



# Release Notes for Cisco NCS 560 Series Routers, Cisco IOS XR Release 7.6.2

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## What's New in Cisco IOS XR Release 7.6.2

Feature	Description
MPLS	
<a href="#">Configure Autoroute Tunnel as Designated Path</a>	<p>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.</p> <p>Earlier, MPLS-TE considered either the Forwarding Adjacency (FA) or Autoroute (AA) tunnel to forward traffic based only on IS-IS metric.</p> <p>The feature introduces the <code>mpls traffic-eng tunnel restricted</code> command.</p>

## Restrictions and Limitations on the Cisco NCS 560 Series Router

- The standby RP may get into 'NOT\_READY' state intermittently due to some network churn, though the corresponding VM is up and running. But this is a transient state and shows that some data aren't in sync between active and standby due to the network churn. After both active and standby are in sync with respect to all the parameters, then the standby RP comes into 'READY' state.
- Unlabeled BGP PIC EDGE for global prefixes is not supported.

## Cisco IOS XR Caveats Release 7.6.2

Bug ID	Headline
<a href="#">CSCwb13103</a>	IPv6 BFD packets getting control timer expired due to that ISIS OSPF protocols flapped during RPFO

## Supported Packages and System Requirements

For more information on system upgrade and package installation process, see [Perform System Upgrade and Install Feature Packages](#).

For a complete list of supported optics, hardware and ordering information, see the [Cisco NCS 560 Series Routers Interface Modules Data Sheet](#) and [Cisco Network Convergence System 560-4 Router Data Sheet](#).

To install the Cisco NCS 560 Series Routers, see [Cisco N560-RSP4 and Cisco N560-RSP4-E Route Processor Hardware Installation Guide](#) and [Cisco NCS 560-4 Router Hardware Installation Guide](#).

## Release 7.6.2 Packages

This following table lists the supported packages and their corresponding file names.

**Table 1: Release 7.6.2 Packages for Cisco NCS 560 Series Router**

Composite Package		
Feature Set	Filename	Description
Cisco IOS XR IP Unicast Routing Core Bundle	ncs560-mini-x-7.6.2.iso	Contains base image contents that includes: <ul style="list-style-type: none"> <li>• Host operating system</li> <li>• System Admin boot image</li> <li>• IOS XR boot image</li> <li>• BGP packages</li> <li>• OS</li> <li>• Admin</li> <li>• Base</li> <li>• Forwarding</li> <li>• Modular Services Card</li> <li>• Routing</li> <li>• SNMP Agent</li> <li>• Alarm Correlation</li> </ul>
Cisco IOS XR Manageability Package	ncs560-mgbl-2.0.0.0-r762.x86_64.rpm	Telemetry, Extensible Markup Language (XML), Parser, and HTTP server packages, NETCONF, YANG Models, gRPC.
Cisco IOS XR OSPF package	ncs560-ospf-2.0.0.0-r762.x86_64.rpm	Supports OSPF
Cisco IOS XR Security Package	ncs560-k9sec-2.0.0.0-r762.x86_64.rpm	Support for Encryption, Decryption, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI)

Composite Package		
Feature Set	Filename	Description
Multicast Package	ncs560-mcast-2.0.0.0-r762.x86_64.rpm	Supports Multicast  Supports Automatic Multicast Tunneling (AMT), IGMP Multicast Listener Discovery (MLD), Multicast Label Distribution Protocol (MLDP), Multicast Source Discovery Protocol (MSDP) and PIM.
Cisco IOS XR ISIS package	ncs560-isis-2.0.0.0-r762.x86_64.rpm	Supports Intermediate System to Intermediate System (IS-IS).
Cisco IOS XR USB Boot Package	ncs560-usb_boot-7.6.2.zip	Supports Cisco IOS XR USB Boot Package
Cisco IOS XR MPLS Package	ncs560-mpls-1.0.0.0-r762.x86_64.rpm ncs560-mpls-te-rsvp-2.0.0.0-r762.x86_64.rpm	Supports MPLS and MPLS Traffic Engineering (MPLS-TE) RPM. Label Distribution Protocol (LDP), MPLS Forwarding, MPLS Operations, Administration, and Maintenance (OAM), Link Manager Protocol (LMP), Optical User Network Interface (OUNI) and Layer-3 VPN.  Cisco IOS XR MPLS-TE and RSVP Package  MPLS Traffic Engineering (MPLS-TE) and Resource Reservation Protocol (RSVP).
Cisco IOS XR LI Package	ncs560-li-1.0.0.0-r762.x86_64.rpm	Lawful Intercept
Cisco IOS XR EIGRP Package	ncs560-eigrp-1.0.0.0-r762.x86_64.rpm	(Optional) Includes EIGRP protocol support software

