Cisco Nexus 9800 Series Switches

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Contents

Introduction 2
Scope 2
Positioning 2
Supported Features 2
NDFC Support 5
Software Releases 5
Platform Hardware 6
Additional Resources 7
Licensing 7
Documentation Feedback 7

Introduction

The Cisco Nexus 9800 Series modular switches support very high-port density 400G and 100G line cards. These line cards are based on Cisco Silicon One ASICs.

Scope

This document summarizes the current state of the Cisco Nexus 9800 Series product family, including the current software features and hardware products.

Positioning

The Cisco Nexus 9800 Series modular switch is optimally designed for use as a Layer 3 Spine in data center networking deployments, providing unparalleled scalability, performance, and reliability.

Supported Features

Beginning with Nexus 9000 Series NX-OS Release 10.4(3)F, Cisco Nexus 9800 modular switches support these software features:

Network Interfaces and Speeds

- 400G, 100G, 40G, 4x100 Breakouts, 10G via CVR-QSFP-SFP10G (1G QSA is not supported)
- Breakout (4x25 and 4x10G) options on N9K-X9836DM-A line card
- Breakout (2x200G) for N9K-X9836DM-A and N9K-X98900CD-A
- Breakout (4x25 and 4x10G) for N9K-X98900CD-A (4x25 is not supported on MACsec ports)
- L3, Loopback, and Sub Interfaces
- Single-hop BFD on routed port, routed-sub interface, breakout port and port-channel

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Operating System, Network Protocols and Serviceability

- Cisco Application Hosting Framework (CAF)
- CDP
- DHCP relay, POAP and PTP
- LDAP, UDLD, DHCP, LLDP (Multi Neighbor and Port-channel)
- LACP Layer 3 port-channel using default timer
- LACP Fast timer
- Layer 3 port-channel interface for SPAN and ERSPAN
- Consistency Checker – Interfaces, Multicast, Unicast, ACL
- Ethanalyzer
- Generic Online Diagnostics (GOLD) – health monitoring and non-disruptive diagnostics of FabricConnectivityTest and FabricReachabilityTest.
- NGOAM ping, traceroute, and pathtrace
- PTP scale enhancement (144 per line card, 1024 per system)

Layer 2

The following Layer 2 features are supported:

Breakout

- 4x100G
- 4x25G

Physical Port Modes

- Access
- Trunk

Port-Channel

- Access
- Trunk

VLAN Features

- Reserved VLAN support: 128 VLANs
- VLAN statistics

Scale

- VLANs: 4K
- MST instances: 64
- Port-channels: 128
- Port-channel members: 32
- Port VLAN mappings: 33K
- MAC addresses: 125K
- Priority Flow Control (PFC) for Layer 2

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Routing and Multicast

- uRPF support
- Support for IP unnumbered interfaces
- Granular flow priority for non-blocking multicast (NBM) flows
- Hashing based on source/destination IP and L4 port number
- 128-way ECMP
- IPv4 and IPv6 dynamic routing
- Multicast L3 for IPv4 & IPv6
- OSPFv2, OSPFv3, EIGRP, Basic BGP, and Advanced BGP
- Route leak between VRFs
- PIM
- IP Fabric for Media
- IGMP host proxy
- MSDP
- PTP Media Profile and One-Step Mode
- VXLAN Anycast BGW, VXLAN NGOAM
- VXLAN Multi-Site Anycast Border Gateway (BGW)
- TRMv4 Multi-Site Anycast Underlay in Fabric and IR over DCI
- Tenant Routed Multicast (v4)
- SR MPLS (Layer 3 VPN, Layer 3 EVPN)
- NGOAM ping, traceroute, and pathtrace
- Layer 3 Port Channel BFD
- Single hop BFD
- BGP Add Path
- BGP Pic Edge Active Backup

Security and Access Control

- AAA, RADIUS, TACACS+
- ACL – Sup, CoPP
- ACL/QoS scale
- MACsec
- RACL (Ingress-IPv4/IPv6 and Egress-IPv4/IPv6) with statistics
- PBR

QoS and Monitoring

- CoPP
- QOS classification (ACL), QOS – Queuing and scheduling, Queuing Statistics
- sFlow & sFlow Consistency Checker
- iCAM
- RoCEv2
- PFC
- SNMP (MIBs – 400G Optic MIB, Switch MIB, Datapath MIBs, Interface MIB)
- SPAN, ERSPAN

Programmability

- Software Telemetry and Open NX-OS automation

High Availability and Scalability

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- Dual-Supervisors support
- GIR
- Multi VRF

Note: Limited Layer 2 support is planned for Q200-based line cards. Contact your Cisco representative to confirm support for your required features.

NDFC Support

The Cisco Nexus Dashboard Fabric Controller (NDFC) can provide management and automation for Cisco Nexus 9800 Series Switches.

