Cisco Catalyst 9300 Series Switches

Built for Security, IoT, Mobility, and Cloud

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The Cisco® Catalyst® 9300 Series Switches are Cisco's lead stackable enterprise switching platform built for security, IoT, mobility, and cloud. They are the next generation of the industry's most widely deployed switching platform. The Catalyst 9300 Series switches form the foundational building block for Software-Defined Access (SD-Access), Cisco's lead enterprise architecture. At 480 Gbps, they are the industry's highest-density stacking bandwidth solution with the most flexible uplink architecture. The Catalyst 9300 Series is the first optimized platform for high-density 802.11ac Wave2. It sets new maximums for network scale. These switches are also ready for the future, with an x86 CPU architecture and more memory, enabling them to host containers and run third-party applications and scripts natively within the switch.

The Catalyst 9300 Series is designed for Cisco StackWise® technology, providing flexible deployment with support for nonstop forwarding with Stateful Switchover (NSF/SSO), for the most resilient architecture in a stackable (sub-50-ms) solution. The highly resilient and efficient power architecture features Cisco StackPower®, which delivers high-density Cisco Universal Power Over Ethernet (Cisco UPOE®) and Power over Ethernet Plus (PoE+) ports. The switches are based on the Cisco Unified Access™ Data Plane 2.0 (UADP) 2.0 architecture which not only protects your investment but also allows a larger scale and higher throughput. A modern operating system, Cisco IOS XE with programmability offers advanced security capabilities and Internet of Things (IoT) convergence.

The foundation of Software-Defined Access

Advanced persistent security threats. The exponential growth of Internet of Things (IoT) devices. Mobility everywhere. Cloud adoption. All of these 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 the rollout of business services.

The Cisco Digital Network Architecture (Cisco DNA™) with SD-Access is the network fabric that powers business. It 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

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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.

Product Overview: Features

Product Highlights

- Highest wireless scale with Wave 2 access points supported on a single switch with select models
- UADP 2.0 Application-Specific Integrated Circuit (ASIC) with programmable pipeline and microengine capabilities, along with template-based, configurable allocation of Layer 2 and Layer 3 forwarding, Access Control Lists (ACLs), and Quality of Service (QoS) entries
- x86 CPU complex with 8-GB memory, and 16 GB of flash and external USB 3.0 SSD pluggable storage slot (delivering 120GB of storage with an option SSD drive) to host containers
- USB 2.0 slot to load system images and set configurations
- Up to 480 Gbps of local stackable switching bandwidth
- Flexible and dense uplink offerings with 1G, Multigigabit, 10G, 25G, and 40G
- Flexible downlink options with 1G and Multigigabit links
- Leading PoE capabilities with up to 384 ports of PoE per stack, 60W Cisco UPOE, and PoE+
- Intelligent Power Management with Cisco StackPower technology, providing power stacking among members for power redundancy
- Line-rate, hardware-based Flexible NetFlow (FNF), delivering flow collection of up to 64,000 flows
- IPv6 support in hardware, providing wire-rate forwarding for IPv6 networks
- Dual-stack support for IPv4/IPv6 and dynamic hardware forwarding table allocations, for ease of IPv4-to-IPv6 migration
- IEEE 802.1ba AV Bridging (AVB) built in to provide a better audio and video experience through improved time synchronization and QoS
- Precision Time Protocol (PTP; IEEE 1588v2) provides accurate clock synchronization with sub-microsecond accuracy making it suitable for distribution and synchronization of time and frequency over network
- Cisco IOS XE, a modern operating system for the enterprise with support for model-driven programmability including NETCONF, RESTCONF, YANG, on-box Python scripting, streaming telemetry, container-based

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application hosting, and patching for critical bug fixes. The OS also has built-in defenses to protect against runtime attacks

- **SD-Access:** The Cisco Catalyst 9300 Series Switches form the foundational building block for SD-Access, Cisco's lead enterprise architecture:
  - Policy-based automation from edge to cloud
  - Simplified segmentation and micro-segmentation, with predictable performance and scalability
  - Automation through the Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM)
  - Policy handled through the Cisco Identity Services Engine (ISE)
  - Network assurance provided through the Network Data Platform
  - Faster launch of new business services and significantly improved issue resolution time
- Plug and Play (PnP) enabled: A simple, secure, unified, and integrated offering to ease new branch or campus device rollouts or updates to an existing network
- Advanced security
  - Encrypted Traffic Analytics (ETA): You benefit from the power of machine learning to identify and take actions toward threats or anomalies in your network, including malware detection in encrypted traffic (without decryption) and distributed anomaly detection
  - Support for AES-256 with the powerful MACsec 256-bit encryption algorithm available on all models
  - Trustworthy systems: Hardware anchored Secure Boot and Secure Unique Device Identification (SUDI) support for Plug and Play, to verify the identity of the hardware and software

Platform Details

Switch Models and Configurations

The Cisco Catalyst 9300 Series is made up of seven different switch models. Any of the models can be used together in a stack of up to eight units (Figure 1).

Figure 1.
Cisco Catalyst 9300 Series Switches

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Table 1 lists port scale and power details for the Cisco Catalyst 9300 Series models.

Table 1. Cisco Catalyst 9300 Series Switch configurations

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
C9300-48U	48 Cisco UPOE	1100W AC	822W	Yes	Yes
C9300-24UX	24 Multigigabit Cisco UPOE (100M, 1G, 2.5G, 5G, or 10 Gbps)	1100W AC	560W	Yes	Yes
C9300-48UXM	36x 100 Mbps,1G, 2.5G + 12x Multigigabit (100M, 1G, 2.5G, 5G, or 10 Gbps)	1100W AC	490W	Yes	Yes
C9300-48UN	48x 5 Gbps UPOE ports (100M, 1G, 2.5G, 5G)	1100W AC	645W	Yes	Yes

Network Modules

The Cisco Catalyst 9300 Series Switches support optional network modules for uplink ports (Figure 2). The default switch configuration does not include the network module. When you purchase the switch, you can choose from the network modules described in Table 2.

Figure 2.
Cisco Catalyst 9300 Series network modules

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Table 2. Network module numbers and descriptions

Network module	Description
C9300-NM-4G	9300 Series 4x 1G Network Module
C9300-NM-4M	9300 Series 4 x Multigigabit Network Module
C9300-NM-8X	9300 Series 8x 10G Network Module
C9300-NM-2Q	9300 Series 2x 40G Network Module
C9300-NM-2Y	9300 Series 2x 25G Network Module

Please note: Existing 3850 network modules are also supported in the Cisco Catalyst 9300 Series platforms.

For additional details, please read our FAQs: https://www.cisco.com/c/dam/en/us/products/collateral/switches/catalyst-9300-series-switches/nb-09-cat-9k-faq-cte-en.pdf.

Power Supplies

The Cisco Catalyst 9300 Series Switches support dual redundant power supplies. The switches ship with one power supply by default, and the second power supply can be purchased when the switch is ordered or at a later time. If only one power supply is installed, it should always be in power supply bay #1. The switches also ship with three field-replaceable fans.

Figure 3.
Cisco Catalyst 9300 Series dual redundant power supplies

Table 3 lists the different power supplies available in these switches and available PoE power.

Table 3. Power supply models

Model	Default power supply	Available PoE power	With 350W Secondary PS	With 715W Secondary PS	With 1100W Secondary PS
24-port data switch	PWR-C1-350WAC	–			
48-port data switch	PWR-C1-350WAC				
24-port PoE+ switch	PWR-C1-715WAC	445W	720W*	720W*	720W*
48-port PoE+ switch	PWR-C1-715WAC	437W	787W	1152W	1440W*
24-port Cisco UPOE switch	PWR-C1-1100WAC	830W	1180W	1440W*	1440W*
48-port Cisco UPOE switch	PWR-C1-1100WAC	822W	1172W	1537W	1800W**

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Model	Default power supply	Available PoE power	With 350W Secondary PS	With 715W Secondary PS	With 1100W Secondary PS
24-port Multigigabit Cisco UPOE switch	PWR-C1-1100WAC	560W	910W	1275W	1440W*
48-port 2.5G (12 Multigigabit – 1/2.5/5/10G)	PWR-C1-1100WAC	490W	840W	1205W	1590W
48-port 5G (1/2.5/5G) UPOE switch	PWR-C1-1100WAC-P	645W	995W	1360W	1745W

* Limited by port number and port rating (e.g. 24 PoE+ 30W ports = 720W)

** Limited by design

25G and 40G in the Cisco Catalyst 9300 Series enable greater architectural flexibility and infrastructure investment protection by allowing a nondisruptive migration from 10G to 25G and beyond.

