



## **Release Notes for Cisco NCS 5000 Series Routers, IOS XR Release 7.11.1**

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# Network Convergence System 5000 Series Routers

The Network Convergence System 5000 Series offers a high-density, small-form-factor MPLS aggregation router for metro aggregation. It is designed to economically scale large enterprise, over-the-top (OTT), and service provider Data Center networking architectures.

The Cisco NCS 5000 Series is an extension to Cisco's routing platform portfolio enabling Service Providers and MPLS enabled data center architectures to offer elastic networks with improved business agility and simplified operations to deliver high-bandwidth mobile, video, and cloud services.

The Cisco NCS 5000 series routers are small form factor dense aggregation systems. Powered by industry leading routing operation system, IOS-XR, the system also offers rich functions such as third party application hosting, machine-to-machine interface, telemetry and flexible package delivery.

The Cisco NCS 5000 series router is not supported in the standalone mode in IOS XR Release 7.11.1. It is only supported as a satellite to the ASR 9000 Router. For information on satellite features, see Release Notes for Cisco ASR 9000 Series Routers, IOS XR Release 7.11.1.

## What's New in Cisco IOS XR Release 7.11.1

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

### 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.

Feature	Description
<b>Programmability</b>	
openconfig-platform.yang	This OpenConfig data model introduces cadence-driven telemetry support to obtain the Peripheral Component Interconnect Express (PCIe) error statistics about fatal, non-fatal and correctable errors. This container was deviated in the previous releases.  Event-driven telemetry is not supported for the PCIe container.
openconfig-network-instance.yang	This OpenConfig data model introduces cadence-driven telemetry support to obtain the total active route counts on IPv4 or IPv6 default tables in a route processor using <b>installed-routes</b> leaf.

openconfig-aft.yang Revision 0.9.0	<p>The Abstract Forwarding Table (AFT) OpenConfig data model is enhanced to support the following features:</p> <ul style="list-style-type: none"> <li>• The gRPC Network Management Interface (gNMI) proto is revised from version 0.7.0 to 0.8.0 to set the atomic flag to send AFT next-hop group notifications in JSON and PROTO encodings using gNMI subscribe RPC. Network events can be represented as multiple updates in the data models. The atomic flag allows NMS to interpret those multiple updates as a single event.</li> <li>• Stream telemetry data for conditional next-hop groups (CNHG) to provide DSCP information per prefix and list of input interfaces. This model helps to monitor the DSCP-based policy routing configuration at the forwarding layer. It now eliminates multiple lookups to map an IP prefix to an outgoing interface and IP address when internal labels are involved in that route. This is accomplished internally by reducing the hierarchy levels or flattening the nested next-hop telemetry updates.</li> </ul> <p>You can stream Event-driven telemetry (EDT) data.</p>
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## Release 7.11.1 Packages

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

**Table 1: Release 7.11.1 Packages for Cisco NCS 5000 Series Router**

<b>Composite Package</b>		
<b>Feature Set</b>	<b>Filename</b>	<b>Description</b>
Cisco IOS XR IP Unicast Routing Core Bundle	ncs5k-mini-x.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>• Alarm co-relation</li> </ul>
<b>Individually-Installable Optional Packages</b>		
<b>Feature Set</b>	<b>Filename</b>	<b>Description</b>
Cisco IOS XR Manageability Package	ncs5k-mgbl-3.0.0.0-r7111.x86_64.rpm	XML, Parser, HTTP Server, Telemetry, and gRPC.

Cisco IOS XR MPLS Package	ncs5k-mpls-3.1.0.0-r7111.x86_64.rpm	Label Distribution Protocol (LDP), MPLS forwarding , MPLS operations , Administration and maintenance (OAM), Layer3-vpn, layer-2 vpn.
Cisco IOS XR MPLS RSVP TE package	ncs5k-mpls-te-rsvp-1.1.0.0-r7111.x86_64.rpm	Supports MPLS RSVP-TE (Resource Reservation Protocol with Traffic Engineering extensions)
Cisco IOS XR Security Package	ncs5k-k9sec-3.2.0.0-r7111.x86_64.rpm	Support for Encryption, Decryption, and Secure Shell (SSH)
Cisco IOS XR Multicast Package	ncs5k-mcast-2.2.0.0-r7111.x86_64.rpm	Multicast routing protocols (PIM, IGMP, Auto-rp, BSR) and infrastructure (Multicast routing information Base), Multicast forwarding (mfwd)
Cisco IOS XR ISIS package	ncs5k-isis-2.2.0.0-r7111.x86_64.rpm	Supports ISIS
Cisco IOS XR OSPF package	ncs5k-ospf-2.0.0.0-r7111.x86_64.rpm	Supports OSPF

## Caveats

There are no caveats in this release.

## Important Notes

### 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.

## 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 router documentation is located at the following URL:

<https://www.cisco.com/c/en/us/td/docs/iosxr/ncs-5000-series-routers.html>





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