Software Releases

Table 1. Software Releases

NX-OS Release	What's New
10.6(3)F	Support for: L2 features
10.6(1)F	Support for: SPAN for L2 ports
10.5(2)F	Support for: • Granular flow priority for non-blocking multicast (NBM) flows • uRPF support • Support for IP unnumbered interfaces
10.5(1)F	Support is added for: • RoCEv2 • Priority Flow Control (PFC) QOS • BGP Add Path • BGP Pic Edge Active Backup **Note:** As of this release, the 64-bit Cisco NX-OS image filename with "nxos64-cs" as the prefix is no longer supported for all Cisco Nexus 9800 series switches. The 64-bit Cisco NX-OS image filename with "nxos64-s1" as the prefix is now mandatory.
10.4(3)F	Support for: • VXLAN Multi-Site Anycast Border Gateway (BGW) • TRMv4 Multi-Site Anycast Underlay in Fabric and IR over DCI • Layer 3 Port Channel BFD • Single hop BFD • SR-MPLS • NGOAM ping, traceroute, and pathtrace • PTP scale enhancement (144 per line card, 1024 per system) • 2x200GE breakout for N9K-X9836DM-A and N9K-X98900CD-A • 4x10, 4x25 breakout for N9K-X98900CD-A only
10.4(2)F	Support for: • Dual-Supervisors support on N9K-C9804

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NX-OS Release	What's New
	• IPv6 Multicast • SPAN/ERSPAN on port-channel interface This is the minimum recommended release for N9K-C9804
10.4(1)F	Support for: • ACL/QoS scale (see the Verified Scalability Guide) • Breakout (4x25 and 4x10G) options on N9K-X9836DM-A line card • Dual-Supervisors support on N9K-C9808 • LACP Layer 3 port-channel using default timer • LACP Fast timer • 128-way ECMP
10.3(4a)M	Added support for Nexus Dashboard Insights This is the recommended release for the 10.3 train
10.3(3)F	Support for: • Cisco Application Hosting Framework (CAF) • iCAM • sFlow Consistency Checker
10.3(2)F	This is the minimum recommended release for N9K-C9800

Platform Hardware

The Nexus 9800 Series includes two modular switch chassis:

- The N9K-C9808, a 16-RU modular chassis with 8 line card slots
- The N9K-C9804, a 10-RU modular chassis with 4 line card slots

The table lists the currently available Nexus 9800 Series switches, line cards, and accessories. For expanded details about these hardware products, see:

- Cisco Nexus 9800 Series Switches White Paper
- Cisco Nexus 9800 Series Switches Data Sheet

Table 2. Platform Hardware

Product ID	Description
Switches	
N9K-C9804	10-RU modular switch with slots for up to 4 line cards in addition to two supervisors, 8 fabric modules, 4 fan trays, and 2 power trays
N9K-C9808	16-RU modular switch with slots for up to 8 line cards in addition to two supervisors, 8 fabric modules, 4 fan trays, and 3 power trays
Line Cards and Fabric Modules	
N9K-X9836DM-A	Cisco Nexus 9800 36-port 400G line card with line rate MACsec on all ports
N9K-X98900CD-A	Cisco Nexus 9800 14-port 400G and 34-port 100G line card with line rate MACsec

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Product ID	Description
	on 16 100G ports
N9K-C9808-FM-A	Cisco Nexus 9800 8-slot chassis fabric module
N9K-C9804-FM-A	Cisco Nexus 9800 4-slot chassis fabric module
Supervisors	
N9K-C9800-SUP-A	Cisco Nexus 9800 Supervisor card
N9K-C9800-SUP	Cisco Nexus 9800 Supervisor B
Accessories	
N9K-C9808-FAN-A	Cisco Nexus 9800 8-slot chassis fan tray
N9K-C9804-FAN-A	Cisco Nexus 9800 4-slot chassis fan tray
NXK-HV6.3KW20A-A	Cisco Nexus 9800 6300W 20A AC and HV power supply
NXK-HV6.3KW30A-A	Cisco Nexus 9800 6300W 30A AC and HV power supply

Additional Resources

- Cisco Nexus 9800 Series Switches
- Cisco Nexus 9800 Series Switches Data Sheet
- Cisco Nexus 9800 Series Switches White Paper
- Cisco Nexus 9800 Series Switches Blog
- Cisco Nexus 9804 Switch User Documentation
- Cisco Nexus 9808 Switch User Documentation
- Cisco Nexus 9000 Series NX-OS Verified Scalability Guides
- Cisco Optics-to-Device Compatibility Matrix

Licensing

Cisco Nexus 9800 Series Switches support Cisco Data Center Networking (DCN) Premier, Advantage, or Essentials licenses for appropriate features. Certain features such as MACsec require add-on licenses such as a DCN security license.

Documentation Feedback

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