## Determine Software Version

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

```
RP/0/RP0/CPU0:R3_PE3_RSP4#show version
Wed Aug 10 14:59:03.434 IST
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 10:22:44 PDT 2022
Built Host   : iox-ucs-052
Workspace    : /auto/srcarchive14/prod/7.6.2/ncs560/ws
```

## Determine Firmware Support

```

Version      : 7.6.2
Location     : /opt/cisco/XR/packages/
Label       : 7.6.2

cisco NCS-560 () processor
System uptime is 2 days 2 hours 27 minutes

```

## Determine Firmware Support

Log in to the router and enter the **show fpd package** command to know the release image.

```

RP/0/RP0/CPU0:R3_PE3_RSP4#show fpd package
Wed Aug 10 15:01:38.240 IST

```

```

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

```

Card Type	FPD Description	Req Reload	SW Ver	Min Req SW Ver	Min Req Board Ver
A900-IMA8CS1Z-CC	IMFPGA	YES	1.113	1.113	0.0
A900-IMA8CS1Z-M	IMFPGA	YES	1.113	1.113	0.0
A900-IMA8Z	IMFPGA	YES	17.05	17.05	0.0
A900-IMA8Z-CC	IMFPGA	YES	17.05	17.05	0.0
A900-IMA8Z-L	IMFPGA	YES	1.49	1.49	0.0
A900-PWR1200-A	DCA-PrimMCU (A)	NO	0.11	0.11	0.0
	DCA-SecMCU (A)	NO	1.04	1.04	0.0
A900-PWR1200-D	LIT-PrimMCU (A)	NO	2.04	0.04	0.0
	LIT-SecMCU (A)	NO	1.23	1.23	0.0
A907-FAN-E	PSOC (A)	NO	1.65	1.65	0.0
	PSOC (A)	NO	1.66	1.66	0.4
N560-4-FAN-H	PSOC (A)	NO	177.02	177.02	0.0
N560-4-FAN-H-CC	PSOC (A)	NO	177.02	177.02	0.0
N560-4-FAN-H-R	PSOC (A)	NO	177.02	177.02	0.0
N560-4-PWR-FAN	PSOC (A)	NO	177.08	177.08	0.0
N560-4-PWR-FAN-CC	PSOC (A)	NO	177.08	177.08	0.0
N560-4-PWR-FAN-R	PSOC (A)	NO	177.08	177.08	0.0
N560-4-RSP4	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0
N560-4-RSP4-CC	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0