Performance and Scalability

Performance and scalability metrics for the Cisco Catalyst 9300 Series are provided in Table 4.

Table 4. Performance specifications

Description	Performance
Switching capacity	208 Gbps on 24-port Gigabit Ethernet model 256 Gbps on 48-port Gigabit Ethernet model 640 Gbps on 24-port Multigigabit Ethernet model 580 Gbps on 48-port 2.5G (12 Multigigabit) Ethernet model 640 Gbps on 48-port 5G Ethernet model All models are wire-speed nonblocking performance
Stacking bandwidth	480 Gbps
Total number of MAC addresses	32,000
Total number of IPv4 routes (ARP plus learned routes)	32,000 (24,000 direct routes and 8000 indirect routes)
IPv4 routing entries	32,000
IPv6 routing entries	16,000
Multicast routing scale	8000
QoS scale entries	5120
ACL scale entries	5120
Packet buffer per SKU	16 MB buffer for 24- or 48-port Gigabit Ethernet models 32 MB buffer for 24 and 48-port Multigigabit
FNF entries	64,000 flow on 24- and 48-port Gigabit Ethernet models 128,000 flows on 24-port Multigigabit
DRAM	8 GB

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Description	Performance
Flash	16 GB
VLAN IDs	4000
Total Switched Virtual Interfaces (SVIs)	2000
Jumbo frames	9198 bytes
Total routed ports per 9300 Series stack	208
Wireless	
Wireless bandwidth per switch	Up to 96 Gbps on 48-port Gigabit Ethernet model Up to 48 Gbps on 24-port Gigabit Ethernet model
Forwarding rate of switch models (with 2x 40 Gigabit Ethernet uplinks for 24-port models and 48-port models)	
Model	Forwarding rate
C9300-24T	154.76 Mpps
C9300-24P	154.76 Mpps
C9300-24U	154.76 Mpps
C9300-48T	190.48 Mpps
C9300-48P	190.48 Mpps
C9300-48U	190.48 Mpps
C9300-24UX	476.19 Mpps
C9300-48UXM	431.54 Mpps
C9300-48UN	476.19 Mpps
Forwarding rate for both IPv4 and IPv6 at 64bytes	

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SD-Access Architecture

What if you could give time back to IT? Provide network access in minutes for any user or device to any application – without compromise? SD-Access is the industry's first policy-based automation from network edge to cloud. Your foundation for your digital network, Cisco Software-Defined Access (SD-Access). Built on the principles of the Cisco Digital Network Architecture (Cisco DNA™), SD-Access provides end-to-end segmentation to keep user, device and application traffic separate without a redesign of the network. It automates user access policy so organizations can make sure the right policies are set for any user or device with any application across the network. This is accomplished with a single network fabric across LAN and WLAN which creates a consistent user experience anywhere without compromising on security.

There are many challenges today in managing the network to drive business outcomes. These limitations are due to manual configuration and fragmented tool offerings. SD-Access provides:

- A transformational management solution that reduces operational expenses and enhances business agility
- Consistent management of wired and wireless network provisioning and policy
- Automated network segmentation and group-based policy
- Contextual insights for fast issue resolution and capacity planning
- Open and programmable interfaces for integration with third-party solutions

For an overview of key use-cases SD-Access addresses, refer to SD-Access Solution Overview.

Platform Benefits

Cisco IOS XE opens a completely new paradigm in network configuration, operation, and monitoring through network automation. Cisco's automation solution is open, standards-based, and extensible across the entire lifecycle of a network device. The various automation mechanisms are outlined below.

- **Automated device provisioning** is the ability to automate the process of upgrading software images and installing configuration files on Cisco Catalyst switches when they are being deployed in the network for the first time. Cisco provides both turnkey solutions such as Plug and Play and off-the-shelf tools such as Zero-Touch Provisioning (ZTP) and Preboot Execution Environment (PXE) that enable an effortless and automated deployment.
- **API-driven configuration** is available with modern network switches such as the Cisco Catalyst 9300 Series. It supports a wide range of automation features and provides robust open APIs over NETCONF and RESTCONF using YANG data models for external tools, both off-the-shelf and custom built, to automatically provision network resources.
- **Granular visibility** enables model-driven telemetry to stream data from a switch to a destination. The data to be streamed is identified through subscription to a data set in a YANG model. The subscribed data set is streamed to the destination at specified intervals. Additionally, Cisco IOS XE enables the push model. It provides near-real-time monitoring of the network, leading to quick detection and rectification of failures.
- **Seamless software upgrades and patching** supports OS resilience. Cisco IOS XE supports patching, which provides fixes for critical bugs and security vulnerabilities between regular maintenance releases. This support lets you add patches without having to wait for the next maintenance release.

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Security

- **Encrypted Traffic Analytics (ETA)** is a unique capability for identifying malware in encrypted traffic coming from the access layer. Since more and more traffic is becoming encrypted, the visibility this feature affords for threat detection is critical for keeping your network secure at different layers.
- **AES-256 MACsec encryption** is the IEEE 802.1AE standard for authenticating and encrypting packets between switches. The Cisco Catalyst 9300 Series switches support 256-bit and 128-bit Advanced Encryption Standard (AES), providing the most secure link encryption.
- **Trustworthy systems built with Cisco Trust Anchor Technologies** provide a highly secure foundation for Cisco products. With The Catalyst 9300 Series, these technologies enable hardware and software authenticity assurance for supply chain trust and strong mitigation against man-in-the-middle attacks that compromise software and firmware. Trust Anchor capabilities include:
    - **Image signing:** Cryptographically signed images provide assurance that the firmware, BIOS, and other software are authentic and unmodified. As the system boots, the system's software signatures are checked for integrity.
    - **Secure Boot:** Cisco Secure Boot technology anchors the boot sequence chain of trust to immutable hardware, mitigating threats against a system's foundational state and the software that is to be loaded, regardless of a user's privilege level. It provides layered protection against the persistence of illicitly modified firmware.
    - **Cisco Trust Anchor module:** A tamper-resistant, strong cryptographic, single-chip solution provides hardware authenticity assurance to uniquely identify the product so that its origin can be confirmed to Cisco. This provides assurance that the product is genuine.

Resiliency and High Availability

- **StackWise-480:** The Cisco Catalyst 9300 Series supports the industry's highest back-panel stacking bandwidth solution (480 Gbps) with StackWise-480. Up to 8 Switches can be configured in a Stackwise-480 with the special connector at the back of the switch using dedicated stack cables.
- **Cisco StackPower:** Cisco StackPower is an innovative power interconnect system that allows the power supplies in a stack to be shared as a common resource among all the switches. This allows you to simply add one extra power supply in any switch of the stack and either provide power redundancy for any of the stack members or simply add more power to the shared pool. Up to 4 switches can be configured in a StackPower stack with the special connector at the back of the switch. However, with the use of XPS-2200 appliance, up to 9 switches can be configured in the StackPower stack.

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Figure 4.
Cisco Catalyst 9300 Series StackPower

- **High availability:** The Catalyst 9300 Series supports high-availability features, including the following:
  - Cross-stack EtherChannel provides the ability to configure Cisco EtherChannel technology across different members of the stack for high resiliency.
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) provides rapid spanning tree convergence independent of spanning tree timers and also offers the benefit of Layer 2 load balancing and distributed processing.
  - Per-VLAN Rapid Spanning Tree (PVRST+) allows rapid spanning tree (IEEE 802.1w) reconvergence on a per-VLAN spanning tree basis, providing simpler configuration than MSTP. In both MSTP and PVRST+ modes, stacked units behave as a single spanning tree node.
  - Switch-port auto-recovery ("err-disable" recovery) automatically attempts to reactivate a link that is disabled because of a network error.
  - The Catalyst 9300 Series platform delivers the best NSF/SSO resiliency architecture in a stackable solution with sub-50-ms failover.

