

Cisco ESW 500 Series Switches

Cisco Small Business Pro

Product Overview

Q. What are the Cisco ESW 500 Series Switches?

A. The Cisco® ESW 500 Series, part of the Cisco Small Business Pro Series, is a group of managed Ethernet switches that provide wire-speed Fast and Gigabit Ethernet connectivity, integrated security, quality of service (QoS), and Power over Ethernet (PoE) and are designed and priced for small businesses. The ESW 500 Series Switches quickly and simply integrate with other Small Business Pro Series products, including the Cisco Smart Business Communications System (SBCS), to provide a single high-performance, highly secure platform that supports the voice, video, data, and wireless needs of any small business. The Cisco ESW 500 Series consists of nine models (Table 1).

Table 1. Cisco ESW 500 Series Switches

Product Name	Part Number	Description
Cisco ESW 520-8P 10/100 Switch	ESW-520-8P-K9	8 Ethernet 10/100 PoE-enabled ports and 1 expansion port: 1 copper and 1 combo* SFP slot
Cisco ESW 520-24 10/100 Switch	ESW-520-24-K9	24 Ethernet 10/100 ports and 4 expansion ports: 2 copper and 2 combo* SFP slots
Cisco ESW 520-24P 10/100 Switch	ESW-520-24P-K9	24 Ethernet 10/100 PoE-enabled ports and 4 expansion ports: 2 copper and 2 combo* SFP slots
Cisco ESW 520-48 10/100 Switch	ESW-520-48-K9	48 Ethernet 10/100 ports and 4 expansion ports: 2 copper and 2 SFP slots
Cisco ESW 520-48P 10/100 Switch	ESW-520-48P-K9	48 Ethernet 10/100 PoE-enabled ports and 4 expansion ports: 2 copper and 2 SFP slots
Cisco ESW 540-8P 10/100/1000 Switch	ESW-540-8P-K9	8 Ethernet 10/100/1000 PoE-enabled ports and 1 expansion port: 1 copper and 1 combo* SFP slot
Cisco ESW 540-24 10/100/1000 Switch	ESW-540-24-K9	24 Ethernet 10/100/1000 ports and 4 expansion ports: 4 combo* SFP slots
Cisco ESW 540-24P 10/100/1000 Switch	ESW-540-24P-K9	24 Ethernet 10/100/1000 PoE-enabled ports and 4 expansion ports: 4 combo* SFP slots
Cisco ESW 540-48 10/100/1000 Switch	ESW-540-48-K9	48 Ethernet 10/100/1000 ports and 4 expansion ports: 4 combo* SFP slots

* Each combo port has one 10/100/1000 Ethernet port and one Small Form-Factor Pluggable (SFP) based Gigabit Ethernet port, one port active at a time.

Q. What are the key benefits of the Cisco ESW 500 Series Switches?

A. The switches provide the following features and benefits:

- **Easy integration:** The switches offer full integration with other Cisco Small Business Pro Series products and the SBCS to support data, voice, video, and wireless networking solutions. This capability enables partners and customers to address network needs with a system approach that makes it much easier to sell, support, and add new capabilities to the network, reducing the cost of sales and support and helping improve partner profitability.
- **Two options for simplified configuration and management:** Two simple graphical user interfaces (GUIs) enable easier configuration, management, and troubleshooting. An embedded web-based configuration utility is designed specifically for setting up the ESW 500 switch, and Cisco Configuration Assistant can also be used for system deployments.

