



Cisco Catalyst 9000 Switching Platform

Overview



What are Cisco Catalyst 9000 switches?



The Cisco® Catalyst® 9000 family of switches is the next generation of enterprise-class switches built for security, Internet of Things (IoT), mobility, and cloud. These switches form the foundational building block for Cisco Software-Defined Access (SD-Access), the company's lead enterprise architecture. Cisco Catalyst 9000 switches are based on x86 CPU and Cisco Unified Access™ Data Plane (UADP) Version 2.0 and later, which support full programmability and serviceability as well as convergence between wired and wireless over a single platform. The switches provide superior high availability and unmatched security features for the next-generation enterprise network designs. Wired and wireless security and application visibility are natively built into the switches.

The Cisco Catalyst 9000 family also supports full IEEE 802.3at Power over Ethernet Plus (PoE+), and Cisco Universal Power over Ethernet (Cisco UPOE®). These switches enhance productivity by enabling applications such as IP telephony, wireless, IoT, and video for a true borderless network experience.

These switches also provide segmentation options with new, innovative Cisco Locator/ID Separation Protocol (LISP)- and Virtual Extensible LAN (VXLAN)-based segmentation called campus fabric- and Multiprotocol Label Switching (MPLS)-based segmentation. They also support all the foundational high-availability capabilities such as patching, Graceful Insertion and Removal (GIR), Non-Stop Forwarding/Stateful Switchover (NSF/SSO), redundant platinum-rated power supplies, and fans. Additionally, all Cisco Catalyst 9000 switches:

- Deliver IoT convergence with industry-leading scale and capabilities such as service discovery and “Thing” classification
- Are based on the UADP 2.0 and UADP 3.0 Application-Specific Integrated Circuit (ASIC) technology with programmable pipeline and tables that help ensure platform longevity
- Run a modern operating system, open Cisco IOS® XE Software, that supports model-driven programmability, streaming telemetry, and patching
- Use X86-based multicore CPUs and local Solid-State Disk (SSD) storage for third-party container-based application hosting
- Provide unprecedented application visibility and control with Network-Based Application Recognition (NBAR) Version2

Q What are Cisco Catalyst 9300 Series Switches?

A Cisco Catalyst 9300 Series Switches are the next generation of enterprise-class stackable access-layer switches that are part of the Cisco Catalyst 9000 family. These switches also support full IEEE 802.3at PoE+, Cisco UPOE, modular and field-replaceable network modules, redundant fans, and power supplies. In addition, the Cisco Catalyst 9300-based models support a variety of uplink modules for both copper and fiber uplink support. These models add even more flexibility to the interface choices that you can make in a single Cisco Catalyst 9300 Series Switch or in a stack of Cisco Catalyst 9300 Series Switches.

Q What are Cisco Catalyst 9400 Series Switches?

A Cisco Catalyst 9400 Series Switches are the next generation of enterprise-class modular access switches that are part of the Cisco Catalyst 9000 family. These switches provide unparalleled investment protection with a centralized switching architecture that is capable of supporting up to 9-Tbps system bandwidth and unmatched PoE power delivery. The family of switches delivers state-of-the-art high availability with capabilities such as NSF/SSO, In-Service Software Upgrade (ISSU)*, uplink resiliency, and N + 1/N + N redundancy with modular power supplies. A single system can scale up to 384 ports with a wide choice of PoE+, Cisco UPOE, and data options. With several unique innovations such as modular power supply, dual serviceable fan tray, the new Cisco Catalyst 9400 Series sets a new bar for enterprise modular access network deployments.

Q What are Cisco Catalyst 9500 Series Switches?

A Cisco Catalyst 9500 Series Switches are the next generation of enterprise-class fixed-core and aggregation layer switches that are part of the Cisco Catalyst 9000 family. These switches come with 4-core 2.4-GHz CPU, 16-GB DDR4 memory, and up to 120 GB of USB 3.0 or 960 GB of SATA SSD storage for container-based application hosting.

Cisco Catalyst 9500 Series Switches are the industry's first 100 and 40 Gigabit Ethernet feature-rich switches targeted for the enterprise

*In future release

campus, delivering unmatched table scales (MAC, route, and Access Control List [ACL]) and buffering for enterprise applications. The platform offers nonblocking 100-Gbps Quad Small Form-Factor Pluggable (QSFP28), 40-Gbps (QSFP), 25-Gbps (SFP28) and 10-Gbps (SFP+) switches with granular port densities that fit diverse campus needs. The Cisco Catalyst 9500 Series supports advanced routing and infrastructure services (MPLS Layer 2 and 3 VPNs, IP Multicast VPN [MVPN], and Network Address Translation [NAT]), SD-Access border capabilities (host tracking database, cross-domain connectivity, and Virtual Route Forwarding [VRF]-aware LISP), and network system virtualization with Cisco StackWise® Virtual technology (select models) that are critical for placement in the campus core.

Q Will StackWise Virtual be supported on all ports on the Cisco Catalyst 9500 Series?