Flexible NetFlow

- **Flexible NetFlow (FNF):** Cisco IOS® Software FNF is the next generation in flow visibility technology. It enables optimization of the network infrastructure, reduces operation costs, and improves capacity planning and security incident detection with increased flexibility and scalability. The Catalyst 9300 Series is capable of up to 64,000 flow entries on 48-port and 24 port models and up to 128,000 flow entries on Multigigabit models.

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Application Visibility and Control

- **NBAR2:** Next-Generation Network-Based Application Recognition (NBAR2) enables advanced application classification techniques, accuracy with up to 1400 predefined and well-known application signatures and up to 150 encrypted applications on the Cisco Catalyst 9000 Series. The most popular applications included are Skype, Office 365, Microsoft Lync, Cisco WebEx®, and Facebook, among many others that are predefined and easy to configure. NBAR2 provides the network administrator with an important tool to identify, control, and monitor end-user application usage while helping ensure a quality user experience and securing the network from malicious attacks. NBAR2 leverages FNF to report application performance and activities within the network to any supported NetFlow collector, such as Cisco Prime®, Cisco Stealthwatch®, or any compliant third-party tool.

QoS

- **Superior QoS:** The Cisco Catalyst 9300 Series offers Gigabit Ethernet speeds with intelligent services that keep traffic flowing smoothly, even at 10 times the normal network speed. Industry-leading mechanisms for cross-stack marking, classification, and scheduling deliver superior performance for data, voice, and video traffic at wire speed. Superior QoS includes granular wireless bandwidth management and fair sharing, 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.

Service Discovery

- **Multicast DNS (mDNS) gateway:** This service discovery gateway capability facilitates sharing of services advertised using the Apple mDNS (Bonjour) protocol, such as printers, Apple TVs, and file services across the network. Additionally, the administrator can create policies defining which services can be seen and accessed by the users in the network. This capability facilitates a Bring-Your-Own-Device (BYOD) rollout.

Smart Operation

- **WebUI:** WebUI is an embedded GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability, and to enhance the user experience. It comes with the default image, so there is no need to enable anything or install any license on the device. You can use WebUI to build configurations, and to monitor and troubleshoot the device without having CLI expertise.
- **Efficient switch operation*:** Cisco Catalyst 9300 Series Switches provide optimum power saving with Energy Efficient Ethernet (EEE) on the RJ-45 ports and low-power operations for industry best-in-class power management and power consumption capabilities. The ports support reduced power modes so that ports not in use can move into a lower power utilization state. Other efficient switch operation features are as follows:
  - Per-port power consumption command allows customers to specify a maximum power setting on an individual port.
  - Per-port PoE power sensing measures actual power being drawn, enabling more intelligent control of powered devices. The PoE MIB provides proactive visibility into power usage and allows you to set different power-level thresholds.
- **RFID tags:** The Catalyst 9300 Series switches have an embedded RFID tag that facilitates easy asset and inventory management using commercial RFID readers.
- **Blue beacon:** The Catalyst 9300 Series switches support a blue beacon LED for easy identification of the switch being accessed.

* Energy Efficient Ethernet (EEE) will be fully supported on Multigigabit switches in a future SW release

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High-Performance IP Routing

The Cisco Express Forwarding hardware routing architecture delivers extremely high-performance IP routing in Cisco Catalyst 9300 Series Switches, based on:

- IP unicast routing protocols (including static, Routing Information Protocol Version 1 [RIPv1], RIPv2, RIPng, and Open Shortest Path First [OSPF], Routed Access) are supported for small network routing applications with the Network Essentials stack. Equal-cost routing facilitates Layer 3 load balancing and redundancy across the stack.
- Advanced IP unicast routing protocols (including Full [OSPF], Enhanced Interior Gateway Routing Protocol [EIGRP], Border Gateway Protocol Version 4 [BGPv4], and Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) are supported for load balancing and for constructing scalable LANs. IPv6 routing (using OSPFv3 and EIGRPv6) is supported in hardware for maximum performance.
- Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM Sparse Mode (PIM SM), and Source-Specific Multicast (SSM).
- IPv6 addressing is supported on interfaces with appropriate show commands for monitoring and troubleshooting.

Audio Video Bridging (AVB)

Starting with Cisco IOS XE Software Release 16.8, the Cisco Catalyst 9300 Series supports the IEEE 802.1 AVB standard. This standard provided the means for highly reliable delivery of low-latency, time-synchronized audio and video streaming services through Layer 2 Ethernet networks. The standard also makes it easier to integrate new services and for AV equipment from different vendors to interoperate.

Benefits

- Improves quality of experience by lowering jitter and latency for time-synchronized delivery of high-quality AV.
- Provides scalability of applications across networked deployments, including expansive and complex AV infrastructure.
- Lowers Total Cost of Ownership (TCO) with reduced cabling (lowers CapEx) and no license fees (lowers OpEx).

For more details about AVB and specific models supported, check https://www.cisco.com/go/avb.

Multigigabit Ethernet technology: Cisco Multigigabit Ethernet technology allows you to achieve bandwidth speeds from 1 Gbps to 10 Gbps over traditional Category 5e cabling or above. This technology addresses the need for exponential increases in bandwidth with the enormous growth of 802.11ac and new wireless applications without having to replace current cabling infrastructure.

Power Over Ethernet Leadership

Cisco Universal Power over Ethernet (Cisco UPOE): PoE removes the need for wall sockets to power each PoE-enabled device and eliminates the cost of additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments. Cisco UPOE extends the IEEE PoE+ standard to double the power per port to 60 watts. This facilitates delivery of network power to a broad range of devices requiring higher power, including virtual desktop terminals, IP turrets, compact switches, building management gateways, LED lights, wireless access points, and IP phones. The Catalyst 9300 Series supports Cisco UPOE, PoE+ and PoE, thereby addressing the largest range of network power needs.

Tables 5 and 6 show the power supply combinations required for different PoE needs.

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Table 5. Power supply requirements for PoE/PoE+

	24-port PoE switch	48-port PoE switch
PoE on all ports (15.4W per port)	1 PWR-C1-715WAC	1 PWR-C1-1100WAC or 2 PWR-C1-715WAC
PoE+ on all ports (30W per port)	1 PWR-C1-1100WAC or 2 PWR-C1-715WAC	2 PWR-C1-1100WAC or 1 PWR-C1-1100WAC and 1 PWR-C1-715WAC

Table 6. Power supply requirements for Cisco UPOE

	24-port Cisco UPOE switch	48-port Cisco UPOE switch	24-port Multigigabit Cisco UPOE switch*
Cisco UPOE (60W per port) on all ports (24-port switch) or up to 30 ports (48-port switch)	1 PWR-C1-1100WAC and 1 PWR-C1-715WAC	2 PWR-C1-1100WAC	2 PWR-C1-1100WAC

- **Perpetual PoE:** With Perpetual PoE, the PoE power is maintained during a switch reload. This is important for IoT endpoints such as PoE-powered lights, so that there is no disruption during switch reboot.
- **Fast PoE:** When power is restored to a switch, PoE starts delivering power to endpoints without waiting for the operating system to fully load, thereby speeding up the time for the endpoint to start up.

* C9300-48UN is available with PWR-C1-1100WAC-P Platinum-rated power supply. Platinum-rated power supplies are more efficient, lowering operating power costs

Software Requirements

Cisco ONE Software for Access Switching **is available for the Cisco Catalyst 9300 Series.**

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 9300 Series, go to https://www.cisco.com/c/en/us/products/software/one-access/switching-part-numbers.html.

Cisco Catalyst 9300 Series Switches run on Cisco IOS XE 16.5.1a release or later. This software release includes all the features listed earlier in the Platform Benefits section.

Licensing

Packaging

The Cisco Catalyst 9000 family of switches introduces a new and simplified licensing package in the form of base and add-on licenses.

