

Cisco Catalyst 9400 Series Switch

Built for Security, IoT, Mobility and Cloud

Advanced persistent security threats, exponential growth of Internet of Things (IoT) devices, mobility everywhere and cloud adoption require a network fabric that integrates advanced hardware and software innovations to automate, secure, and simplify customer networks. The goal of this network fabric is to enable customer revenue growth by accelerating business service rollout.

The Cisco[®] Digital Network Architecture (DNA) with Software Defined Access (SD-Access) is the network fabric that powers business. Cisco DNA is an open and extensible, software-driven architecture that accelerates and simplifies your enterprise network operations. The programmable architecture frees your IT staff from time consuming, repetitive network configuration tasks so they can focus instead on innovation that positively transforms your business. SD-Access enables policy-based automation from edge to cloud with foundational capabilities. These include:

- Simplified device deployment
- Unified management of wired and wireless networks
- Network virtualization and segmentation
- Group-based policies
- Context-based analytics

The Cisco Catalyst[®] 9400 Series switches are Cisco's leading modular enterprise switching access platform built for security, IoT and cloud. These switches form the foundational building block for SD-Access — Cisco's lead enterprise architecture. The platform provides unparalleled investment protection with a chassis architecture that is capable of supporting up to 9Tbps of system bandwidth and unmatched power delivery for high density IEEE 802.3BT (60W PoE). Redundancy is now table stakes across the portfolio. The Catalyst 9400 delivers state-of-the-art High Availability (HA) with capabilities like uplink resiliency, N+1/N+N redundancy for power supplies. The platform is enterprise optimized with an innovative dual-serviceable fan tray design, side to side airflow and is closet-friendly with ~16" depth. A single system can scale up to 384 access ports with your choice of 1G copper UPoE and PoE+ options. The platform also supports advanced routing and infrastructure services, SD-Access capabilities and network system virtualization. These features enable optional placement of the platform in the core and aggregation layers of small to medium-sized campus environments.

Cisco ONE Software

Cisco ONE[™] Software offers a valuable and flexible way to buy software for the access, WAN, and data center domains. At each stage in the product lifecycle, Cisco ONE Software helps make buying, managing, and upgrading your network and infrastructure software easier. Cisco ONE Software provides:

- Flexible licensing models to smoothly distribute customers' software spending over time
- Investment protection for software purchases through software services-enabled license portability
- Access to updates, upgrades, and new technology from Cisco through Cisco[®] Software Support Services (SWSS)
- Lower cost of entry with the new Cisco ONE Subscription for Switching model

Cisco ONE for Access lets you manage your entire switching structure as a single, converged component. With one management system and one policy for wired and wireless networks, it offers an efficient way to provide more secure access.

Figure 1. Cisco Catalyst 9400 Series



Cisco Catalyst 9400 Series chassis

The Cisco Catalyst 9400 Series offers two chassis options and a wide range of line card options (Table 1). It provides a common architecture that can scale up to 392 ports.

The Catalyst 9400 Series chassis is enterprise optimized with efficient side-to-side airflow and full front accessibility for all removable components, including supervisors, line cards, power supplies and fan tray. The chassis also supports optional rear accessibility for fan trays to enable efficient cable management. Catalyst 9400 Series chassis, supervisor, line cards, powersupply and fan trays have embedded RFID tags which facilitate easy asset and inventory management using commercial RFID readers.

Table 1. Cisco Catalyst 9400 Series chassis features

Feature	Cisco Catalyst C9407R Chassis	Cisco Catalyst C9410R Chassis
Total number of slots	7	10
Line-card slots	5	8
Supervisor engine slots	2 ¹	2 ²
Dedicated supervisor engine slot numbers	3 and 4 ³	5 and 6 ³
Supervisor engine redundancy	Yes	Yes
Supervisor engines supported	C9400-SUP-1	C9400-SUP-1
Maximum PoE per slot	2880W ⁴	2880W ⁴
Maximum Bandwidth scalability per line-card slot	Up to 480 Gbps on all slots ⁵	Up to 480 Gbps on all slots ⁵
Number of power supply bays	8	8
AC input power	Yes	Yes
Integrated PoE	Yes	Yes
Power supplies supported	3200W AC	3200W AC
Number of fan-tray bays	1	1
Location of 19-inch rack-mount	Front	Front

¹ Slots 3 and 4 are reserved for supervisor engines only in Cisco Catalyst C9407R; slots 1-2 and 5-7 are reserved for line cards.