- **Outstanding performance:** Up to Gigabit Ethernet speeds deliver optimal network performance for high-bandwidth data, voice, video, and wireless applications.
- **Designed and tested for solution integration:** Designed, developed, and rigorously tested for easier system deployments, the switches support features such as Cisco Smartports, Cisco Discovery Protocol, and default configuration options.
- **Power over Ethernet (PoE):** Up to 48 PoE ports of Fast Ethernet and 24 PoE ports of Gigabit Ethernet connectivity power devices such as IP phones, video cameras, and wireless access points without an external power supply.
- **Quality of service (QoS):** Prioritizes delay-sensitive and high-bandwidth network traffic, enhancing network performance and allowing businesses to support demanding services such as real-time voice and video. Cisco Smartports technology makes it easy to add advanced voice and video services by automatically configuring QoS for attached phones, cameras, and other devices.
- **Strong network security:** Several layers of security are provided, including 802.1X port security, access control lists (ACLs), virtual LANs (VLANs) to segment traffic and workgroups, and MAC address notification.
- **Investment protection:** The switches include an enhanced 5-year warranty that includes next-business-day product replacement (where available), free software bug fixes, complimentary end-user phone support for 90 days, and click-to-chat technical support for 1 year.
- **Cisco Small Business Pro Service:** The optional Cisco Small Business Pro Service for the ESW 500 Series Switches extends the product's support and offers software enhancements to provide additional peace of mind at an affordable price. This rich service offering provides an additional three years of telephone support and one year of online chat support, so you can get the most value from your Cisco ESW 500 Series Switch. For more information, visit www.cisco.com/go/proservice.

Product Positioning

Q. What are the advantages of the Cisco ESW 500 Series compared to the Cisco Small Business (formerly Linksys Business Series) Managed Switches?

- A.** The Cisco Small Business Managed Switches are ideal for small businesses that want to build a basic network and purchase network equipment as needed. These businesses are likely to be more price sensitive and probably do not have long-term plans to add more technologies and applications requiring software upgrades, ongoing Cisco service, and Cisco solution integration and testing.

The Cisco ESW 500 Series switches are designed for small business customers who rely on partners for systems guidance, installation, and support. They are the right solution for small business customers that need or are planning for voice, video, or mobility applications and provide:

- A high-performance, highly secure platform for integrated solutions, tested and supported with other Cisco Small Business Pro Series products and the SBCS
- Streamlined installation and deployment with tools such as Cisco Configuration Assistant, Cisco Smartports, and Cisco Discovery Protocol, and consistent default configurations
- 5-year enhanced warranty, including next-business-day product replacement, where available, and support by the Cisco Small Business Support Center
- Optional Cisco Small Business Pro Service, including 3-year telephone support and 1-year click-to-chat support
- Investment protection with planned feature enhancements and continued solution integration with the Cisco Small Business Pro Series

Q. What is the difference between the Cisco ESW 500 Series and the Cisco Catalyst® Express 520 Series Switches?

- A.** The Cisco ESW 500 Series replaces the Cisco Catalyst Express 520 Series, for which the end of sale was announced in June 2009. Like the Catalyst Express 520 Series, the ESW 500 Series is designed to easily integrate and operate with the Cisco SBCS and includes support for Cisco Configuration Assistant, Cisco Smartports, and Cisco Discovery Protocol. The ESW 500 Series Switches, however, are also designed to provide a single high-performance platform for all Cisco Small Business Pro Series solutions, including security, wireless, video, and voice. Table 2 provides a comparison between the ESW 500 Series and the Catalyst Express 520 Series.

The Cisco ESW 500 Series is the recommended switch platform for both the Cisco SBCS and Small Business Pro Series solutions.

Table 2. Differences between the ESW 500 Series and Catalyst Express 520 Series Switches

Differentiator	ESW 500 Series	CE 520 Series
Models	<ul style="list-style-type: none"> • 8-port 10/100 PoE • 24-port 10/100 • 24-port 10/100 PoE • 48-port 10/100 • 48-port 10/100 PoE • 8-port 10/100/1000 PoE • 24-port 10/100/1000 • 24-port 10/100/1000 PoE • 48-port 10/100/1000 	<ul style="list-style-type: none"> • 8-port 10/100 PoE • 24-port 10/100 • 20-port 10/100 + 4-ports 10/100 PoE • 24-port 10/100 PoE • 24-port 10/100/1000
Configuration and management	Embedded GUI device manager Cisco Configuration Assistant	Cisco Configuration Assistant
Cisco IOS® Software	No	Yes
Service	Cisco Small Business Pro Service Cisco Small Business Support Center	Cisco SMARTnet® Service, Cisco Smart Care, Cisco Smart Foundation Cisco Technical Assistance Center (TAC)
Warranty	Enhanced 5-year warranty with next-business-day product replacement (where available) with software fixes	Limited lifetime warranty with software fixes