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- **The base licensing** package includes the Network Essentials and Network Advantage licensing options that are tied to the hardware. Between them, the base licensing packages cover switching fundamentals, management automation, troubleshooting, and advanced switching features. These base licenses are perpetual.
- **The add-on licensing** package includes the Cisco DNA Essentials and Cisco DNA Advantage options. In addition to on-box capabilities, the features available with this package provide Cisco innovations on the switch, as well as on Cisco DNA Center in the APIC-EM. The Cisco DNA add-on licenses are available as a subscription.

License consumption is easily determined by the package itself. While base licenses are always permanent and without an expiration date, add-on licenses have to be purchased for a 3-, 5-, or 7-year term (and hence are also known as term-based licenses). Table 7 shows the combinations of base and add-on licenses that must be purchased.

Table 7. Licensing combinations

	Cisco DNA Essentials	Cisco DNA Advantage
Network Essentials	Yes	No
Network Advantage	No*	Yes

* At the time of Cisco DNA license renewal, the DNA Essentials license can be purchased to be used with Network Advantage.

Managing licenses with Smart Accounts: Creating Smart Accounts by using the Cisco Smart Software Manager (SSM) enables you to order devices and licensing packages and also manage your software licenses from a centralized website. You can set up Cisco SSM to receive daily email alerts and to be notified of expiring add-on licenses that you want to renew.

You must order an add-on license in order to purchase a switch. When the license term expires, you can either renew the add-on license to continue using it or deactivate the add-on license and then reload the switch to continue operating with the base license capabilities.

Both the base and add-on licenses are also available for a 90-day evaluation period. An evaluation license is activated temporarily, without purchase. An expired evaluation license cannot be reactivated after reload.

Note: It is not required to deploy Cisco DNA Center just to use one of the above packages.

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Tables 8 and 9 show the features included in the Essentials and Advantage packages.

Table 8. Network Essentials and Advantage package features

Features	Network Essentials	Network Advantage
Switch fundamentals Layer 2, Routed Access (RIP, EIGRP Stub, OSPF - 1000 routes), PBR, PIM Stub Multicast (1000 routes)), PVLAN, VRRP, PBR, CDP, QoS, FHS, 802.1X, MACsec-128, CoPP, SXP, IP SLA Responder, SSO	✓	✓
Advanced switch capabilities and scale BGP, EIGRP, HSRP, IS-IS, BSR, MSDP, PIM-BIDIR,* IP SLA, OSPF	✗	✓
Network segmentation VRF, VXLAN, LISP, SGT, MPLS, mVPN	✗	✓
Automation NETCONF, RESTCONF, gRPC, YANG, PnP Agent, ZTP/Open PnP, GuestShell (On-Box Python)	✓	✓
Telemetry and visibility Model-driven telemetry, sampled NetFlow, SPAN, RSPAN	✓	✓
High availability and resiliency NSF, GIR, ISSU/FSU	✗	✓
IOT integration AVB, PTP, CoAP	✗	✓
Security MACsec-256	✗	✓

Table 9. DNA Essentials and Advantage package features

Features	Cisco DNA Essentials	Cisco DNA Advantage	Cisco ONE Advantage
Switch features			
Optimized network deployments DNA Service for Bonjour	✗	✓	✓
Advanced telemetry and visibility Full Flexible NetFlow, EEM	✓	✓	✓
Optimized telemetry and visibility ERSPAN, AVC (NBAR2), app hosting (in containers/VMs), Wireshark	✗	✓	✓
Advanced security Encrypted Traffic Analytics (ETA)	✗	✓	✓
Cisco DNA Center features			
Day-0 network bring-up automation Cisco Network Plug-and-Play application, network settings, device credentials, LAN automation, host onboarding	✓	✓	✓
Element management Discovery, inventory, topology, software image, licensing, and configuration management	✓	✓	✓

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Features	Cisco DNA Essentials	Cisco DNA Advantage	Cisco ONE Advantage
Element management Patch management	✗	✓	✓
Basic Assurance Health dashboards – Network, Client, Application; switch and wired client health monitoring	✓	✓	✓
SD-Access Policy-based automation and assurance for wired and wireless	✗	✓	✓
Network assurance and analytics Global insights, trends, compliance, custom reports; switch 360, wired client 360; fabric and non-fabric insights; app health, app 360, app performance (loss, latency, jitter)	✗	✓	✓

Specifications

Dimensions, Weight, Acoustic, Mean Time Between Failures

The table below shows the dimensions, weights, acoustic and mean time between failures of all models of Cisco Catalyst 9300 Series switches.

Table 10. Model dimensions, weight, and mean time between failures metrics

	Dimensions (H x W x D)	
Model	**Inches**	**Centimeters**
C9300-24T	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-24P	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-24U	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-24UX	1.73 x 17.5 x 18.5	4.4 x 44.5 x 47.0
C9300-48T	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-48P	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-48U	1.73 x 17.5 x 17.5	4.4 x 44.5 x 44.5
C9300-48UXM	1.73 x 17.5 x 18.5	4.4 x 44.5 x 47.0
C9300-48UN	1.73 x 17.5 x 18.5	4.4 x 44.5 x 47.0
	Weight	
Model	**Pounds**	**Kilograms**
C9300-24T	16.03	7.27
C9300-24P	16.33	7.4

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	Dimensions (H x W x D)	
C9300-24U	16.63	7.54
C9300-24UX	18.18	8.25
C9300-48T	16.43	7.45
C9300-48P	16.73	7.59
C9300-48U	17.03	7.72
C9300-48UXM	20.60	9.34
C9300-48UN	20.05	9.09
Mean time between failures (hours)		
C9300-24T	314,790	
C9300-24P	299,000	
C9300-24U	238,410	
C9300-24UX	214,760	
C9300-48T	305,870	
C9300-48P	277,770	
C9300-48U	227,410	
C9300-48UXM	202,160	
C9300-48UN	198,647	
Environmental ranges		
Acoustic noise **Measured per ISO 7779 and declared per ISO 9296** **Bystander positions operating to an ambient temperature of 25°C**	With AC power supply (with 24 PoE+ ports loaded): • LpA: 45dB typical, 48 dB max • LwA: 5.6B typical, 5.9B max Typical: Noise emission for a typical configuration Maximum: Statistical maximum to account for variation in production	

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Connectors

Table 11 shows the supported connectors for the Cisco Catalyst 9300 Series.

Table 11. Connectors

Connectors and cabling	• 1000BASE-T ports: RJ-45 connectors, 4-pair Cat 5E UTP cabling • Multigigabit-T ports: RJ-45 connectors, 4-pair Cat 5E, Cat 6, Cat 6A UTP cabling • 1000BASE-T SFP-based ports: RJ-45 connectors, 4-pair Cat 5E UTP cabling • 100BASE-FX, 1000BASE-SX, -LX/LH, -ZX, -BX10, Dense Wavelength-Division Multiplexing (DWDM) and Coarse Wavelength-Division Multiplexing (CWDM) SFP transceivers: LC fiber connectors (single-mode or multimode fiber) • 10GBASE-SR, LR, LRM, ER, ZR, DWDM SFP+ transceivers: LC fiber connectors (single-mode or multimode fiber) • QSFP • SFP+ connector • Cisco StackWise-480 stacking ports: copper-based Cisco StackWise cabling • Cisco StackPower: Cisco proprietary power stacking cables • Ethernet management port: RJ-45 connectors, 4-pair Cat 5 UTP cabling • Management console port: RJ-45-to-DB9 cable for PC connections
Power connectors	• Customers can provide power to a switch by using either the internal power or Cisco StackPower from another member in the power stack. The connectors are located at the back of the switch • Internal power supply connector: The internal power supply is an auto-ranging unit. It supports input voltages between 100 and 240 VAC. Use the supplied AC power cord to connect the AC power connector to an AC power outlet

For the latest Cisco transceiver module compatibility information, refer to https://www.cisco.com/c/en/us/support/interfaces-modules/transceiver-modules/products-device-support-tables-list.html.

Management and Standards Support

Table 12 shows management and standards support for the Cisco Catalyst 9300 Series.