A Currently, StackWise Virtual is supported on all the front panel ports in select models. It is not currently supported on the uplink modules. Please refer to the Release Notes for more information.

Product portfolio and positioning

Q What is the relative positioning among the Cisco Catalyst 9300, 9400, and 9500?

A Refer to Table 1.

Table 1. Platform positioning

| Platform | Positioning |
|----------------------------|--|
| Cisco Catalyst 9300 Series | Lead fixed access series with 10G, 5G, 2.5G, and 1G mGig |
| Cisco Catalyst 9400 Series | Lead modular access series with wired and fiber interfaces |
| Cisco Catalyst 9500 Series | Lead fixed core and aggregation series with 100G, 40G, 25G and 10G |

Q What is the portfolio transition from the Cisco Catalyst 3000 and 4000 Series to the Cisco Catalyst 9000 platform?

A Refer to Table 2.

Table 2. Cisco Catalyst platform transitions

| | Current Platforms | Transition to Cisco Catalyst 9000 platform |
|--------------------|-------------------------------------|--|
| Access switching | Cisco Catalyst 3850 copper | Cisco Catalyst 9300 Series |
| | Cisco Catalyst 4500E Series | Cisco Catalyst 9400 Series |
| Backbone switching | Cisco Catalyst 4500-X Series | Cisco Catalyst 9500 Series |
| | Cisco Catalyst 3850 10G fiber (48P) | Cisco Catalyst 9500 Series |
| | Cisco Catalyst 6880-X | Cisco Catalyst 9500 Series |
| | Cisco Catalyst 6840-X | Cisco Catalyst 9500 Series |

Cisco Catalyst 9000 network features and services (common to all Cisco Catalyst 9000 family switches)

Q What feature sets does the Cisco Catalyst 9000 platform support?

A The Cisco Catalyst 9000 platform supports the packaging of features into Essentials and Advantage packages. The details of the features in each package are listed in the data sheets. See the links provided in the [Pricing and Ordering section](#).

Q What programmability capabilities are available on the Catalyst 9000 switches?

A Cisco Catalyst 9000 switches opens a completely new paradigm in network configuration, operation, and monitoring through network automation. The Cisco automation solution is open, standards-based, and extensible across the entire network lifecycle of a network device.

- Device provisioning: Through Plug-and-Play (PnP), Zero-Touch Provisioning (ZTP), and Preboot Execution (PXE)
- Configuration: Model-driven operation through open Application Programming Interfaces (APIs) over NETCONF, Python Scripting
- Customization and monitoring: Streaming telemetry
- Upgrade and manageability: In-Service Software Upgrade (ISSU)*, patchability, and config/replace

Q What management capabilities are available for the Cisco Catalyst 9000?

A You can manage it using the Cisco IOS software Command-Line Interface (CLI), using Cisco Prime® Infrastructure 3.1.7 DP13, Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM), onboard Cisco IOS XE Software Web User Interface (WebUI), Simple Network Management Protocol (SNMP), or Netconf/YANG. Catalyst 9000 switches have been designed to work with Cisco DNA Center, using the DNA Center Appliance.

Q Is there an onboard web GUI on Cisco Catalyst 9000 family switches?

A Yes. An onboard web GUI is available.

*In future release

Q **What is the purpose of the blue beacon LED on Cisco Catalyst 9000 switches?**

A The blue beacon LED is common across the Cisco Catalyst 9000 platform to simplify the operations. It makes chassis identification easier when several such switches are mounted on racks. A remote administrator can enable the LED to blink to help the local operator quickly locate the chassis. The local operator presses the mode button to acknowledge.

Q **What is the maximum number of VRF instances that I can configure on the Cisco Catalyst 9000 platform?**

A The maximum number of VRFs that you can configure on the Cisco Catalyst 9000 platform is 256.

Q **What is Cisco's direction for wireless?**

A Cisco believes that the best solution for a wired or wireless network is achieved when integrated into SD-Access, Cisco's lead architecture for the next-generation enterprise network. This solution delivers consistency with wired infrastructure around policy, segmentation, orchestration and automation, and assurance. This new architecture delivers the best experience for mobility, guest, IoT, multicast services, and overall network performance with its distributed data plane and centralized control-plane architecture.

Q **What wireless support is provided with Cisco Catalyst 9000 platforms?**

A The Cisco Catalyst 9000 family of switches is instrumental in supporting the following wireless capabilities in the SD-Access architecture:

- Connect access points and integrate them into the SD-Access fabric. The switch integrates with the fabric control plane (LISP), thereby providing reachability for the access points and clients in the fabric.

- Deliver macro (VRF) and micro (Scalable Group Tag (SGT) [SGT] group-based) segmentation to the access points to deliver end-to-end policies.
- Can terminate guest VXLAN traffic, so there is no need for a dedicated guest anchor controller.

The support for wireless capability at launch will be together with the AireOS 8.5 Controller running on an Cisco 8540 Wireless Controller, Cisco 5520 Wireless Controller, or Cisco 3504 Wireless Controller appliance with the Cisco Catalyst platforms functioning as Fabric Edge and Fabric Border nodes.