Q. How are the Cisco ESW 500 Series Switches used in comparison to the Cisco Catalyst 2K and 3K Series Switches?

- A.** The Cisco ESW 500 Series Switches are designed for businesses with fewer than 100 employees. These switches were not designed with the same flexibility, scalability, and lifecycle management as the Cisco Catalyst Series switching portfolio. The Cisco Catalyst 2000 and 3000 Series Switches are robust, highly resilient solutions designed to deliver the performance, flexibility, and scalability needed for the most demanding business needs. They facilitate the deployment of secure converged applications while maximizing investment protection. For small business customers with advanced network needs, the Catalyst switches offer:

- **Scalability and high availability:** Cisco Catalyst switches are designed to scale on all fronts, from network core to edge, and to handle a full range of configurations and provide the consistent look and feel that larger organizations need. In contrast, the Cisco ESW 500 Series Switches are designed for the needs of small business customers. They offer fewer configuration options and do not scale as readily when moving up in size and capabilities.

- **Intelligent integrated services:** Cisco Catalyst switches are based on years of development of the rich Cisco IOS Software and offer the highest levels of application intelligence, unified network services, and integrated security features. These capabilities deliver converged end-to-end services, from the wiring closet to campus distribution and to the core. Although the Cisco ESW 500 Series Switches offer robust switching capabilities, they are not based on the Cisco IOS Software and do not offer such extensive features.
- **Network-level configuration and management:** Cisco Catalyst switches use CiscoWorks LAN Management Solution (LMS) or a command-line interface (CLI) for management and configuration across the entire portfolio. This consistency ensures that all Cisco Catalyst switches can be managed using common management tools regardless of their size, and offers network-level management and configuration. In contrast, the Cisco ESW 500 Series Switches do not use a CLI and are configured by the switch configuration utility or Cisco Configuration Assistant. Though user-friendly, these interfaces are not designed to scale to multiple sites and to the needs of a commercial or enterprise customer. It is not recommended to have a mixed environment of Cisco ESW 500 Series and Cisco Catalyst Series switches, because it would be difficult to manage the entire network holistically due to the separate management tools.
- **Comprehensive support:** Cisco Customer Advocacy provides a broad set of services for the Cisco Catalyst switches, including Cisco SMARTnet and service by the Cisco TAC. The Cisco TAC is staffed with leading experts with years of experience in all technologies to address any network issue the customer may have. The newly created Cisco Small Business Support Center is based on a separate group of professionals, specifically hired and trained in the needs of small businesses and the VARs who serve them. They do not support SMARTnet or the software upgrades that Cisco Catalyst switches offer. Customers who chose to mix Cisco products with the Cisco ESW 500 Series in their network would have to work with two different support teams, as the Small Business Support Center team is not equipped to diagnose and troubleshoot cross-network issues.

Technical Features

Q. What are the benefits of Power over Ethernet?

- A.** Power over Ethernet (PoE) can provide a lower total cost of ownership for deployments that incorporate IP phones, wireless LAN access points, and IP video surveillance cameras, as well as any IEEE 802.3af-compliant end devices. PoE eliminates the need for wall power to each PoE-enabled device by powering devices directly over the Ethernet connection, reducing rewiring costs when deploying IP phones and wireless LANs. PoE switches also eliminate the need for power injectors and PoE midspans for powering IP devices.