Table 12. Management and standards support*

Description	Specification	
Management	BRIDGE-MIB	CISCO-PORT-STORM-CONTROL-MIB
	CISCO-BRIDGE-EXT-MIB	CISCO-POWER-ETHERNET-EXT-MIB
	CISCO-BULK-FILE-MIB	CISCO-PRIVATE-VLAN-MIB
	CISCO-CABLE-DIAG-MIB	CISCO-PROCESS-MIB
	CISCO-CALLHOME-MIB	CISCO-PRODUCTS-MIB
	CISCO-CEF-MIB	CISCO-RF-MIB
	CISCO-CIRCUIT-INTERFACE-MIB	CISCO-RTP-METRICS-MIB
	CISCO-CONFIG-COPY-MIB	CISCO-RTTMON-ICMP-MIB
	CISCO-CONFIG-MAN-MIB	CISCO-STACKWISE-MIB
	CISCO-DEVICE-LOCATION-MIB	CISCO-STP-EXTENSIONS-MIB
	CISCO-DHCP-SNOOPING-MIB	CISCO-SYSLOG-MIB
	CISCO-EIGRP-MIB	CISCO-TCP-MIB
	CISCO-EMBEDDED-EVENT-MGR-MIB	CISCO-UDLDP-MIB
	CISCO-ENTITY-FRU-CONTROL-MIB	CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB
	CISCO-ENTITY-SENSOR-MIB	ENTITY-MIB
	CISCO-ENTITY-VENDORTYPE-OID-MIB	HC-ALARM-MIB

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Description	Specification	
	CISCO-ERR-DISABLE-MIB	HC-RMON-MIB
	CISCO-FLASH-MIB	IEEE8023-LAG-MIB
	CISCO-FLOW-MONITOR-MIB	IF-MIB
	CISCO-FTP-CLIENT-MIB	IP-FORWARD-MIB
	CISCO-HSRP-EXT-MIB	IP-MIB
	CISCO-HSRP-MIB	LLDP-EXT-MED-MIB
	CISCO-IETF-BFD-MIB	LLDP-MIB
	CISCO-IETF-PPVPN-MPLS-VPN-MIB	MAU-MIB
	CISCO-IETF-PW-MPLS-MIB	MPLS-L3VPN-STD-MIB
	CISCO-IF-EXTENSION-MIB	MPLS-LSR-STD-MIB
	CISCO-IGMP-FILTER-MIB	MPLS-VPN-MIB
	CISCO-IMAGE-LICENSE-MGMT-MIB	OLD-CISCO-CHASSIS-MIB
	CISCO-IMAGE-MIB	OLD-CISCO-CPU-MIB
	CISCO-IP-CBR-METRICS-MIB	OLD-CISCO-INTERFACES-MIB
	CISCO-IP-STAT-MIB	OLD-CISCO-IP-MIB
	CISCO-IP-TAP-MIB	OLD-CISCO-MEMORY-MIB
	CISCO-IP-URPF-MIB	OLD-CISCO-SYS-MIB
	CISCO-IPSEC-FLOW-MONITOR-MIB	OLD-CISCO-TCP-MIB
	CISCO-IPSEC-MIB	OLD-CISCO-TS-MIB
	CISCO-IPSEC-PROVISIONING-MIB	POWER-ETHERNET-MIB
	CISCO-IPSLA-AUTOMEASURE-MIB	RFC1213-MIB
	CISCO-IPSLA-ECHO-MIB	RMON-MIB
	CISCO-IPSLA-JITTER-MIB	RMON2-MIB
	CISCO-L2-CONTROL-MIB	SMON-MIB
	CISCO-L2L3-INTERFACE-CONFIG-MIB	SNMPv2-MIB
	CISCO-LAG-MIB	SONET-MIB
	CISCO-LICENSE-MGMT-MIB	TCP-MIB
	CISCO-LOCAL-AUTH-USER-MIB	UDP-MIB
	CISCO-MAC-NOTIFICATION-MIB	
	CISCO-MDI-METRICS-MIB	
	CISCO-MEDIA-METRICS-MIB	
	CISCO-MEMORY-POOL-MIB	
	CISCO-MPLS-LSR-EXT-STD-MIB	
	CISCO-NBAR-PROTOCOL-DISCOVERY-MIB	
	CISCO-NHRP-EXT-MIB	
	CISCO-NTP-MIB	
	CISCO-PAGP-MIB	
	CISCO-PORT-SECURITY-MIB	

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Description	Specification	
Standards	EEE 802.1s IEEE 802.1w IEEE 802.1x IEEE 802.1x-Rev IEEE 802.3ad IEEE 802.3af IEEE 802.3at IEEE 802.3x full duplex on 10BASE-T, 100BASE-TX, and 1000BASE-T ports IEEE 802.1D Spanning Tree Protocol IEEE 802.1p CoS prioritization IEEE 802.1Q VLAN IEEE 802.3 10BASE-T specification IEEE 802.3u 100BASE-TX specification IEEE 802.3ab 1000BASE-T specification IEEE 802.3z 1000BASE-X specification IEEE 802.3bz 10G BASE-T specification	RMON I and II standards SNMPv1, v2c, and v3

Power Supply Specifications

Table 13 lists the power specifications for the Cisco Catalyst 9300 Series based on the kind of power supply used.

Table 13. Power specifications

Description	Specification		
	PWR-C1-1100WAC	PWR-C1-715WAC	PWR-C1-350WAC
Power supply rated maximum	1100W	715W	350W
Total output BTU (note: 1000 BTU/hr = 293W)	3793 BTU/hr, 1100W	2465 BTU/hr, 715W	1207BTU/hr, 350W
Input-voltage range and frequency	115V to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz	100 to 240 VAC, 50 to 60 Hz
Input current	12-6A	10-5A	4-2A
Output ratings	-56V at 19.64A	-56V at 12.8A	-56V at 6.25A
Output holdup time	10 ms minimum at 102.5VAC	16.7 ms minimum at 100VAC	16.7 ms minimum at 100VAC
Power-supply input receptacles	IEC 320-C16 (IEC60320-C16)	IEC 320-C16 (IEC60320-C16)	IEC 320-C16 (IEC60320-C16)
Power cord rating	13A	13A	10A
Physical specifications	(H x W x D): 1.58 x 3.25 s 13.7 in Weight: 3 lb (1.4 kg)	(H x W x D): 1.58 x 3.25 x 12.20 in Weight: 2.8 lb (1.3 kg)	(H x W x D): 1.58 x 3.25 x 12.20 in Weight: 2.6 lb (1.2 kg)

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Description	Specification
Operating temperature	Normal operating temperature* and altitudes: • -5°C to +45°C, up to 5000 feet (1500m) • -5°C to +40°C, up to 10,000 feet (3000m) * Minimum ambient temperature for cold start is 32°F (0°C) Short-term* exceptional conditions: • -5°C to +50°C, up to 5000 feet (1500m) • -5°C to +45°C, up to 10,000 feet (3000m) • -5°C to +45°C, at sea level with single fan failure * 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 operating and nonoperating noncondensing	5% to 90% noncondensing
Altitude	10,000 ft. (3000 meters), up to 45°C
Mean Time Between Failures (MTBF)	C9300-48UN: 198,647 C9300-48UXM: 202,160 C9300-24UX: 214,760 C9300-24T: 314,790 C9300-48T: 305,870 C9300-24P: 299,000 C9300-48P: 277,770 C9300-24U: 238,410 C9300-48U: 227,410
EMI and EMC compliance	FCC Part 15 (CFR 47) Class A ICES-003 Class A EN 55022 Class A CISPR 22 Class A AS/NZS 3548 Class A BSMI Class A (AC input models only) VCCI Class A EN 55024, EN300386, EN 50082-1, EN 61000-3-2, EN 61000-3-3 EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN 61000-6-1
Safety compliance	UL 60950-1, CAN/CSA-C22.2 No. 60950-1, EN 60950-1, IEC 60950-1, CCC, CE Marking
LED indicators	"AC OK": Input power to the power supply is OK "PS OK": Output power from the power supply is OK

Power Consumption of Standalone 9300 Series Switches

Table 14 shows the power consumption of standalone Cisco Catalyst 9300 Series Switches based on Alliance for Telecommunications Industry Solutions (ATIS) testing using Internet Mix (IMIX) distribution stream traffic, with input voltage of 115VAC at 60 Hz and no PoE loading. The values given are the maximum possible power consumption numbers under the respective test scenarios.