Q **What are the SD-Access wireless capabilities?**

A The new Cisco Catalyst 9000 platform provides a complete solution for the campus with Cisco AireOS controllers and Wave 2 access points.


Q **What are the advantages of integrating wireless in the SD-Access fabric architecture?**

- A**
- Highest performance and scale: Distributed data-plane forwarding in hardware distributed in the network paired with the large control-plane scale offered by the dedicated controller appliances.
 - Best guest: You don't need a dedicated guest anchor controller in the Demilitarized Zone (DMZ): Traffic is sent directly to the fabric border to exit the fabric. Also, there is no sub-optimal traffic forwarding such as from an access point to a foreign controller and on to a guest anchor controller.
 - Best mobility: IP addressing is simpler; there is one subnet for the entire wireless SSID across the network, and no hairpin of traffic when roams occur.
 - Simple operation: Operation is simple because wired and wireless are treated the same and operated together; they have common policies and controller-based automation.

- Wired innovations applied to wireless: First-hop security innovations available for wired can also be applied to wireless; for example, Dynamic ARP Inspection (DAI), IP Source Guard (IPSG), and DHCP Snooping.
- Segmentation across wired and wireless:
 - The virtual network now passes all the way to wired as well as wireless devices.
 - This segmentation is important for separation of certain devices from others, such as IoT and building automation devices connected over wireless.
 - It is also important for security reasons to reduce attack the surface; if someone gets into a segment, the person can move only within that segment.
 - Because segmentation is handled by the fabric, the number of SSIDs can be limited.
- Best multicast:
 - The solution offers the best performance of distributed replication in hardware across the network.

These switches truly deliver the best of wired and wireless together.

What is the rationale for future downlink speeds converging on 5 Gbps?

 The maximum speed supported in the most widely deployed cabling, Cat5e, goes up to 5 Gbps. Additionally, the next-generation wireless standard, 802.11ax, will require 5-Gbps links to the Ethernet network from the access points. Compute, storage, and high-performance endpoints will support 5 Gbps with next-generation NICs. 2.5 Gbps is seen as a transitional technology.



What are Cisco's solutions for 5-Gbps connections to endpoints?



Cisco offers stackable Cisco Catalyst 9300 Series switch models, that supports 10G, 5G, 2.5G, 1G, and 100M interfaces. This dense solution will allow a single stack of 8 units to support up to 384 ports, connected using the industry's highest stack bandwidth, StackWise-480. All ports also support Cisco UPOE, PoE+, and PoE.



How will uplink speeds evolve beyond 10G in the campus?



With downlink speeds increasing, uplink speeds will evolve beyond today's most common speeds of 10G. There is a new speed required in the campus that 1) uses the same common duplex fiber in the cable plant, 2) is able to support the 300- to 350-meter distances common in the campus, and 3) uses optics that are consistent with SFP+ for easy migration. As a result of these requirements, 25G Ethernet is bound to emerge as the preferred uplink speed in the campus for links from the access layer to the aggregation layer. Also, links from the core layer to the aggregation/distribution layer of the network will evolve to 100G.



What are Cisco's solutions for the uplinks and core?



Cisco provides the industry's first full campus solution, from the access layer to the network core. The Cisco Catalyst 9300 Series stackable switches support 2x 25G and 2x 40G uplink modules. Cisco Catalyst 9400 Series modular switches support 40G uplink modules in the supervisor engines today. The Cisco Catalyst 9500 Series supports dense 25G, 40G, and 100G modules in the core.

Cisco Catalyst 9300 Series

Q What are the key SKUs in the Cisco Catalyst 9300 Series?

A The Cisco Catalyst 9300 Series has eight primary SKUs:

- **C9300-48UXM:** 48 ports 2.5G with 12 ports full mGig
- **C9300-48U:** 48 ports 1G UPOE
- **C9300-24U:** 24 ports 1G UPOE
- **C9300-48P:** 48 ports POE+
- **C9300-24P:** 24 ports POE+
- **C9300-48T:** 48 ports data
- **C9300-24T:** 24 ports data

Q Can I stack Cisco Catalyst 9300 Series Switches with the Cisco Catalyst 3850 Series Switches?

A These switches do not stack together. Features are packaged differently between these platforms, they use different CPU architectures, and the platforms do not have the same scaling, making stacking with them impossible.

Q Are the network modules shared between the Cisco Catalyst 9300 and 3850 Series?

A Cisco Catalyst 3850 Series network modules may be used on the Cisco Catalyst 9300 Series Switches. However, the Cisco Catalyst 9300 Series network modules are not usable on the Cisco Catalyst 3850 Series.

Q Can the Cisco Catalyst 9300 Series act as a wired switch?

A The Cisco Catalyst 9300 Series Switches provide connectivity for wired endpoints and wireless endpoints by connecting wireless access points. With the SD-Access architecture, the wired and wireless endpoints gets the same experience.

Q What are the supported uplink modules in the Cisco Catalyst 9300 Series?

