Cisco IOS XR Release 6.0.1 for Cisco NCS 5000 Series Routers

PB737209

Product Overview

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 5001 and NCS 5002 are small form-factor dense GE/10GE aggregation systems, while the Cisco NCS 5011 is optimized for dense 10GE/25GE/40GE/50GE/100GE connectivity. Powered by industry leading routing operation system Cisco IOS® XR Software, the system also offers rich functions such as third party application hosting, machine-to-machine interface, telemetry, and flexible package delivery. NCS 5001 & NCS 5002 can also operate as an extension shelf of Cisco ASR 9000 Series Aggregation Services Routers using network virtualization (nV) technology, consolidating multiple layers in the network and dramatically reducing operational costs.

New Hardware

Table 1 lists the hardware support in Cisco IOS XR Software 6.0.1.

Table 1. Cisco NCS 5011 in Cisco IOS XR Software 6.0.0

Part Number	Description
NCS-5011	Cisco NCS 5011 Routing System

New Software Features

Tables 2 and 3 list new software features in Cisco IOS XR Software Release 6.0.1 supported on Cisco NCS 5000 Series Routers.

Table 2. New Software Features Supported on Cisco NCS 5001 and NCS 5002 Series Routers in Cisco IOS XR Software Release 6.0.1

Feature	Description
Layer 3	● L3 ingress IPv6 ACL ● ISISv6 ● Hot Standby Router Protocol (HSRP)/Virtual Router Redundancy Protocol (VRRP) ● Layer 3 Virtual Private Network (L3VPN) ◦ IPv4 address family ◦ PE-CE Protocol Support: OSPF, RIP, static, EBGP ◦ Core label transport: segment routing (SR), LDP ● DHCP relay
MPLS	● Ethernet over MPLS (EoMPLS) ◦ Core transport: SR, LDP ◦ PW label exchange via LDP

Feature	Description
Multicast	• Protocol Independent Multicast Sparse Mode (PIM-SM), PIM Source-Specific Multicast (PIM-SSM) • Internet Group Management Protocol (IGMP) Versions 2 and 3
nV Satellite	• NCS 5001 and NCS 5002 as satellite • Access: 1G/10G, ICL: 10G/100G • Hub and spoke topology • Typhoon and Tomahawk LC support • Dynamic ICL • Bundle ICL • Bundle over bundle

Table 3. New Software Features Supported on Cisco NCS 5011 in Cisco IOS XR Software Release 6.0.1

Feature	Description
Layer 2	• Layer 2 switch ports • IEEE 802.1Q VLAN encapsulation/Q-in-Q encapsulation • IEEE 802.1ad • Cisco bundle Ethernet technology (up to 32 ports per Ethernet bundle) • Link Aggregation Control Protocol (LACP): IEEE 802.3ad • Jumbo frames on all ports (up to 9216 bytes) • L2 ingress access control list (ACL)
Layer 3	• Layer 3 interfaces: physical and subinterfaces • Routing protocols: static, Open Shortest Path First (OSPFv2), OSPFv3, Intermediate System to Intermediate System (ISIS), ISISv6, and Border Gateway Protocol (BGP) • 32-way equal-cost multipath (ECMP) • L3 ingress IPv4 ACL and IPv6 ACL • IPv6 unicast • Cisco bundle Ethernet technology (up to 32 ports per Ethernet bundle) • Link Aggregation Control Protocol (LACP): IEEE 802.3ad • Jumbo frame support (up to 9216 bytes) • Hot Standby Router Protocol (HSRP)/Virtual Router Redundancy Protocol (VRRP) • Layer 3 Virtual Private Network (L3VPN) ◦ IPv4 address family ◦ PE-CE Protocol support: OSPF, RIP, Static, EBGP ◦ Core label transport: segment routing, LDP • DHCP relay
MPLS	• Label switching • LDP
Segment Routing	• Segment routing-based transport • ISIS extensions to segment routing • OSPF extensions to segment routing
Quality of service (QoS)	• Classification can be based on class of service (L2), IP differentiated service code point (L3), IP ACL (L3/L4), IP precedence (type of service)(L3), IP Real-Time Transport Protocol (L4 user data protocol ports) • DSCP marking • 8 number of queues for user traffic • Support for priority queuing
Automation	• Zero-touch provisioning (ZTP), iPXE • Configuration management • Network Configuration Protocol (NETCONG/YANG)