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Table 14. Power Consumption of Standalone 9300 Series Switches

				Measured P(W)															
				Half port traffic					Full port traffic					Weighted average Pw	No link	PoE test (no traffic)			
SKU	FEP	Uplink	Input	0.01% / EEE	10%	30%	50%	100%	0.01% / EEE	10%	30%	50%	100%			25%	50%	90%	100%
C9300-24T	350W	Not Installed	115Vac	77.7	86.1	89.1	89.5	89.7	77.5	91.0	91.7	91.9	92.5	89.8	78.1				
			230Vac	77.4	85.4	88.5	88.7	88.8	77.0	89.8	90.7	90.9	91.3	88.7	77.7				
		NM-4-1G	115Vac	82.5	88.4	92.1	93.3	94.1	85.9	96.0	98.9	99.7	100.0	95.4	81.2				
			230Vac	81.8	87.6	90.4	92.0	92.9	84.9	94.2	96.9	97.9	98.3	93.7	80.5				
		NM-4-10G	115Vac	86.4	96.3	98.0	98.2	98.7	90.2	103.7	104.5	104.9	105.9	102.6	87.0				
			230Vac	85.4	95.1	96.6	96.8	97.3	89.1	102.1	102.9	103.3	104.2	101.0	86.0				
		NM-2-40G	115Vac	84.0	94.7	95.7	95.9	96.1	87.1	101.1	101.7	102.1	103.0	99.9	83.9				
			230Vac	83.2	93.6	94.4	94.6	95.1	86.2	99.2	100.1	100.5	101.4	98.1	83.2				
		NM-8-10G	115Vac	86.3	95.6	97.5	97.8	98.2	90.7	103.9	104.7	105.1	106.1	102.8	85.0				
			230Vac	85.4	94.5	96.2	96.4	97.0	89.7	102.2	103.2	103.6	104.5	101.2	84.3				
C9300-24P	715W	Not Installed	115Vac	82.6	91.0	93.4	93.7	93.9	82.0	94.8	95.9	96.1	96.6	93.7	82.9	202.3	325.8	527.5	579.0
			230Vac	81.6	89.8	92.2	92.4	92.6	81.7	93.7	94.6	94.7	95.2	92.6	82.3	199.0	318.2	510.6	559.9
		NM-4-1G	115Vac	87.5	93.0	96.5	97.7	98.5	89.8	99.5	102.4	103.0	103.4	98.9	85.4	211.4	334.5	537.8	585.7
			230Vac	86.1	91.3	94.4	95.8	96.6	88.9	98.5	101.5	101.9	102.4	97.9	84.6	207.9	328.0	520.3	568.2
		NM-4-10G	115Vac	90.4	100.4	101.6	101.9	102.3	94.1	106.8	107.8	108.2	109.1	105.7	90.8	214.9	337.9	539.4	590.8
			230Vac	89.4	99.1	100.3	100.5	100.7	92.8	106.1	106.5	106.9	107.8	104.9	89.6	211.0	329.7	522.2	571.0
		NM-2-40G	115Vac	88.1	98.6	99.5	99.6	99.9	91.1	104.4	105.2	105.6	106.5	103.3	88.4	212.2	335.2	536.2	586.5
			230Vac	87.1	97.2	98.1	98.3	98.8	90.0	103.3	103.9	104.3	105.2	102.1	87.5	208.0	326.8	519.3	567.6
		NM-8-10G	115Vac	90.0	99.4	101.0	101.2	101.6	94.2	107.1	107.9	108.3	109.2	106.0	88.7	215.3	339.6	541.4	591.3
			230Vac	89.0	97.9	99.8	100.0	100.5	93.1	105.8	106.7	107.1	108.1	104.8	87.8	211.7	331.9	524.2	572.3
C9300-24U	1100W	Not Installed	115Vac	87.4	95.9	99.0	99.2	99.4	87.0	100.8	101.5	101.8	102.3	99.6	87.8	313.7	547.9	940.3	1041.4
			230Vac	85.9	94.7	97.3	97.6	97.8	85.5	98.0	99.6	99.8	100.3	96.9	86.4	306.2	529.1	895.6	988.7
		NM-4-1G	115Vac	92.2	97.8	101.2	102.7	103.6	95.4	105.2	108.3	109.0	109.4	104.6	94.4	321.0	554.0	943.5	1045.5
			230Vac	90.6	96.1	99.4	100.9	101.7	93.7	103.4	106.4	107.2	107.6	102.8	93.2	313.5	536.6	901.5	994.6
		NM-4-10G	115Vac	96.0	106.2	107.6	107.8	108.4	99.7	113.4	114.2	114.6	115.6	112.3	96.1	325.7	559.0	950.6	1053.0
			230Vac	94.3	104.5	105.8	106.1	106.6	97.9	112.1	112.8	113.2	114.0	110.8	94.4	318.3	541.9	906.2	997.8
		NM-2-40G	115Vac	93.4	103.9	104.8	105.0	105.5	96.5	110.4	111.3	111.5	112.4	109.2	93.4	323.2	555.8	946.7	1048.6
			230Vac	91.8	102.0	103.0	103.3	103.7	94.8	108.7	109.4	109.8	110.6	107.5	91.8	314.9	538.4	902.2	994.5
		NM-8-10G	115Vac	95.8	105.4	107.3	107.6	108.1	100.2	114.0	114.8	115.2	116.2	112.8	94.4	324.4	557.7	946.6	1049.0
			230Vac	94.0	103.0	105.1	105.4	106.0	98.4	112.0	113.1	113.5	114.5	110.9	93.2	317.8	541.8	907.7	999.1