A The Catalyst 9300 Series supports the following new uplink modules. All modules are supported across all Cisco Catalyst 9300 Series platforms:

- 4x 1 Gigabit Ethernet network module
- 4x Multigigabit (1, 2.5, 5, or 10 Gigabit Ethernet) network module
- 8x 10 Gigabit Ethernet network module
- 2x 40 Gigabit Ethernet network module
- 2x 25 Gigabit Ethernet network module

Q Are the uplinks between the Cisco Catalyst 9300 and 3850 Series interchangeable?

A All existing 3850 Series uplink modules may be used in the Cisco Catalyst 9300 platforms. However, the new 9300 Series uplinks modules are not supported on the 3850 platforms.

Q What about service modules for the Cisco Catalyst 9300 Series?

A There are no service modules for the Cisco Catalyst 9300 Series. All functions are embedded into the platform.

Q Where can I purchase an SSD module for the Cisco Catalyst 9300 Series?

A SSD modules approved by Cisco (SSD-120G=) will be made available starting in Q2CY18.

Q What management ports are available on the Cisco Catalyst 9300?

A This switch comes with a 10/100/1000 Ethernet dedicated management port on the backside of the switch right above the console port. This port is in a separate VRF instance called “Mgmt-vrf” in order to segment the management traffic from the global routing table of the switch.

Q Can I use both console ports on Cisco Catalyst 9300 Series Switches simultaneously?

A No. When you use the USB console, the RJ-45 console receives the output of the USB console as well. This design allows the administrator to see when the USB console port is in use. This capability is useful for remote administrators.

Q What is the power consumption for Cisco Catalyst 9300 Series Switches?

A Power consumption by SKU is listed on the data sheet and can be seen in Table 3.

Table 3. Cisco Catalyst 9300 Series power consumption by SKU

| Model | Total 10/100/1000 or Multigigabit copper ports | Default AC power supply | Available PoE power | Cisco StackWise-480 | Cisco StackPower® |
|-----------|--|-------------------------|---------------------|---------------------|-------------------|
| C9300-24T | 24 | 350W AC | - | Yes | Yes |
| C9300-48T | 48 | 350W AC | - | Yes | Yes |
| C9300-24P | 24 PoE+ | 715W AC | 445W | Yes | Yes |
| C9300-48P | 48 PoE+ | 715W AC | 437W | Yes | Yes |
| C9300-24U | 24 Cisco UPOE | 1100W AC | 830W | Yes | Yes |

Q Do Cisco Catalyst 9300 Series Switches support auto-baud on the console port?

A No.

Q What type of airflow do the Cisco Catalyst 9300 Series Switches support?

A The airflow on Cisco Catalyst 9300 Series Switches is “front and sides” to back airflow.

Q What pluggable transceiver modules do the Cisco Catalyst 9300 Series switches support?

A Refer to the Cisco Transceiver Module Compatibility Matrixes for a complete list: <https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>.

| Model | Total 10/100/1000 or Multigigabit copper ports | Default AC power supply | Available PoE power | Cisco StackWise-480 | Cisco StackPower® |
|-------------|--|-------------------------|---------------------|---------------------|-------------------|
| C9300-48U | 48 Cisco UPOE | 1100W AC | 822W | Yes | Yes |
| C9300-24UX | 24 Multigigabit Cisco UPOE (100 Mbps or 1, 2.5, 5, or 10 Gbps) | 1100W AC | 560W | Yes | Yes |
| C9300-48UXM | 48x 2.5-Gbps ports (12 Multigigabit – 1, 2.5, 5, or 10 Gbps) | 1100W AC | 490W | Yes | Yes |

Cisco Catalyst 9400 Series

Q What are the key SKUs in the Cisco Catalyst 9400 Series?

A The Cisco Catalyst 9400 Series has ten primary SKUs:

- **C9410R:** 10 slot Catalyst 9400 Chassis
- **C9407R:** 7 slot Catalyst 9400 Chassis
- **C9400-SUP-1:** 80G per slot supervisor
- **C9400-SUP-1XL:** 80-120G per slot supervisor
- **C9400-LC-48UX:** 24 ports 2.5G/5G mGig+ 10/100/1000 (RJ45) line card
- **C9400-LC-48U:** 48 ports UPOE 10/100/1000 (RJ45) line card
- **C9400-LC-48P:** 48 ports PoE+ 10/100/1000 (RJ45) line card

- **C9400-LC-48T:** 48 ports 10/100/1000 (RJ45) line card
- **C9400-LC-24XS:** 24 ports 10G (SFP+) line card
- **C9400-LC-48S:** 48 ports 1G (SFP) line card
- **C9400-LC-24S:** 24 ports 1G (SFP) line card

Q What is the system architecture on Cisco Catalyst 9400 Series Switches?

A The Catalyst 9400 Series is based on centralized architecture using the Cisco UADP ASIC 2.0 running open Cisco IOS XE software. This architecture has several key benefits, including simplicity of upgrades, investment protection, and superior high availability.