² Slots 5 and 6 are reserved for supervisor engines only in Cisco Catalyst C9410R; slots 1-4 and 7-10 are reserved for line cards.

³ Linecards are not supported in the Supervisor slots.

⁴ Max PoE mentioned is as per the current shipping linecard, however chassis is capable ~4800W PoE per slot.

⁵ 80Gbps per line-card slot when used with C9400-SUP-1

Supervisor configuration

The Catalyst 9400 Series offers an industry-leading supervisor engine built for secure networks, IoT applications, next generation mobility and cloud adoption. Supervisor Engine-1 is built with the latest Unified Access Dataplane 2.0 (UADP2.0) ASIC future-proofed for next

generation technologies with its programmable pipeline, microengine capabilities and template-based configurable allocation of Layer 2, Layer 3, forwarding, Access Control Lists (ACLs) and QoS entries.

Table 2. Cisco Catalyst 9400 Series supervisor engine maximum bandwidth per slot

Feature	Cisco Catalyst 9400 Series Supervisor Engine C9400-SUP-1
Cisco Catalyst C9407R chassis	80 Gbps/slot
Cisco Catalyst C9410R chassis	80 Gbps/slot

Table 3 lists the minimum software requirements for the Cisco Catalyst 9400 supervisor engine.

Table 3. Cisco catalyst supervisor engine software minimum requirements

Chassis	Supervisor Engine	Minimum Software Requirement
Cisco C9407R	Supervisor Engine C9400-SUP-1	Cisco Open IOS-XE Software Release 16.6.1
Cisco C9410R	Supervisor Engine C9400-SUP-1	Cisco Open IOS-XE Software Release 16.6.1

Line card configuration options

The Catalyst 9400 offers the ability to mix and match a range of line cards to support numerous LAN access, server connectivity, Small and Medium-sized Business (SMB) or branch-office deployments. The Cisco Catalyst 9400 Series supports the line cards listed in Table 4 by part number.

Table 4. Cisco Catalyst 9400 Series line cards

Product Number	Description	Minimum Software Requirement
Cisco Catalyst 9400 Series Line Cards		
C9400-LC-48U	Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45)	Cisco Open IOS-XE Software Release 16.6.1
C9400-LC-48T	Cisco Catalyst 9400 Series 48-Port 10/100/1000 (RJ-45)	Cisco Open IOS-XE Software Release 16.6.1

The Cisco Catalyst 9400 Series has flexible interface types and port densities that allow you to mix and match network configurations to meet the specific needs of campus networks (Table 5).

Table 5. Cisco Catalyst 9400 Series maximum port densities

Cisco Catalyst 9400 Series Switching Modules	Cisco Catalyst C9407R	Cisco Catalyst C9410R
10/100/1000BASE-T Gigabit (RJ-45) ports	240	384
10/100/1000BASE-T Gigabit Ethernet with POE+ ports	240	384
Switched 10/100/1000BASE-T Gigabit Ethernet with UPOE ports	240	384

Physical specifications

Table 6 lists physical specifications of the Cisco Catalyst 9400 Series chassis.

Table 6. Physical specifications of Cisco Catalyst 9400 Series chassis

Specification	C9407R	C9410R
Dimensions (H x W x D)	17.41 x 17.30 x 16.30 in. (44.22 x 43.94 x 41.40 cm)	22.61 x 17.30 x 16.30 in. (57.43 x 43.97 x 31.70 cm)
Rack Units (RU)	10 RU	13 RU
Chassis weight (with fan tray)	63.0 lb (28.58 kg)	65.0 lb (29.48 kg)
Mounting	19-in rack compatible (19-in. rack and cable guide hardware included)	19-in. rack compatible (19-in. rack and cable guide hardware included)

Power supply

There are three modes of operation supported by Cisco Catalyst 9400 power supplies. In all the modes the power supplies can be of different wattage and type whether AC or DC.

Redundant N + N mode

The Cisco Catalyst 9400 Chassis also supports N + N redundancy with N independent input circuits and safeguards against failure of N (+N) of the circuits as opposed to power supply unit failure.

Redundant N + 1 mode

The Cisco Catalyst 9400 Chassis also supports N + 1 redundancy with N independent input circuits and safeguards against failure of one (+1) of the circuits as opposed to power supply unit failure.

