

Cisco IOS XR Software Release 5.2.1 for Cisco NCS 6000 Series Routers

PB 732676

Cisco® Network Convergence System (NCS) 6000 Series Routers offer exceptional network agility, packet optical convergence, and Petabit per Second system scale. The Cisco NCS 6000 Series also facilitates the build out of the next-generation core to support elastic capacity at a low TCO and to deliver high-bandwidth mobile, video, and cloud services.

Using the industry-leading Cisco IOS® XR operating system, running in a virtualized environment, the Cisco NCS 6000 Series advances the concept of distributed routing and virtualization. Using virtualized Cisco IOS XR, the Cisco NCS 6000 Series brings new levels of programmability and virtualization to increase application service offerings, accelerate provisioning, and make the network more cost effective.

The Cisco NCS 6000 Series is powered by the Cisco nPower family of Network Processor Units (NPU). Cisco nPower devices are state-of-the-art programmable forwarding ASICs, designed to deliver the industry’s first zero-packet loss (ZPL) and zero-topology loss (ZTL) software upgrade capability.

The Cisco NCS 6000 Series is engineered for environmental efficiency by offering an adaptable power-consumption model for its ASICs, along with the use of revolutionary CMOS photonics technology. With these technologies together, the Cisco NCS 6000 Series can offer one of the most power-efficient footprints in the service provider routing space.

New Hardware Features

Cisco IOS XR Software Release 5.2.1 introduces support for Multi-Chassis systems. The Fabric Card Chassis (FCC) can interconnect up to two Line Card Chassis (LCC) running Release 5.2.1. The hardware however can support up to 16 LCC interconnected using anywhere from one to four FCC.

Table 1 lists the new hardware support added in Cisco IOS XR Software Release 5.2.1.

Table 1. New Hardware Supported on Cisco NCS 6000 Series in Cisco IOS XR Software Release 5.2.1

Product Part Number	Product Description
NC6-FC-MC	S13 Fabric Card for LCC with 16 (CXP) ports for 100 Gigabit Ethernet short reach (SR) optics
NC6-FC-MC=	S13 Fabric Card for LCC with 16 CXP ports for 100 Gigabit Ethernet SR optics Spare
NCS-F-FC	S2 Fabric Card for the FCC with 32 CXP ports for 100 Gigabit Ethernet SR12 CXPs
NCS-F-FC=	S2 Fabric Card for the FCC with 32 CXP ports for 100 Gigabit Ethernet SR12 CXPs Spare
NCS-F-SC	FCC shelf controllers
NCS-F-SC=	FCC shelf controllers spare
NCS-F-SCSW	FCC shelf controller and switch (SC-SW) card
NCS-F-SCSW=	FCC shelf controller and switch (SC-SW) card spare

Product Part Number	Product Description
SFP-10G-SR	Short reach SFP 10 Gigabit Ethernet transceiver module
SFP-10G-LR	Long reach SFP 10 Gigabit Ethernet transceiver module
QSFP-40G-SR4	Short reach QSFP 40 Gigabit Ethernet optical module (SC-SW card only)
QSFP-40G-LR4	Long reach QSFP 40 Gigabit Ethernet optical module (SC-SW card only)
CXP-100G-SR12	Short reach CXP 100 Gigabit Ethernet optical module for LCC to FCC connectivity

New Software Features

The following new software features in Cisco IOS XR Software Release 5.2.1 are supported on Cisco NCS 6000 Series routers.

- **Multi-chassis configuration:** Multiple NCS 6008 single chassis can be connected using the Cisco NCS 6000 Series FCC to form a multi-chassis system. This provides a high scale of interfaces with a single admin and control plane.
- **Open Shortest Path First (OSPF)v3 Graceful Restart:** This feature preserves the data plane capability during route processor failover, as well as planned and unplanned OSPFv3 restart.
- **OSPFv2 Auto-Route Exclude:** These capabilities allow specific destinations and prefixes to route off of TE tunnels, while other prefixes can still be forced to use TE tunnels.
- **OSPFv2 Unequal Cost Load Balancing:** With this feature, Unequal Cost Multipath (UCMP) calculation can be based on configured prefix-list and variance factors.
- **BGP Virtual Routing and Forwarding (VRF) dynamic route leaking:** This feature provides the ability to import routes between the default-vrf (global VRF) and any other non-default VRF, to provide connectivity between a global and a VPN host.
- **VRF Import Policy Enhancement:** The VRF RPL-based import policy feature provides the ability to perform import operations based solely on import route-policy, by matching on route-targets and other criteria specified within the policy.
- **BGP Demilitarized Zone (BGP DMZ) Link Bandwidth for Unequal Cost Recursive Load Balancing:** This feature supports unequal-cost load balancing for recursive prefixes on local nodes using BGP DMZ Link Bandwidth.
- **BGP Nonstop Routing (NSR) with Stateful SwitchOver (SSO):** This feature allows all BGP peering to maintain the BGP state and helps ensure continuous packet forwarding during events that could interrupt service. Under NSR, events that might potentially interrupt service are not visible to peer routers. Protocol sessions are not interrupted, and routing states are maintained across process restarts and switchovers.
- **BGP Default Limits:** BGP imposes maximum limits on the number of neighbors that can be configured on the router and on the maximum number of prefixes that are accepted from a peer for a given address family. This limitation safeguards the router from resource depletion caused by misconfiguration, either locally or on the remote neighbor.
- **BGP Attribute Filtering:** This feature checks integrity of BGP updates in BGP update messages and optimizes reaction when detecting invalid attributes.