Q **What are the different chassis models available on the Cisco Catalyst 9400 Series?**

A The Cisco Catalyst 9400 Series supports two chassis types, 7-slot and 10-slot, and both support redundant supervisor slots. The 7-slot chassis has 5 line-card slots that can serve up to 240 line-card ports and the 10-slot chassis has 8 line-card slots that can serve up to 384 line-card ports.

Q **What are the different data sheets and SKUs on the Cisco Catalyst 9400 Series?**

A Refer to the Cisco Catalyst 9400 Series data sheets that provide the technical and product details of the series:

- [Cisco Catalyst 9400 Series Line Cards Data Sheet](#)
- [Cisco Catalyst 9400 Series Switch Chassis Data Sheet](#)
- [Cisco Catalyst 9400 Supervisor Engine-1 Data Sheet](#)
- [Cisco Catalyst 9400 Supervisor Engine-1XL Data Sheet](#)

Q **What uplink combination is available on Cisco Catalyst 9400 Series supervisors?**

A The Cisco Catalyst 9400 Series offers a flexible uplink architecture for both 10 and 40 Gigabit Ethernet deployments, helping ensure that your investment will be protected for the future.

Cisco Catalyst 9400 Supervisor Engine-1 and 1XL support one of the following combinations of uplink ports in a standalone configuration:

- Native 40 Gigabit Ethernet uplinks: 2x QSFP
- Native 10 Gigabit Ethernet uplinks: 8x SFP+
- Mixed uplink deployment: 1x QSFP+ and 4x SFP+

Q **On the Cisco Catalyst 9400 Series, what is the uplink combination with redundant supervisors?**

A In redundant supervisor configuration, one of the following combination of uplinks ports is supported:

- 1x QSFP on each supervisor
- 4x SFP+ on each supervisor

Q **What are the SSD onboard storage options on the Cisco Catalyst 9400 Series?**

A On the supervisor module, you can order an optional SSD for onboard storage. The supervisor module supports 240-, 480-, or 960-GB configurations. It is recommended to configure this module on both supervisors (active and redundant) at the time of order. For dual-supervisor configuration, it is recommended that you order the same size of SSD module on both supervisors.

Q **What line cards are available on the Cisco Catalyst 9400 Series?**

A The Cisco Catalyst 9400 Series supports the following line-card modules to serve the diverse needs of modular campus deployments:

- 48-port Cisco UPOE RJ-45 (all 10/100/1000-Mbps)
- 48-port data RJ-45 (all 10/100/1000-Mbps)

Q **What is the airflow design on the Cisco Catalyst 9400 Series?**

A The Cisco Catalyst 9400 Series supports a side-to-side airflow design that is most common in campus modular access deployments.

Q **What is unique about the Cisco Catalyst 9400 Series fan-tray design?**

A The Cisco Catalyst 9400 Series has an innovative fan-tray design that allows you to service the fan tray from the front or the back using the same fan tray. In certain rack deployments, this design allows you to retain your cable connectivity to the modules while servicing the fan tray from the rear.

Q **What is unique about the Cisco Catalyst 9400 Series power design?**

A The Cisco Catalyst 9400 Series power-design architecture is unique and superior in many ways. The novel design supports:

- Modular power supply
- Superior high-availability capabilities to support N + 1 or N + N modes of operation
- Combined mode of operation
- Ability to mix-and-match inputs from 110V and 220V sources
- Platinum rated efficient power supplies
- Power shared across data, PoE and system components

Q **How many power supplies can the 7- and 10-slot chassis hold?**

A Both 7- and 10-slot chassis support up to 8 modular power supplies.

Q **How do I decide the number of power supplies I need on the Cisco Catalyst 9400 Series?**

A Use the Cisco Power Calculator to estimate the power requirements on the Cisco Catalyst 9400 Series. This tool allows you to configure current and future power needs based on the devices, line cards, and access endpoints and recommends the number of power supplies you need for your deployment: <https://www.cisco.com/c/en/us/support/web/tools-catalog.html>.

Q **Do the power supplies separate the power into data and inline (PoE) categories?**

A No. The power from the power supplies is shared between data, PoE and other system components.

Q **What redundant mode does the Cisco Catalyst 9400 Series support?**

A The Cisco Catalyst 9400 Series supports N + N redundant mode and N+1 redundant mode. The platforms allow changing of the power supply modes with a simple CLI. For N + N mode, N power supplies are active and N are in standby. For N+1 mode, N power supplies are active and 1 is in standby.

Q **On the Cisco Catalyst 9400 Series, what is the default power supply mode?**

A The default mode is a combined mode; User can change the mode of operation either N+N or N+1 mode.

Q **Do Cisco Catalyst 9400 Series Switches come with built-in RFID?**

A Yes, Cisco Catalyst 9400 Series Switches come with built-in passive RFID tags on all the components so that you have an inventory of the different components, including separated RFID tags for the supervisor, all line-card modules, the power supplies, the fan tray, and the chassis.