Combined mode

In this mode the power available for the entire chassis is equal to the sum of the output power of both of the power supplies multiplied by the share ratio.

P = Power output of one power-supply unit

Total combined mode power = $P + (N-1) * P * (\text{share ratio})$

Tables 7 describe power supply specification for the Catalyst 9400 Series.

Table 7. Cisco Catalyst 9400 Series power supply specifications

Power Supply	3200W AC
Integrated PoE	Yes
Input current (rated)	<ul style="list-style-type: none"> • 16A at 100 VAC • 16A at 200 VAC
Input voltage	100 to 240 VAC ($\pm 10\%$ for full range)
Output current (data)	<ul style="list-style-type: none"> • 55V at 58.0A/28.36A (230/115VAC ranges) • 3.3V at 3.0A
Output power (N+N) redundant mode (PoE + data)	(3190W x N)/2 + 10W (3.3V standby) for 230VAC range (1560W x N)/2 + 10W (3.3V standby) for 115VAC range N = number of power supplies (N>1)
Output power (N+1) redundant mode (PoE + data)	(3190W x (N-1)) + 10W (3.3V standby) for 230VAC range (1560W x (N-1)) + 10W (3.3V standby) for 115VAC range N = number of power supplies (N>1)
Output Power Combined mode (PoE + data)	(3190W x N) + 10W (3.3V standby) for 230VAC range (1560W x N) + 10W (3.3V standby) for 115VAC range N = number of power supplies (N>1)
Heat dissipation	950 BTU/hr x N N = number of power supplies
Holdup time	20 ms
Hot swappable	Yes
MTBF	300,000 hours

Note:

- Output power is per power supply unless otherwise stated.
- Heat-dissipation numbers represent the power conversion losses of the power supply in operation.
- The number of power devices supported depends upon the customer configuration.

Power Supply Indicators

- Output Fail LED (per unit): RED
- Input Okay LED (per input): Green
- ID LED (per unit): Blue

Table 8. Cisco Catalyst 9400 Series Power-cord options

Power Supply	3200W AC
Europe	CAB-CEE77-C19-EU
International	CAB-I309-C19-INTL
United States	CAB-US515P-C19-US CAB-L620P-C19-US CAB-US620P-C19-US
Australia	CAB-A3112-C19-AUS
Italy	CAB-C2316-C19-IT
United Kingdom	CAB-BS1363-C19-UK=
Argentina	Same as international
South Africa	Same as international
Israel	CAB-S132-C19-ISRL
India	CAB-SABS-C19-IND
UPS 220V	CAB-C19-CBN

Fan trays

Each Cisco Catalyst 9400 Series uses dual serviceable fan trays for cooling. Cisco Catalyst 9400 can optionally be accessed from the rear for flexible cable management. The chassis is enterprise closet-optimized with side-to-side airflow. All fan trays are composed of multiple independently controlled fans with N+1 redundancy. If any single fan fails, the system will continue to operate without a degradation in cooling. Speeds of fans change dynamically to compensate for fan failure. Catalyst 9400 Series fans have a barometric sensor, which allows slower fan speed curves at lower altitudes. Catalyst 9400 Series fans also have individual fan Pulse-Wide Modulation (PWM) fine-tuning to reduce variability in fan Revolutions Per Minute (RPM) under throttled conditions. This allows for optimal acoustic performance at 60dB when the system is operating at 50% load.

Figure 2. Dual serviceable fan tray



Environmental conditions

The Cisco Catalyst 9400 Series require the following conditions:

- Operating temperature
- Normal operating* temperature and altitudes:
 - 27° to 109°F (-5 to +45°C), up to 6,000 feet (1800 m)
 - 27° to 104°F (-5 to +40°C), up to 10,000 feet (3000 m)
 - *Minimum ambient temperature for cold startup is 0°C
- Short-term** exceptional conditions:
 - 27° to 119°F (-5 to +55°C), up to 6,000 feet (1800 m)
 - 27° to 114°F (-5 to +50°C), up to 10,000 feet (3000 m)
 - ** Not more than following in one-year period: 96 consecutive hours, or 360 hours total, or 15 occurrences
- Storage temperature: -40° to 158°F (-40° to 70°C)
- Relative humidity: 10 to 95 percent, noncondensing
- Operating altitude: -60 to 3000m

Regulatory standards compliance

Table 9 lists the regulatory standards compliance supported by the Cisco Catalyst 9400 Series.

