DD-SE      1.1   Bootloader          CURRENT    1.03      1.03
0/3       NC57-18DD-SE      1.1   DBFPGA              CURRENT    0.14      0.14
0/3       NC57-18DD-SE      1.1   IOFPGA              CURRENT    0.22      0.22
0/3       NC57-18DD-SE      1.1   SATA-M5100          CURRENT   75.00     75.00
0/5       NC57-MOD-S        1.1   Bootloader          CURRENT    2.03      2.03
0/5       NC57-MOD-S        1.1   DBFPGA              CURRENT    0.14      0.14
0/5       NC57-MOD-S        1.1   IOFPGA              CURRENT    0.42      0.42
0/5       NC57-MOD-S        1.1   SATA-Micron         CURRENT    1.00      1.00
0/RP0     NC55-RP           2.2   Bootloader          CURRENT    9.31      9.31
0/RP0     NC55-RP           2.2   IOFPGA              CURRENT    0.09      0.09
0/RP0     NC55-RP           2.2   SATA-M600-MU        CURRENT    6.00      6.00
0/RP1     NC55-RP           1.0   Bootloader          CURRENT    9.31      9.31
0/RP1     NC55-RP           1.0   IOFPGA              CURRENT    0.09      0.09
0/RP1     NC55-RP           1.0   SATA-M600-MU        CURRENT    6.00      6.00
0/FC0     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC0     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/FC0     NC55-5508-FC2     1.0   SATA-M5100          CURRENT   75.00     75.00
0/FC1     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC1     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/FC1     NC55-5508-FC2     1.0   SATA-M5100          CURRENT   75.00     75.00
0/FC2     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC2     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/FC2     NC55-5508-FC2     1.0   SATA-M5100          CURRENT   75.00     75.00
0/FC3     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC3     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/FC3     NC55-5508-FC2     1.0   SATA-M5100          CURRENT   75.00     75.00
0/FC4     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC4     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/FC4     NC55-5508-FC2     1.0   SATA-M5100          CURRENT   75.00     75.00
0/FC5     NC55-5508-FC2     1.0   Bootloader          CURRENT    1.80      1.80
0/FC5     NC55-5508-FC2     1.0   IOFPGA              CURRENT    0.19      0.19
0/SC0     NC55-SC           1.6   Bootloader          CURRENT    1.74      1.74
0/SC0     NC55-SC           1.6   IOFPGA              CURRENT    0.10      0.10
0/SC1     NC55-SC           1.6   Bootloader          CURRENT    1.74      1.74
0/SC1     NC55-SC           1.6   IOFPGA              CURRENT    0.10      0.10
```

Important Notes

- 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.

- 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.

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.

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.

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.

> ✎ **Note**
>
> - If you use a TAR package to upgrade from a Cisco IOS XR release prior to 7.x, the output of the **show install health** command in admin mode displays the following error messages:
>
> ```
> sysadmin-vm:0_RSP0# show install health
> . . .
> ERROR /install_repo/gl/xr -rw-r--r--. 1 8413 floppy 3230320 Mar 14 05:45 <platform>-isis-2.2.0.0-r702.x86_64
> ERROR /install_repo/gl/xr -rwxr-x---. 1 8413 165 1485781 Mar 14 06:02 <platform>-k9sec-3.1.0.0-r702.x86_64
> ERROR /install_repo/gl/xr -rw-r--r--. 1 8413 floppy 345144 Mar 14 05:45 <platform>-li-1.0.0.0-r702.x86_64
> ```
>
> You can ignore these messages and proceed with the installation operation.
>
> - Quad configurations will be lost when you perform a software downgrade on a NCS-55A1-48Q6H device from IOS XR Release 7.5.1 onwards to a release prior to IOS XR Release 7.5.1 due to non-backward compatibility change. The lost configuration can be applied manually after the downgrade.
>
> > ✎ **Note**
> >
> > A quad is a group of four ports with common speeds, 1G/10G or 25G. You can configure the ports speed fo by using the **hw-module quad** command.

> ✎ **Note**
>
> Ensure that the system is on Cisco IOS XR Software Release 7.3.x, for a successful upgrade to Cisco IOS XR Software Release 7.6.x.

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.

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

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

In Cisco IOS XR Release 7.3.2 and later, use:

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

Related Documentation

The most current Cisco NCS 5500 router documentation is located at the following URL:

https://www.cisco.com/c/en/us/td/docs/iosxr/ios-xr.html