Q **What management ports are available on the Cisco Catalyst 9400 Series?**

A The Cisco Catalyst 9400 Series comes with a mini-B type USB console port and a 10/100/1000 Ethernet (RJ-45) dedicated management port on the front panel of the switch. The Ethernet port is in a separate VRF instance called “Mgmt-vrf”. This setup segments the management traffic from the global routing table of the switch.

Q Can I use both console ports simultaneously on the Cisco Catalyst 9400 Series?

A No. The RJ-45 port is the default and console switches to USB when the USB cable is connected.

Q Do Cisco Catalyst 9400 Series Switches support Online Insertion and Removal (OIR)?

A Yes, OIR is supported on all the modules and power supplies.

Q What pluggable transceiver modules do Cisco Catalyst 9400 Series Switches support?

A Refer to the Cisco Transceiver Module Compatibility Matrixes for the supported list <https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>.

Cisco Catalyst 9500 Series

Q What are the key SKUs in the Cisco Catalyst 9500 Series?

A The Cisco Catalyst 9500 Series has eight primary SKUs:

- **C9500-32C:** 32 ports 100G QSFP28
- **C9500-32QC:** 24 ports 40G QSFP with 4 ports 100G QSFP28 uplinks
 - OR** 32 ports 40G QSFP
 - OR** 16 ports 100G QSFP28
- **C9500-24Q:** 24 ports 40G QSFP
- **C9500-12Q:** 12 ports 40G QSFP
- **C9500-48Y4C:** 48 ports 25G/10G SFP28 option with 4 ports 100G/40G QSFP28 uplinks
- **C9500-24Y4C:** 24 ports 25G/10G SFP28 option with 4 ports 100G/40G QSFP28 uplinks

- **C9500-40X:** 40 ports 10G SFP+ option with 8 ports 10G SFP+ and 2 ports 40G QSFP uplinks

- **C9500-16X:** 16 ports 10G SFP+ option with 8 ports 10G SFP+ and 2 ports 40G QSFP uplinks

Q Are the uplink modules of Cisco Catalyst 9500 Series Switches the same as those for the Cisco Catalyst 3850 Series uplink modules?

A No, uplink modules of the Cisco Catalyst 9500 Series Switches have different SKUs from those of the 3850 Series.

Q How many Rack Units (RUs) do Cisco Catalyst 9500 Series Switches have?

A Cisco Catalyst 9500 Series Switches are 1RU switches

Q Do Cisco Catalyst 9500 Series Switches come with built-in RFID?

A Yes, they come with a built-in passive RFID tag.

Q What management ports are available on the Cisco Catalyst 9500 Series?

A The Cisco Catalyst 9500 Series comes with a mini-B type USB console port and a 10, 100, or 1000 Ethernet (RJ-45) dedicated management port on the front panel of the switch. The Ethernet port is in a separate VRF instance called “Mgmt-vrf” in order to segment the management traffic from the global routing table of the switch.

Q Can I use both console ports simultaneously on the Cisco Catalyst 9500 Series?

A No. The RJ-45 port is default and the console switches to USB when USB cable is connected.

Q Do Cisco Catalyst 9500 Series switches support Trivial File Transport Protocol (TFTP) to boot the software image?

A Yes, you can use TFTP to boot the application image over the network with the following parameters set up:

- MAC_ADDR: The switch default MAC address
- IP_ADDR: The IP address or netmask of the switch
- DEFAULT_ROUTER: The IP address of the default router in the local network

Example:

- Switch: set DEFAULT_ROUTER 10.4.2.1
- Switch: set IP_ADDR 10.4.2.140/255.255.255.0
- Switch: boot tftp://<tftp server ip addr>/<filename>

Q Do Cisco Catalyst 9500 Series Switches support OIR?

A Yes, the 5 fans and the 2 power supply units support OIR. Also, uplink modules on the 10 Gigabit Ethernet SKU support OIR.

Q How many fans can fail on a Cisco Catalyst 9500 Series Switch without interrupting the system?

A One. Cisco Catalyst 9500 Series Switches are designed to support a single fan failure. We recommended that you replace fans as soon as possible when they fail.

Q Do Cisco Catalyst 9500 Series Switches support 802.1ae?

A Cisco Catalyst 9500 Series Switches are hardware-capable for 802.1ae on all ports on the switch.

Q What type of airflow do Cisco Catalyst 9500 Series Switches support?

A The airflow on the Cisco Catalyst 9500 Series is “front-to-back” airflow.

Q What pluggable transceiver modules do Cisco Catalyst 9500 Series Switches support?

A Refer to the Cisco Transceiver Module Compatibility Matrixes for a complete list: <https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html>.

Q Can Cisco Catalyst 9500 Series Switches support redundant power supplies?

A Yes, Cisco Catalyst 9500 Series Switches come with two AC power supplies. For further details on power supplies, please refer to Cisco Catalyst 9500 Series data sheet: [Latest data sheet version](#)

Pricing and ordering

Q Where can I find the complete SKU list or data sheets for the Cisco Catalyst 9000 Series (9300, 9400, and 9500)?