Table 9. Regulatory standards compliance

Specification	Standard
Regulatory compliance	CE Marking
Safety	<ul style="list-style-type: none"> • UL 60950-1 • CAN/CSA-C222.2 No. 60950-1 • EN 60950-1 • IEC 60950-1 • AS/NZS 60950.1 • IEEE 802.3
EMC	<ul style="list-style-type: none"> • 47 CFR Part 15 • CISPR22 Class A • KN 32 Class A • EN 300 386 V1.6.1 • EN 55022 Class A • EN 55032 Class A • CISPR 32 Class A • EN61000-3-2 • EN61000-3-3 • ICES-003 Class A • TCVN 7189 Class A • V-3 Class A • CNS13438 Class A • CISPR24 • EN 300 386 • EN55024 • TCVN 7317 • KN35
Industry EMC, safety, and environmental standards	<ul style="list-style-type: none"> • NEBS: Operating temperature: -5 to 55C • Relative Humidity: 10-93% • Operating Altitude: up to 1829 m (6000 ft) at 55C • ETSI 300-019 Requirements are covered under GR-63-CORE with some deviations. • SR-3580 NEBS level 3 (GR-63-CORE, to current issue, GR-1089-CORE, to current issue) • ETS 300 019-2-1, Class 1.2 Storage • ETS 300 019-2-2, Class 2.3 Transportation • ETS 300 019-2-3, Class 3.2 Stationary • EN50121-4 • EN 300 386
ROHS compliance	ROHS5

MTBF information

Table 10 gives Mean-Time-Between-Failures (MTBF) information for different chassis.

Table 10. MTBF information

Part Number	Rated MTBF (Hours)
C9407R	1,630,000
C9410R	627,000

Ordering information

Table 11 lists the ordering information for chassis, power supplies, supervisor engines and memory that are commonly used with the Cisco Catalyst 9400 Series.

Table 11. Ordering information

Product Number	Description
C9407R(=)	Cisco Catalyst 9400 Series 7 slot chassis
C9410R(=)	Cisco Catalyst 9400 Series 10 slot chassis
C9400-SUP-1(=)	Cisco Catalyst 9400 Series Supervisor 1 Module
C9400-SUP-1/2	Cisco Catalyst 9400 Series Supervisor 1 Module
C9400-LC-48U(=)	Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45)
C9400-LC-48T(=)	Cisco Catalyst 9400 Series 48-Port 10/100/1000 (RJ-45)
C9400-PWR-3200AC(=)	Cisco Catalyst 9400 Series 3200W AC Power Supply
C9400-S-BLANK(=)	Cisco Catalyst 9400 Series Slot Blank Cover
C9400-PWR-BLANK(=)	Cisco Catalyst 9400 Series Power Supply Blank Cover
C9410-FAN=	Cisco Catalyst 9400 Series 10 slot chassis Fan Tray
C9407-FAN=	Cisco Catalyst 9400 Series 7 slot chassis Fan Tray
C9410-ACC-KIT=	Cisco Catalyst 9400 Series 10 slot chassis Accessory Kit
C9407-ACC-KIT=	Cisco Catalyst 9400 Series 7 slot chassis Accessory Kit
C9410-RACK-KIT=	Cisco Catalyst 9400 Series 10 slot chassis Rack Mount
C9407-RACK-KIT=	Cisco Catalyst 9400 Series 7 slot chassis Rack Mount
C9400-DNA-E	Cisco Catalyst 9400 DNA Essential Term License
C9400-DNA-E-3Y	Cisco Catalyst 9400 DNA Essential 3 Year License
C9400-DNA-E-5Y	Cisco Catalyst 9400 DNA Essential 5 Year License
C9400-DNA-E-7Y	Cisco Catalyst 9400 DNA Essential 7 Year License
C9400-DNA-A	Cisco Catalyst 9400 DNA Advantage Term License
C9400-DNA-A-3Y	Cisco Catalyst 9400 DNA Advantage 3 Year License
C9400-DNA-A-5Y	Cisco Catalyst 9400 DNA Advantage 5 Year License
C9400-DNA-A-7Y	Cisco Catalyst 9400 DNA Advantage 7 Year License
C9410-SHELF-KIT=	Cisco Catalyst 9400 Series 10 slot chassis Shelf Install Kit
C9407-SHELF-KIT=	Cisco Catalyst 9400 Series 7 slot chassis Shelf Install Kit

Cisco Enhanced Limited Lifetime Hardware warranty

The Cisco Catalyst 9400 Series Switches come with a Cisco Enhanced Limited Lifetime Warranty (E-LLW) that includes Next-Business-Day (NBD) delivery of replacement hardware where available and 90 days of 8x5 Cisco Technical Assistance Center (TAC) support.