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				Measured P(W)															
				Half port traffic					Full port traffic					Weighted average Pw	No link	PoE test (no traffic)			
SKU	FEP	Uplink	Input	0.01% / EEE	10%	30%	50%	100%	0.01% / EEE	10%	30%	50%	100%			25%	50%	90%	100%
C9300-48T	350W	Not Installed	115Vac	81.5	94.9	95.7	95.9	96.4	80.8	98.6	100.2	101.3	102.3	97.2	82.2				
			230Vac	80.5	93.7	94.6	94.8	95.3	80.1	97.3	99.5	99.9	100.8	96.0	81.5				
		NM-4-1G	115Vac	86.4	94.9	97.8	99.4	100.4	89.3	104.6	107.6	108.6	108.9	103.5	85.7				
			230Vac	85.3	93.8	96.6	98.4	99.1	88.2	103.4	106.2	106.9	107.2	102.3	84.8				
		NM-4-10G	115Vac	89.6	103.4	104.2	104.6	105.4	93.0	112.7	113.5	114.1	115.7	111.0	90.6				
			230Vac	89.0	102.0	102.8	103.1	103.9	91.9	111.0	111.8	112.4	114.0	109.4	89.3				
		NM-2-40G	115Vac	88.3	102.4	102.9	103.3	104.2	91.0	110.5	111.3	112.1	113.9	108.9	88.6				
			230Vac	87.3	100.9	101.4	101.8	102.7	89.9	108.8	109.6	110.3	112.1	107.2	87.6				
		NM-8-10G	115Vac	92.1	105.2	106.1	106.5	107.4	98.6	117.6	118.4	119.1	120.9	116.0	91.0				
			230Vac	91.1	103.9	104.7	105.1	106.0	97.3	115.8	116.6	117.3	119.0	114.3	90.0				
C9300-48P	715W	Not Installed	115Vac	90.5	103.2	104.5	104.7	105.2	89.9	104.9	107.8	109.2	110.2	103.9	91.3	206.1	324.1	514.4	563.2
			230Vac	89.4	102.2	103.4	103.6	104.1	88.9	103.7	106.9	108.4	109.3	102.7	89.9	202.9	316.9	500.6	547.5
		NM-4-1G	115Vac	95.3	103.5	106.2	108.1	108.8	98.0	112.1	114.9	115.9	116.2	111.1	94.3	215.0	332.6	523.4	572.1
			230Vac	94.0	102.2	105.2	106.9	107.8	96.4	111.3	114.1	115.2	115.5	110.2	93.1	211.2	324.8	509.3	555.8
		NM-4-10G	115Vac	98.7	111.5	112.3	112.7	113.5	101.5	119.7	120.5	121.2	122.8	118.2	99.2	219.1	336.5	528.8	576.6
			230Vac	97.1	110.7	111.5	111.9	112.7	100.6	119.2	120.0	120.7	122.3	117.6	97.9	215.5	329.5	514.2	560.5
		NM-2-40G	115Vac	96.9	110.1	110.7	111.0	111.9	99.3	118.2	119.0	119.7	121.5	116.7	97.6	217.4	335.4	527.4	577.8
			230Vac	95.6	109.2	109.7	110.1	111.0	98.1	117.5	118.2	119.0	120.6	115.8	96.0	213.0	326.9	511.9	558.8
		NM-8-10G	115Vac	100.5	113.4	114.2	114.6	115.5	106.4	124.5	125.4	126.1	128.0	123.0	99.5	215.1	334.7	520.8	568.8
			230Vac	99.4	112.8	113.5	113.9	114.9	105.3	124.0	124.9	125.6	127.4	122.5	98.4	212.3	327.4	507.4	553.1
C9300-48U	1100W	Not Installed	115Vac	96.0	110.2	110.9	111.2	111.7	95.6	112.5	114.3	115.9	116.9	111.3	97.0	315.1	544.0	925.9	1023.0
			230Vac	94.8	108.5	109.2	109.4	109.9	94.2	110.0	112.5	114.1	115.0	108.9	95.6	308.6	529.4	889.9	978.8
		NM-4-1G	115Vac	97.4	105.8	109.0	110.7	111.0	99.9	115.1	117.8	118.9	119.2	114.0	96.4	319.2	547.3	928.0	1026.3
			230Vac	95.4	103.9	107.4	108.7	110.0	98.8	113.4	116.2	117.0	117.4	112.4	94.9	314.3	535.6	896.0	984.3
		NM-4-10G	115Vac	104.4	118.5	119.0	119.5	120.1	107.4	126.8	127.6	128.3	130.0	125.2	104.9	326.2	556.0	938.6	1035.6
			230Vac	102.8	116.0	117.1	117.5	118.2	106.4	124.8	125.5	126.2	127.7	123.2	103.6	320.4	541.4	903.0	991.6
		NM-2-40G	115Vac	102.9	117.2	117.6	118.0	119.0	104.8	123.8	124.6	125.3	127.0	122.2	102.5	324.1	552.4	934.4	1032.6
			230Vac	101.2	114.9	115.5	115.9	117.0	103.9	123.0	123.7	124.4	126.1	121.4	101.7	316.9	537.9	898.2	988.3
		NM-8-10G	115Vac	106.7	120.4	121.1	121.5	122.3	112.7	131.5	132.4	133.0	134.8	130.0	105.7	330.0	563.7	941.8	1043.4
			230Vac	105.0	118.5	119.2	119.6	120.2	110.9	129.4	130.2	131.0	132.6	127.9	104.1	324.5	549.0	908.0	998.9
C9300-	1100W	NM-8-10G	115Vac	188.0	195.7	196.8	197.4	198.9	208.8	224.6	227.0	228.6	232.0	223.8	168.6	364.2	521.6	784.3	851.4

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				Measured P(W)															
				Half port traffic					Full port traffic					Weighted average Pw	No link	PoE test (no traffic)			
SKU	FEP	Uplink	Input	0.01% / EEE	10%	30%	50%	100%	0.01% / EEE	10%	30%	50%	100%			25%	50%	90%	100%
24UX			230Vac	184.4	192.2	192.9	193.5	195.1	204.6	220.0	222.0	223.5	226.9	219.2	165.3	354.2	505.0	749.7	810.6
C9300-48UXM	1100W	NM-8-10G	115Vac	236.2	241.4	246.6	247.8	249.6	253.2	261.5	272.4	278.5	283.0	262.8	219.2	392.3	528.7	750.8	810.1
			230Vac	232.2	237.4	242.5	243.7	245.6	249.0	256.7	267.6	272.9	277.2	258.0	215.7	382.8	515.2	728.0	784.7
C9300-48UN	1100W	NM-8-10G	115Vac	172.9	176.7	178.7	179.8	181.8	193.8	199.8	201.5	203.1	206.9	199.9	159.1	357.3	525.0	803.9	875.1
			230Vac	171.2	174.8	176.8	178.1	179.9	191.7	197.8	199.4	201.0	204.7	197.9	157.9	351.5	512.1	777.0	843.8

Safety and Compliance

Table 15 lists the safety and compliance information for the Cisco Catalyst 9300 Series.

Table 15. Safety and compliance information

Description	Specification
Safety certifications	• UL 60950-1 • CAN/CSA-C222.2 No. 60950-1 • EN 60950-1 • IEC 60950-1 • AS/NZS 60950.1 • IEEE 802.3
Electromagnetic emissions certifications	• 47 CFR Part 15 • CISPR22 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 • CISPR24 • EN 300 386 • EN55024 • TCVN 7317
Environmental	Reduction of Hazardous Substances (ROHS) 5

Warranty

Cisco Enhanced Limited Lifetime Hardware Warranty

The Cisco Catalyst 9300 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.

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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 https://www.cisco.com/go/warranty. Table 16 provides information about the E-LLW.

Table 16. E-LLW details

	Cisco E-LLW
Devices covered	Applies to Cisco Catalyst 9300 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 9300 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.

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Cisco Services

Cisco Services for next-generation Cisco Catalyst fixed switches

Achieve infrastructure excellence faster and with less risk. Cisco Catalyst 9000 Services provide expert guidance to help you successfully deploy, manage and support the new Cisco Catalyst 9000 switching family. 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 reduce disruption and achieve operational excellence to extract maximum value from your Cisco DNA ready infrastructure.

Learn more about Cisco Services for Enterprise Networks

Software Policy for Cisco Catalyst 9300 Series Switches

Software Policy For Network Stack Components

Customers with the Network Essentials Stack and Network Advantage Stack software feature sets are provided with maintenance updates and bug fixes designed to maintain compliance of the software. This includes compliance with published specifications, release notes, and industry standards 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 the product, whichever occurs earlier.

Cisco Embedded Support for Cisco 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 protect your investment. Cisco Embedded Support for the DNA Essentials and DNA Advantage term components is included. Cisco Embedded Support provides access to TAC support, major software updates, maintenance and minor software releases, and the Cisco Embedded Support site, for increased productivity with anytime access.

Ordering Information

Table 17 lists ordering information for the Cisco Catalyst 9300 Series. To place an order, visit the Cisco Ordering home page at https://www.cisco.com/en/US/ordering/or13/or8/order_customer_help_how_to_order_listing.html.

Table 17. Ordering information

Switches	
Product number	**Product description**
C9300-24T-E	Catalyst 9300 24-port data only, Network Essentials
C9300-24T-A	Catalyst 9300 24-port data only, Network Advantage
C9300-24P-E	Catalyst 9300 24-port PoE+, Network Essentials
C9300-24P-A	Catalyst 9300 24-port PoE+, Network Advantage
C9300-24U-E	Catalyst 9300 24-port UPOE, Network Essentials
C9300-24U-A	Catalyst 9300 24-port UPOE, Network Advantage