Q. How many devices can the Cisco ESW 500 Series PoE switches power?

- A.** The number of devices supported depends on the power requirements for each device and the switch model in question. For example, the ESW-520-24P-K9 can deliver the necessary power to support 24 ports at 7.5W, 12 ports at 15.4W, and any combination in between. Table 3 and the sample scenarios below give examples of the number of devices supported based on the total available power.

Table 3. Cisco ESW 500 Series Total Power and Recommended Device Usage

SKU	Total Power	Scenario 1: PoE Devices Drawing Less Than 7W	Scenario 2: PoE Devices Drawing Less Than 11W	Scenario 3: PoE Devices Drawing Less Than 15.4W
ESW-520-8P-K9	60 watts	8 devices	5 devices	4 devices
ESW-520-24P-K9	180 watts	24 devices	16 devices	12 devices
ESW-520-48P-K9	380 watts	48 devices	32 devices	24 devices
ESW-540-8P-K9	120 watts	8 devices	8 devices	8 devices
ESW-540-24P-K9	280 watts	24 devices	24 devices	18 devices

A PoE device could be a wireless access point, IP phone, video surveillance camera, or other network-attached device. The following are sample scenarios:

- **Scenario 1:** Assumes that the PoE devices connected to the switch are all IEEE 802.3af Class 2 devices that draw less than 7.5W per device.
- **Scenario 2:** Assumes that the PoE devices connected to the switch are a mix of IEEE 802.3af Class 2 and Class 3 devices that, on average, draw less than 11W per device.
- **Scenario 3:** Assumes that the PoE devices connected to the switch are all IEEE 802.3af Class 3 devices that draw less than 15.4W per device.

The ESW 500 Series Switch configuration utility also includes a PoE budget calculator that shows how much PoE power is being consumed based on the types of devices connected to the switch.

Note: When using the redundant power supply unit (RPS1000) with the ESW 500 Series Switches (except for the ESW-520-8P and the ESW-540-8P—the RPS1000 does not support these switches), the total available PoE power budget is a maximum of 280W.

Q. Can the Cisco ESW 500 Series Switches with PoE support a device that requires more than 15.4W from a single PoE port?

A. No.

Q. Do the Cisco ESW 500 Series PoE switches support standards-based PoE?

A. Yes, they support IEEE 802.3af.

Q. Do the Cisco ESW 500 Series PoE switches support Cisco pre-standard PoE?

A. No. For Cisco pre-standard PoE, we recommend the Cisco Catalyst 2960 Series Switches, which support both 802.3af and Cisco pre-standard PoE.

Q. Which Small Form-Factor Pluggable (SFP) transceivers do the Cisco ESW 500 Series Switches support?

A. The Cisco ESW 500 Series supports a wide range of Cisco Small Business (Linksys Business Series) SFP transceivers (Table 4). For more information on these transceivers, visit http://www.cisco.com/en/US/products/ps9934/prod_module_series_home.html.

Table 4. Cisco Small Business SFP Transceivers Supported by the ESW 500 Series Switches

SKU	Media	Speed	Typical Distance
MFEBX1	Single-mode fiber	100 Mbps	20 km
MFEFX1	Multimode fiber	100 Mbps	2 km
MFELX1	Single-mode fiber	100 Mbps	10 km
MGBBX1	Single-mode fiber	1000 Mbps	40 km
MGBSX1	Multimode fiber	1000 Mbps	300 m
MGBLH1	Single-mode fiber	1000 Mbps	40 km
MGBLX1	Single-mode fiber	1000 Mbps	10 km
MGBT1	Category 5 unshielded twisted pair (UTP)	10/100/1000	100 m