Feature	Description
Security	• Provides comprehensive network security features, including ACLs; control-plane protection; management plane protection; routing authentications; authentication, authorization, and accounting (AAA) and Terminal Access Controller Access-Control System Plus (TACACS+); Secure Shell (SSH) Protocol; SNMPv3; and RPL support • Layer 2 ingress ACLs • Layer 3 ingress ACLs
Management	• MIB, XML, JSON, GPB, and SNMP • MPLS OAM (label-switched path [LSP]) ping, LSP traceroute

Ordering Information

Table 4 lists ordering information for Cisco IOS XR Software Release 6.0.1 for Cisco NCS 5000 Series routers. Table 5 lists ordering information for the NCS 5011.

Table 4. Ordering Information for NCS 5001 and NCS 5002

Part Number	Product Name
NCS-5001	Cisco NCS 5001 Routing System
NCS-5002	Cisco NCS 5002 Routing System
XR-NC50-P-06.00 **XR-NC50-PK9-06.00**	Cisco NCS 5001 and 5002 Routing System Cisco IOS XR Software (6.0.0)
NC5001-L2VPN-LIC **NC5002-L2VPN-LIC**	NCS 5001 Basic L2VPN System License NCS 5002 Basic L2VPN System License
NC5001-L3VPN-LIC **NC5002-L3VPN-LIC**	NCS 5001 Basic L3VPN System License NCS 5002 Basic L3VPN System License
NC5001-MBL-LIC **NC5002-MBL-LIC**	NCS 5001 Basic Mobile System License NCS 5002 Basic Mobile System License

Table 5. Ordering Information for NCS 5011

Part Number	Product Name
NCS-5011	Cisco NCS 5011 Routing System
XR-NC50-P-06.00	Cisco NCS 5011 Routing System Cisco IOS XR Software (6.0.1)
NC5011-ADV-LIC	Cisco NCS 5011 Advanced License (L2 VPN + L3 VPN Combined)

Cisco IOS XR Software Release 6.0.1 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 6 lists the major milestones of Cisco IOS XR Software Release 6.0.1.

Table 6. Major Milestones for Cisco IOS XR Software Release 6.0.1

Milestone	Definition	Date
Availability date	The date that Cisco IOS XR Software Release 6.0.0 information is published on Cisco.com and becomes available to the general public.	April 30, 2016
End-of-life announcement date	The date when official end-of-life documents announcing the end of sale and end of life of Cisco IOS XR Software 6.0.0 (and later versions of 6.0.0) are distributed to the general public.	October 30, 2016
End-of-sale date	The last date to order Cisco IOS XR Software 6.0.0 through Cisco point-of-sale mechanisms. (The product is no longer for sale after this date.)	October 30, 2017

Milestone	Definition	Date
End of software maintenance (Standard Maintenance Release)	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.) Applies to Standard rebuilds only. Refer to Cisco IOS XR Software Policy Guideline bulletin for more details (http://www.cisco.com/c/en/us/products/collateral/ios-nx-os-software/ios-xr-software/product_bulletin_c25-478699.html).	April 30, 2018
End of software maintenance (Extended Maintenance Release)	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.) Applies to Standard rebuilds only. Refer to Cisco IOS XR Software Policy Guideline bulletin for more details (http://www.cisco.com/c/en/us/products/collateral/ios-nx-os-software/ios-xr-software/product_bulletin_c25-478699.html).	April 30, 2019
End of software maintenance for Product Security Incident Response Team (PSIRT)	The last date that Cisco Engineering may release any final software maintenance releases or bug fixes for PSIRTs through Software Maintenance Unit to Release 6.0.0 (Beyond this date, PSIRT bugs become candidates for following feature releases.)	April 30, 2020
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.)	October 30, 2022

For More Information

For more information regarding this release, visit:

- Cisco NCS 5000 Series Release Notes: http://www.cisco.com/c/en/us/td/docs/iosxr/ncs5000/general/release/notes/reln-ncs5001.html.
- For official end-of-life and end-of-sale announcements for Cisco IOS XR Software, visit http://www.cisco.com/en/US/products/ps5845/prod_eol_notices_list.html or contact your local Cisco account representative.
- For additional information about the Cisco NCS 5000 Series or Cisco IOS XR Software, visit http://www.cisco.com/c/en/us/products/routers/network-convergence-system-5000-series/index.html or contact your local Cisco account representative.

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