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Switches	
C9300-24UX-E	Catalyst 9300 24-port mGig UPOE, Network Essentials
C9300-24UX-A	Catalyst 9300 24-port mGig UPOE, Network Advantage
C9300-48T-E	Catalyst 9300 48-port data only, Network Essentials
C9300-48T-A	Catalyst 9300 48-port data only, Network Advantage
C9300-48P-E	Catalyst 9300 48-port PoE+, Network Essentials
C9300-48P-A	Catalyst 9300 48-port PoE+, Network Advantage
C9300-48U-E	Catalyst 9300 48-port UPOE, Network Essentials
C9300-48U-A	Catalyst 9300 48-port UPOE, Network Advantage
C9300-48UXM-E	Catalyst 9300 48-port 2.5G (12 mGig) UPOE, Network Essentials
C9300-48UXM-A	Catalyst 9300 48-port 2.5G (12 mGig) UPOE, Network Advantage
C9300-48UN-E	Catalyst 9300 48-port 5G UPOE, Network Essentials
C9300-48UN-A	Catalyst 9300 48-port 5G UPOE, Network Advantage
Network modules	
Product number	**Product description**
C9300-NM-4G	Catalyst 9300 4 x 1GE Network Module
C9300-NM-4G=	Catalyst 9300 4 x 1GE Network Module, spare
C9300-NM-8X	Catalyst 9300 8 x 10GE Network Module
C9300-NM-8X=	Catalyst 9300 8 x 10GE Network Module, spare
C9300-NM-2Q	Catalyst 9300 2 x 40GE Network Module
C9300-NM-2Q=	Catalyst 9300 2 x 40GE Network Module, spare
C9300-NM-2Y	Catalyst 9300 2 x 25G Network Module
C9300-NM-2Y=	Catalyst 9300 2 x 25G Network Module, spare
C9300-NM-4M	Catalyst 9300 4 x mGig Network Module
C9300-NM-4M=	Catalyst 9300 4 x mGig Network Module, spare
Stacking cables	
Product number	**Product description**
STACK-T1-50CM	50CM Type 3 Stacking Cable

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Switches	
STACK-T1-50CM=	50CM Type 3 Stacking Cable, spare
STACK-T1-1M	1M Type 3 Stacking Cable
STACK-T1-1M=	1M Type 3 Stacking Cable, spare
STACK-T1-3M	3M Type 3 Stacking Cable
STACK-T1-3M=	3M Type 3 Stacking Cable, spare
Software licenses	
Product number	**Product description**
C1A1TCAT93001*	C9300 C1 Advantage Term, 24-Port: Includes Term Licenses for DNA Advantage, 25 ISE Base & 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector & Management Console). Requires separate purchase of ISE appliance/ISE VM and DNA Center appliance
C1A1TCAT93001-3Y	C9300 C1 Advantage, 24-port, 3Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1A1TCAT93001-5Y	C9300 C1 Advantage, 24-port, 5Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1A1TCAT93001-7Y	C9300 C1 Advantage, 24-port, 7Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1A1TCAT93002*	C9300 C1 Advantage Term, 48-Port: Includes Term Licenses for DNA Advantage, 25 ISE Base & 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector & Management Console). Requires separate purchase of ISE appliance/ISE VM and DNA Center appliance
C1A1TCAT93002-3Y	C9300 C1 Advantage, 48-port, 3Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1A1TCAT93002-5Y	C9300 C1 Advantage, 48-port, 5Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1A1TCAT93002-7Y	C9300 C1 Advantage, 48-port, 7Y Term – DNA, 25 ISE PLS and ISE BASE, 25 SWATCH
C1AA1TCAT93001	C9300 C1 Advantage Add-On Term: Includes Term Licenses for 25 ISE Base & 25 ISE Plus Endpoints, 25 Stealthwatch Flows (including Virtual Flow Collector & Management Console). Requires separate purchase of ISE appliance/ISE VM and DNA Center appliance
C1AA1TCAT93001-3Y	C9300 C1 Advantage Add-on 3Y Term - 25 ISE PLS and ISE BASE, 25 SWATCH
C1AA1TCAT93001-5Y	C9300 C1 Advantage Add-on 5Y Term - 25 ISE PLS and ISE BASE, 25 SWATCH
C1AA1TCAT93001-7Y	C9300 C1 Advantage Add-on 7Y Term - 25 ISE PLS and ISE BASE, 25 SWATCH
C9300-DNA-E-24-3Y	C9300 DNA Essentials, 24-port, 3 Year Term license
C9300-DNA-E-24-5Y	C9300 DNA Essentials, 24-port, 5 Year Term license
C9300-DNA-E-24-7Y	C9300 DNA Essentials, 24-port, 7 Year Term license
C9300-DNA-A-24-3Y	C9300 DNA Advantage, 24-port, 3 Year Term license
C9300-DNA-A-24-5Y	C9300 DNA Advantage, 24-port, 5 Year Term license
C9300-DNA-A-24-7Y	C9300 DNA Advantage, 24-port, 7 Year Term license

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Switches	
C9300-DNA-E-48-3Y	C9300 DNA Essentials, 48-port, 3 Year Term license
C9300-DNA-E-48-5Y	C9300 DNA Essentials, 48-port, 5 Year Term license
C9300-DNA-E-48-7Y	C9300 DNA Essentials, 48-port, 7 Year Term license
C9300-DNA-A-48-3Y	C9300 DNA Advantage, 48-port, 3 Year Term license
C9300-DNA-A-48-5Y	C9300 DNA Advantage, 48-port, 5 Year Term license
C9300-DNA-A-48-7Y	C9300 DNA Advantage, 48-port, 7 Year Term license
C9300-LIC=	Electronic DNA Upgrade License for C9300 switches. Note: when upgrading from DNA Essentials to DNA Advantage, Network Essentials is also upgraded to Network Advantage
Power supplies	
Product number	**Product description**
PWR-C1-350WAC=	350WAC power supply spare
PWR-C1-715WAC=	715WAC power supply spare
PWR-C1-1100WAC=	1100WAC power supply spare
PWR-C1-1100WAC-P=	1100WAC Platinum-rated power supply spare
Cisco StackWise-480 and StackPower cables	
STACK-T1-50CM=	Cisco StackWise-480 50cm stacking cable spare
STACK-T1-1M=	Cisco StackWise-480 1m stacking cable spare
STACK-T1-3M=	Cisco StackWise-480 3m stacking cable spare
CAB-SPWR-30CM=	Cisco Catalyst 3850 StackPower cable 30cm spare
CAB-SPWR-150CM=	Cisco Catalyst 3850 StackPower cable 150cm spare
Spare power cords	
CAB-TA-NA=	AC power cord for Cisco Catalyst (North America)
CAB-TA-AP=	AC power cord for Cisco Catalyst (Australia)
CAB-TA-AR=	AC power cord for Cisco Catalyst (Argentina)
CAB-TA-SW=	AC power cord for Cisco Catalyst (Switzerland)
CAB-TA-UK=	AC power cord for Cisco Catalyst (United Kingdom)
CAB-TA-JP=	AC power cord for Cisco Catalyst (Japan)
CAB-TA-250VAC-JP=	Japan 250VAC power cord for Cisco Catalyst (Japan)

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Switches	
CAB-TA-EU=	AC power cord for Cisco Catalyst (Europe)
CAB-TA-IT=	AC power cord for Cisco Catalyst (Italy)
CAB-TA-IN=	AC power cord for Cisco Catalyst (India)
CAB-TA-CN=	AC power cord for Cisco Catalyst (China)
CAB-TA-DN=	AC power cord for Cisco Catalyst (Denmark)
CAB-TA-IS=	AC power cord for Cisco Catalyst (Israel)
CAB-ACBZ-12A=	AC power cord for Cisco Catalyst (Brazil), 12A/125V BR-3-20 plug up to 12A
CAB-ACBZ-10A=	AC power cord for Cisco Catalyst (Brazil), 10A/250V BR-3-10 plug up to 10A
CAB-C15-CBN	Cabinet jumper power cord, 250VAC 13A, C14-C15 connectors

Optics Online Reference

The Cisco Catalyst 9300 Series supports a wide range of optics. Because the list of supported optics is updated on a regular basis, consult the tables available here for the latest QSFP+, SFP+, and SFP compatibility information: https://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html.

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Document History

New or revised topic	Described In	Date
New SKU added to the C9300 family - 48x 5 Gbps UPOE ports (100M, 1G, 2.5G, 5G)	Added information about C9300-48UN	July 12, 2018
AVB support noted for certain platforms. Corrected references to Catalyst 9000 switches, rather than Catalyst 9000 Series switches. Corrected references to Cisco IOS XE, rather than IOS-XE.	Updated Audio Video Bridging	Dec 15, 2017

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Asia Pacific Headquarters
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Printed in USAs

C78-738977-14 07/18

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