A A complete list of PIDs is available in the platform-specific data sheets:

- Cisco Catalyst 9300: [Latest data sheet version](#)
- Cisco Catalyst 9400: Chassis: [Latest Datasheet Version for Chassis](#)
- Supervisor: [Latest Datasheet Version for Supervisor](#)
- Line cards: [Latest Datasheet Version for Line cards](#)
- Cisco Catalyst 9500: [Latest Datasheet Version](#)



What is the SKU mapping between the Cisco Catalyst 3850 and 9300 Series?



Refer to Table 4.

Table 4. Mapping between Cisco Catalyst 3850 and 9300 Series

| 3850 PIDs | 9300 PID | Short description |
|-----------------|-------------|---|
| WS-C3850-24T | C9300-24T | Cisco Catalyst 9300 24-port data only switch |
| WS-C3850-24P | C9300-24P | Cisco Catalyst 9300 24-port PoE+ switch |
| WS-C3850-24U | C9300-24U | Cisco Catalyst 9300 24-port UPOE switch |
| WS-C3850-24XU | C9300-24UX | Cisco Catalyst 9300 24-port Multigigabit and UPOE switch |
| WS-C3850-48T | C9300-48T | Cisco Catalyst 9300 48-port data only switch |
| WS-C3850-48P | C9300-48P | Cisco Catalyst 9300 48-port PoE+ switch |
| WS-C3850-48U | C9300-48U | Cisco Catalyst 9300 48-port UPOE switch |
| WS-C3850-12X48U | C9300-48UXM | Cisco Catalyst 9300 48-port 2.5G (12 Multigigabit) switch |



What is the SKU mapping between the Cisco Catalyst 4500E and 9400 Series?



Refer to Table 5.

Table 5. Mapping between Cisco Catalyst 4500E and 9400 Series

| C4500E PID | C9400 PID | Short description |
|------------------|--------------|---|
| WS-C4506-E | C9407R | Cisco Catalyst 9400 Series 7 slot chassis |
| WS-C4507R+E | C9407R | Cisco Catalyst 9400 Series 7 slot chassis |
| WS-C4510R+E | C9410R | Cisco Catalyst 9400 Series 10 slot chassis |
| WS-X45-SUP6-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X45-SUP6L-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X45-SUP7-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X45-SUP7L-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X45-SUP8-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X45-SUP8L-E | C9400-SUP-1 | Cisco Catalyst 9400 Series Supervisor 1 |
| WS-X4748-RJ45V+E | C9400-LC-48U | Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45) |

| C4500E PID | C9400 PID | Short description |
|------------------|------------------|---|
| WS-X4648-RJ45V+E | C9400-LC-48U | Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45) |
| WS-X4748-UPOE+E | C9400-LC-48U | Cisco Catalyst 9400 Series 48-Port UPOE 10/100/1000 (RJ-45) |
| WS-X4748-RJ45+E | C9400-LC-48T | Cisco Catalyst 9400 Series 48-Port 10/100/1000 (RJ-45) |
| WS-X4648-RJ45+E | C9400-LC-48T | Cisco Catalyst 9400 Series 48-Port 10/100/1000 (RJ-45) |
| PWR-C45-1300ACV | C9400-PWR-3200AC | Cisco Catalyst 9400 Series 3200W AC Power Supply |
| PWR-C45-2800ACV | C9400-PWR-3200AC | Cisco Catalyst 9400 Series 3200W AC Power Supply |
| PWR-C45-4200ACV | C9400-PWR-3200AC | Cisco Catalyst 9400 Series 3200W AC Power Supply |
| PWR-C45-6000ACV | C9400-PWR-3200AC | Cisco Catalyst 9400 Series 3200W AC Power Supply |
| PWR-C45-9000ACV | C9400-PWR-3200AC | Cisco Catalyst 9400 Series 3200W AC Power Supply |



What is the SKU mapping between the Cisco Catalyst 4500X and 9500 Series?



Refer to Table 6.

Table 6. Mapping between Cisco Catalyst 4500X and 9500 Series

| 4500X PIDs | 9500 PID | Short description |
|------------------|-------------|--|
| WS-C4500X-16SFP+ | C9500-12Q | Cisco Catalyst 9500 12-port 40GE QSFP switch |
| | C9500-16X | Cisco Catalyst 9500 16-port 10GE SFP+ Switch |
| WS-C4500X-24X-ES | C9500-24Y4C | Cisco Catalyst 9500 24-port 25GE SFP28 with 4-port 100GE QSFP28 switch |
| | C9500-24X | Cisco Catalyst 9500 16-port 10GE SFP+ with 8-port 10GE SFP+ Switch |
| | C9500-24Q | Cisco Catalyst 9500 24-port 40GE QSFP switch |
| WS-C4500X-32SFP+ | C9500-24Q | Cisco Catalyst 9500 24-port 40GE QSFP switch |
| | C9500-32QC | Cisco Catalyst 9500 32-port 40GE QSFP or 16-port 100GE QSFP28 switch |
| | C9500-32C | Cisco Catalyst 9500 32-port 100GE QSFP28 switch |

| 4500X PIDs | 9500 PID | Short description |
|------------------|--------------|--|
| WS-C4500X-40X-ES | C9500-40X | Cisco Catalyst 9500 40+ port 10GE SFP+ Switch |
| | C9500-48X | Cisco Catalyst 9500 convenience bundle - 40P x 10G + 8P x 10G |
| | C9500-40X-2Q | Cisco Catalyst 9500 convenience bundle - 40P x 10G + 2P x 40G |
| | C9500-48Y4C | Cisco Catalyst 9500 48-port 25GE SFP28 with 4-port 100GE QSFP28 switch |



What is the SKU mapping between the Cisco Catalyst 6800 and 9500 Series?