- **Link Layer Discovery Protocol (LLDP):** This neighbor-discovery protocol is used by network devices to advertise information about themselves to other devices on the network. The protocol runs over the Data Link Layer, which permits two systems running different network layer protocols to learn about each other. To support devices other than Cisco devices, and to allow for interoperability between other devices, the Cisco NCS 6000 Series Router supports the IEEE 802.1AB LLDP.
- **VPN features:** Support is provided for VPN features.
- **ACL-Based Forwarding:** This feature allows you to choose service from multiple providers for broadcast TV over IP, IP telephony, data, and so on, which provides a cafeteria-like access to the Internet. Service providers can divert user traffic to various content providers.
- **MPLS Traffic-Engineering Point-to-Multipoint support (MPLS TE P2MP):** This feature supports up to mid-point configurations.
- **MPLS OAM 3107 support:** This supports MPLS P-to-MP Ping and Traceroute features and provide a means to check connectivity and isolate failure points, thus providing the MPLS Operations, Administration, and Maintenance (OAM) solution.
- **Policy-Based Tunnel Selection (PBTS) support:** This provides a mechanism to direct traffic into specific traffic-engineering tunnels based on different criteria.
- **LDP Nonstop Routing (NSR) support:** This functionality makes failures, such as Route Processor (RP) or Distributed Route Processor (DRP) failover, invisible to routing peers with minimal to no disruption of convergence performance.
- **IPv6 Multicast:** Support is provided for IPv6 on Multicast.
- **Equal Cost Multipath PIM Redirect:** This support is provided for Equal Cost Multipath.
- **Craft Panel Interface:** This easily-accessible and user-friendly interface assists the field operator in troubleshooting the router. It consists of an LCD display and three LEDs. The LEDs indicate minor, major, and critical alarms.
- **Lawful Intercepting:** This feature allows law enforcement agencies to conduct electronic surveillance of circuit and packet-mode communications, authorized by judicial or administrative order.

Ordering Information

Table 2 lists ordering information for Cisco IOS XR Software Release 5.2.1 for Cisco NCS 6000 Series Routers. When future rebuilds of Cisco IOS XR Software Release 5.2.1 are available, the latest release is automatically shipped when this product is ordered.

Table 2. Ordering Information for Cisco IOS XR Software Release 5.2.1 for Cisco NCS 6000 Series Routers

Product Name	Part Number
XR-NC6-P-05.20	Cisco IOS-XR IP/MPLS Core Software
XR-NC6-PK9-05.20	Cisco IOS-XR IP/MPLS Core Software 3DES

Release 5.2.1 Lifecycle

The Cisco IOS XR Software release strategy is time-based, with a fixed release date and lifecycle, rather than being a feature-based release strategy with a variable release date. Table 3 lists the major milestones of Cisco IOS XR Software Release 5.2.1 and later.

Table 3. Major Milestones for Cisco IOS XR Software Release 5.2.1 and Later

Milestone	Definition	Date
Availability date	The date that the Cisco IOS XR Software Release 5.2.1 information is published on Cisco.com and becomes available to the general public.	August 26, 2014
End-of-life announcement date	The date that the official end-of-life document that announces the end of sale and end of life of Cisco IOS XR Software 5.2.1 is distributed to the general public.	February 26, 2015
End-of-sale date	The last date to order Cisco IOS XR Software 5.2.1 through Cisco point-of-sale mechanisms. The product is no longer for sale after this date.	February 26, 2016
Last ship date: OS software	The last-possible ship date that can be requested of Cisco and/or its contract manufacturers. Actual ship date is dependent on lead time.	May 26, 2016
End of software maintenance releases date: OS software	The last date that Cisco Engineering may release any final software maintenance releases or bug fixes. After this date, Cisco Engineering will no longer develop, repair, maintain, or test the product software.	August 26, 2017
End of vulnerability and security support: OS software	The last date that Cisco Engineering may release a planned maintenance release or scheduled software remedy for a security vulnerability problem.	August 26, 2018
Last date of support	The last date to receive applicable service and support for the product as entitled by active service contracts or by warranty terms and conditions. After this date, all support services for the product are unavailable and the product becomes obsolete.	February 26, 2021

For official end-of-life and end-of-sale announcements for Cisco IOS XR Software, please visit: http://www.cisco.com/en/US/products/ps5845/prod_eol_notices_list.html or contact your local Cisco account representative.

For More Information

For more information about the Cisco NCS 6000 Series or Cisco IOS XR Software, visit <http://www.cisco.com/> or contact your local Cisco account representative.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

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