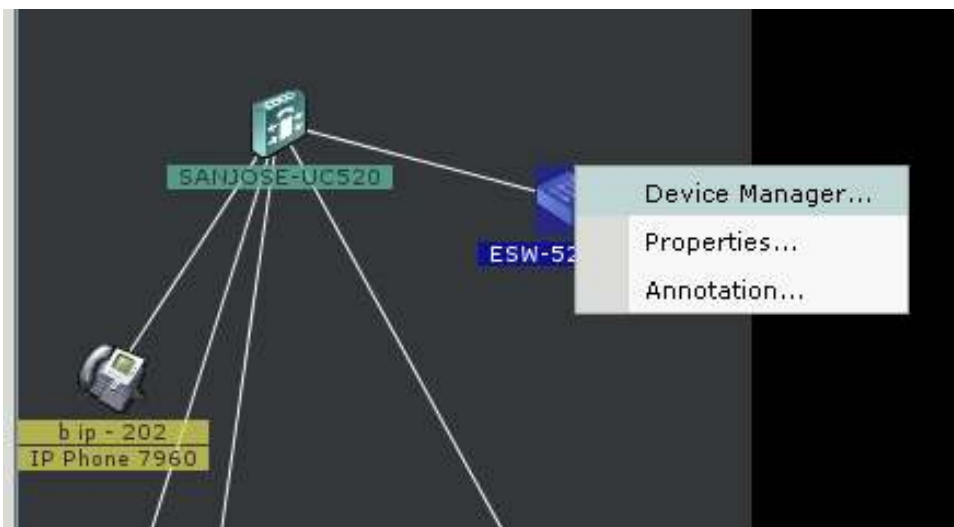
Q. Do the Cisco ESW 500 Series Switches support a redundant power supply?

- A.** Yes. The 24-port and 48-port ESW 500 Series Switches work with the Cisco Small Business (formerly Linksys Business Series) RPS1000 380W Redundant Power Supply Unit, which supplies power to the switch the instant power begins to fail. The RPS1000 does not support the 8-port ESW 500 Series Switches. The power supply can monitor up to six connected devices at a time, supplying power on a first-come, first-served basis. The power supply has a maximum capacity of 380W, making it ideally suited to support a number of Cisco Small Business switches and network-attached storage devices. For more information, visit <http://www.cisco.com/en/US/products/ps9940/index.html>.

Management**Q. How do I configure and manage the Cisco ESW 500 Series Switches?**

- A.** The Cisco ESW 500 Series can be configured and managed with a choice of two management tools. It includes the embedded switch configuration utility, which is available upon starting up the switch (Figure 1). For multiple switches and systemwide deployments, Cisco Configuration Assistant is available. Cisco Configuration Assistant is free and can be downloaded at <http://www.cisco.com/go/configassist> (requires a Cisco.com login).

Figure 1. Cisco ESW 500 Series Configuration Utility

**Q. Do the Cisco ESW 500 Series Switches have a command-line interface (CLI)?**

- A.** No, these switches cannot be managed through a CLI.

Q. Can the Cisco ESW 500 Series Switches be configured remotely?

- A.** Yes, the Cisco ESW 500 Series Switches can be configured remotely using the embedded switch configuration utility or Cisco Configuration Assistant.

Q. Can the Cisco ESW 500 Series Switches be monitored remotely?

- A.** Yes, the Cisco ESW 500 Series Switches can be monitored remotely using the embedded switch configuration utility, Cisco Configuration Assistant, or Simple Network Management Protocol (SNMP) capable applications using read-only MIBs.

Q. Can Cisco Network Assistant be used to manage the Cisco ESW 500 Series?

- A.** No. These switches use Cisco Configuration Assistant for systemwide management.

Q. Does the Cisco ESW 500 Series support Cisco Discovery Protocol?

A. Yes, Cisco Discovery Protocol is supported. This enables the ESW 500 Series to discover Cisco devices and allow devices to share information about one another, simplifying the setup and integration of a network based on the ESW 500 Series.

Q. Does the Cisco ESW 500 Series support Cisco Smartports?

A. Yes, the ESW 500 Series supports Cisco Smartports, which provides a recommended set of configurations for devices such as computers, IP phones, and wireless access points. These pretested baseline configurations represent Cisco best practices. Smartports are called "roles" in the GUI. For example, in the GUI you can click on a port and then assign a role to that port. If you assign an IP phone to a port, the port is then configured to support an IP phone, enabling quality of service so you'll get the voice quality you expect.