A

Refer to Table 7.

- **C9500-32C:** 32 ports 100G QSFP28
- **C9500-32QC:** 24 ports 40G QSFP with 4 ports 100G QSFP28 uplinks
 - OR** 32 ports 40G QSFP
 - OR** 16 ports 100G QSFP28
- **C9500-24Q :** 24 ports 40G QSFP
- **C9500-12Q:** 12 ports 40G QSFP

- **C9500-48Y4C:** 48 ports x 25G/10G SFP28 option with 4 ports 100G/40G QSFP28 uplinks
- **C9500-24Y4C:** 24 ports x 25G/10G SFP28 option with 4 ports 100G/40G QSFP28 uplinks
- **C9500-40X:** 40 ports x10G SFP+ option with 8 ports 10G SFP+ and 2 ports 40G QSFP uplinks
- **C9500-16X:** 16 ports 10G SFP+ option with 8 ports 10G SFP+ and 2 ports 40G QSFP uplinks

Table 7. Mapping between Cisco Catalyst 6800, and 9500 Series

| 6840X PIDs | 9500 PID | Short description |
|----------------|-------------|--|
| C6816-X-LE | C9500-16X | Cisco Catalyst 9500 16-ports 10G SFP+ switch |
| | C9500-24Y4C | Cisco Catalyst 9300 24-port Multigigabit and UPOE switch |
| C6832-X-LE | C9500-40X | Cisco Catalyst 9500 40-ports 10G SFP+ switch |
| | C9500-48Y4C | Cisco Catalyst 9500 48-ports 25G/10G SFP28 switch |
| C6824-X-LE-40G | C9500-24Y4C | Cisco Catalyst 9500 24-ports 25G/10G SFP28 switch |

| 6840X PIDs | 9500 PID | Short description |
|----------------|---------------|--|
| C6840-X-LE-40G | C9500-40X | Cisco Catalyst 9500 40+ port 10GE SFP+ Switch |
| | C9500-48X | |
| | C9500- 40X-2Q | Cisco Catalyst 9500 convenience bundle - 40P x 10G + 8P x 10G |
| | C9500-48Y4C | Cisco Catalyst 9500 convenience bundle - 40P x 10G + 2P x 40G |
| | | Cisco Catalyst 9500 48-port 25GE SFP28 with 4-port 100GE QSFP28 switch |

Q What is the SKU mapping between the Cisco Catalyst 6800ia and 9300 Series?

A Refer to Table 8.

Table 8. Mapping between Cisco Catalyst 6800ia and 9300 Series

| 6840X PIDs | 9500 PID | Short description |
|----------------|-----------|--|
| C6800IA-48FPD | C9300-48T | Cisco Catalyst 9300 48-port data only switch |
| C6800IA-48TD | C9300-48P | Cisco Catalyst 9300 48-port PoE+ switch |
| C6800IA-48FPDR | C9300-48P | Cisco Catalyst 9300 48-port PoE+ switch |

Warranty and support

Q How does Cisco Smart Net Total Care® Service pricing compare between the Cisco Catalyst 9000 family and Cisco Catalyst 3850, 4500, and 4500X Series?

A Smart Net Total Care® pricing for the Cisco Catalyst 9000 family is at parity with the existing Cisco Catalyst 3850, 4500, and 4500X Series.

Q Does Smart Net Total Care support include support for all the different licenses?

A Smart Net Total Care supports hardware and network essentials and network advantage perpetual licenses. All term-based subscription licenses, such as Cisco DNA™ Essentials and Cisco DNA Advantage, are covered by SWSS, which is included by default in the price of the license.

Q Do Cisco Catalyst 9000 family switches support the Enhanced Limited Lifetime Warranty (E-LLW)?

A Yes, all Cisco Catalyst 9000 family switches support E-LLW. E-LLW provides 90-day 8x5 Cisco Technical Assistance Center (TAC) hardware support, next-business-day hardware replacement, and guest access to the knowledge base. The business unit software policy provides free software updates for Cisco IOS software in the network stack.

Q What is the software support model with E-LLW on the Cisco Catalyst 9000 family?

A The Enhanced Limited Lifetime Warranty is limited to hardware support. For the Cisco Catalyst 9000 family, software-related issues are covered by SWSS, which is included as part of the Cisco DNA subscription license. Also, for the first 90 days, you are entitled to configuration help for Cisco IOS XE software-related questions. Software updates to the Cisco IOS XE software will be supported by the business unit software policy.