N560-4-RSP4E	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0
-----					
N560-4-RSP4E-CC	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0
-----					
N560-FAN-H	PSOC (A)	NO	2.02	2.02	0.0
-----					
N560-IMA-8Q/4L	IMFPGA	YES	1.27	1.27	0.0
-----					
N560-IMA1W	CFP2-D-DCO	NO	38.27397	38.27397	0.0
	CFP2-DE-DCO	NO	38.27397	38.27397	0.0
	CFP2-DET-DCO	NO	38.27397	38.27397	0.0
	CFP2-DETS-DCO	NO	38.27397	38.27397	0.0
	CFP2-DS-DCO	NO	38.27397	38.27397	0.0
	CFP2-DS100-DCO	NO	38.27397	38.27397	0.0
	IMFPGA	YES	1.28	1.28	0.0
-----					
N560-IMA2C	IMFPGA	YES	5.07	5.07	0.0
-----					
N560-IMA2C-CC	IMFPGA	YES	5.07	5.07	0.0
-----					
N560-IMA2C-DD	IMFPGA	YES	1.28	1.28	0.0
	QDD_100_FW_P0	NO	161.10	161.10	0.0
	QDD_100_FW_P1	NO	161.10	161.10	0.0
-----					
N560-IMA2C-L	IMFPGA	YES	1.28	1.28	0.0
-----					
N560-PWR1200-D-E	QCS-PrimMCU (A)	NO	1.82	1.82	0.0
	QCS-SecMCU (A)	NO	1.84	1.84	0.0
-----					
N560-RSP4	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0
-----					
N560-RSP4-E	ADM (A)	NO	1.06	1.06	0.0
	IOFPGA (A)	YES	0.67	0.67	0.0
	PRIMARY-BIOS (A)	YES	0.21	0.21	0.0
	SATA (A)	NO	2.10	2.10	0.0
	SATA_MAR (A)	NO	1.30	1.30	0.0
-----					
NCS4200-1T16G-PS	IMFPGA	YES	1.113	1.113	0.0
-----					
NCS4200-2H-PQ	IMFPGA	YES	5.07	5.07	0.0
-----					
NCS4200-8T-PS	IMFPGA	YES	17.05	17.05	0.0

Log in to the router and enter the **show hw-module fpd** command to know the current version.

```
RP/0/RP0/CPU0:R3_PE3_RSP4#show hw-module fpd
Wed Aug 10 15:01:34.694 IST
```

Auto-upgrade:Enabled

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					Running	Programd
=====						

0/4	A900-IMA8CS1Z-M	0.0	IMFPGA	CURRENT	1.113	1.113
0/6	A900-IMA8CS1Z-M	0.0	IMFPGA	CURRENT	1.113	1.113
0/7	N560-IMA2C	0.0	IMFPGA	CURRENT	5.07	5.07
0/9	N560-IMA-8Q/4L	0.0	IMFPGA	CURRENT	1.27	1.27
0/10	A900-IMA8Z-L	0.0	IMFPGA	CURRENT	1.49	1.49
0/11	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.05	17.05
0/RP0	N560-RSP4-E	0.0	ADM	CURRENT	1.06	1.06
0/RP0	N560-RSP4-E	0.0	IOFPGA	CURRENT	0.67	0.67
0/RP0	N560-RSP4-E	0.0	PRIMARY-BIOS	CURRENT	0.21	0.21
0/RP0	N560-RSP4-E	0.0	SATA	CURRENT	2.10	2.10
0/RP1	N560-RSP4-E	0.0	ADM	CURRENT	1.06	1.06
0/RP1	N560-RSP4-E	0.0	IOFPGA	CURRENT	0.67	0.67
0/RP1	N560-RSP4-E	0.0	PRIMARY-BIOS	CURRENT	0.21	0.21
0/RP1	N560-RSP4-E	0.0	SATA	CURRENT	2.10	2.10
0/FT0	A907-FAN-E	1.0	PSOC	CURRENT	1.65	1.65

## Important Notes

### Supported Transceiver Modules

For more information on the supported transceiver modules, see [Transceiver Module Group \(TMG\) Compatibility Matrix](#). In the **Begin your Search** search box, enter the keyword NCS560 and click **Enter**.

### Upgrading Cisco IOS XR Software

Cisco IOS XR Software is installed and activated from modular packages, allowing specific features or software patches to be installed, upgraded, or downgraded without affecting unrelated processes. Software packages can be upgraded or downgraded on all supported card types, or on a single card (node).

The upgrade document for Cisco NCS 560 router is available along with the software image in *NCS560\_Upgrade\_MOP\_7.6.2.tar* file.

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

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

In Cisco IOS XR Release 7.3.2 and later, use:

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

## Additional References

### Supported MIBs

The Cisco NCS 5500 MIB support list is also applicable to the Cisco NCS 560 Series Routers. For the list of supported MIBs, see the [Cisco NCS5500 MIB Support List](#).