Your formal warranty statement, including the warranty applicable to Cisco software, appears in the information packet that accompanies your Cisco product. We encourage you to review the warranty statement shipped with your specific product carefully before use.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.

For further information about warranty terms, visit <http://www.cisco.com/go/warranty>. Table 12 provides information about the E-LLW.

Table 12. E-LLW details

	Cisco E-LLW
Devices covered	Applies to Cisco Catalyst 9400 Series Switches.
Warranty duration	As long as the original customer owns the product.

End-of-life policy	In the event of discontinuance of product manufacture, Cisco warranty support is limited to 5 years from the announcement of discontinuance.
Hardware replacement	Cisco or its service center will use commercially reasonable efforts to ship a replacement for NBD delivery, where available. Otherwise, a replacement will be shipped within 10 working days after receipt of the Return Materials Authorization (RMA) request. Actual delivery times might vary depending on customer location.
Effective date	Hardware warranty commences from the date of shipment to customer (and in case of resale by a Cisco reseller, not more than 90 days after original shipment by Cisco).
TAC support	Cisco will provide during business hours, 8 hours per day, 5 days per week, basic configuration, diagnosis, and troubleshooting of device-level problems for up to a 90-day period from the date of shipment of the originally purchased Cisco Catalyst 9400 Series product. This support does not include solution or network-level support beyond the specific device under consideration.
Cisco.com access	Warranty allows guest access only to Cisco.com.

Cisco services for next-generation Cisco Catalyst Switches

Achieve infrastructure excellence faster and with less risk. Cisco Catalyst gK Services provide expert guidance to help you successfully deploy, manage and support the new Catalyst gK Series Switches. With unmatched networking expertise, best practices and innovative tools, we can help you reduce overall upgrade, refresh, and migration costs as you introduce new hardware, software and protocols into the network. Offering a comprehensive lifecycle of services – from implementation, optimization, technical and managed services – Cisco experts help you minimize disruption and achieve operational excellence to extract maximum value from your DNA-ready infrastructure. Learn more about [Cisco Services for Enterprise Networks](#).

Software policy for Cisco Catalyst 9400 Series Switches

[Cisco ONE Software for Access Switching](#) is available for the Cisco Catalyst 9400.

Cisco ONE Software for Access Switching offers comprehensive solutions for the enterprise campus and branch offices. Cisco ONE for Access Switching introduces a simpler and more economical way to deploy access, aggregation, and core switches across enterprise campus and branch locations.

The Cisco ONE Subscription for Switching offer delivers an unbound network on an open and extensible architecture to help you navigate the digital journey. This subscription offer simplifies the buying process and includes lower initiation costs and flexible terms. It includes: Cisco ONE Advantage with full Cisco Digital Network Architecture (DNA) capabilities and Cisco Software-Defined Access (SD-Access).

For ordering information for Cisco ONE Software for the Cisco Catalyst 9400, go to <https://www.cisco.com/c/en/us/products/software/one-access/switching-part-numbers.html>.

Software policy for network stack components

Customers with Network Essential Stack and Network Advantage Stack software feature sets are provided with maintenance updates and bug fixes designed to maintain the compliance of the software with published specifications, release notes, and industry standards compliance as long as the original end user continues to own or use the product or up to one year from the end-of-sale date for this product, whichever occurs earlier.

Cisco Embedded Support for DNA term components

Cisco Embedded Support delivers the right support for Cisco software products and suites. It will keep your business applications performing as expected and protects your investment. Cisco Embedded Support for DNA Essentials and DNA Advantage term components is included as part of the switch value. Cisco Embedded Support provides access to TAC support, major software updates, maintenance and minor software releases, and to the Cisco Embedded Support site for increased productivity with anytime access.

Cisco Capital

Financing to help you achieve your objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)

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