Q. Do I have to accept the suggested Cisco Smartports role?

A. No. You can choose to set the Smartports role on the port or set of ports to "Other," which implies that the port does not have a Smartports role assigned to it.

Security

Q. What are the primary security mechanisms in the Cisco ESW 500 Series that protect my voice and data network?

A. The ESW 500 Series Switches provide several layers of security to protect your business. Embedded encryption capabilities help ensure that all management traffic to and from the device is protected with Secure Sockets Layer (SSL) encryption. The ESW 500 Series also provides built-in support for advanced security services. These services include IEEE 802.1X port security, which helps ensure that only authorized users and applications can access your wired and wireless LAN, and access control lists, which can restrict access to sensitive portions of the network and guard against attacks by keeping unauthorized users from logging in. In addition, MAC address notification features allow administrators to track where and when users enter the network.

Q. How can I keep unauthorized users from accessing my network?

A. The Cisco ESW 500 Series supports the IEEE 802.1X standard, which works in conjunction with a RADIUS server to authenticate users as they access the network. The 802.1X standard is considered port-level security and is commonly used for wireless LANs. Additionally, portions of the network can be restricted by using access control lists. Access can be controlled based on MAC addresses, IP addresses, or TCP/User Datagram Protocol (UDP) ports. An additional protection method is to use port security, which limits access to the port based on MAC addresses, helping ensure that the appropriate user is on the network.

Q. How can I protect administration passwords and traffic going to the switch during configuration or troubleshooting?

A. To protect administration traffic (such as passwords or device configuration settings) when configuring or troubleshooting a switch, the best approach is to encrypt the data using Secure Sockets Layer (SSL) or Secure Shell (SSH) Protocol.

Software

Q. Is the Cisco ESW 500 Series based on Cisco IOS Software?

A. No, the internal operating system is VxWorks.

Q. Are software updates available for the Cisco ESW 500 Series?

A. Yes, Cisco offers ongoing software fixes for the ESW 500 Series at no additional cost as part of the product warranty.

Q. How do I get software updates for my Cisco ESW 500 Series Switch?

- A.** Customers that own a Cisco Small Business Pro Service contract for any ESW 500 Series switch may obtain software updates at the Cisco.com website: <http://www.cisco.com/go/esw500help>. The warranty provides software fixes. To download software, you will be required to log in using your Cisco.com username and password. If you do not have a Cisco.com username, you can obtain one by clicking "Register" at the top of any Cisco.com webpage.

Warranty and Service**Q. What is the warranty for the Cisco ESW 500 Series?**

- A.** The ESW 500 Series includes an enhanced 5-year hardware warranty. This warranty offers:
- Next-business-day advance product replacement, where available; otherwise 10-business-day advance replacement
 - Free software fixes
 - 90-day complimentary end-user phone support, though the [Small Business Support Center](#) during local business hours
 - 1-year access to [Cisco Online Customer Chat Support](#) during local business hours
- For details about the ESW 500 Series hardware warranty, visit <http://www.cisco.com/go/esw500help>.

Q. What service contract is available for the ESW 500 Series?

- A.** The Cisco Small Business Pro Service for the Cisco ESW 500 Series Switches extends the product's support and offers software updates to provide additional peace of mind at an affordable price. This rich service offering provides three years of telephone support, as well as one year of online chat support. The warranty will continue to provide next-business-day advance replacement (where available), in addition to software bug fixes. For more information, visit: <http://www.cisco.com/go/proservice>.

Q. What support is available for the Cisco ESW 500 Series?

- A.** Cisco ESW 500 Series is supported by the Cisco Small Business Support Center. The Small Business Support Center is staffed with experienced technicians trained in the needs of small business customers and VAR partners. In addition, the Cisco Small Business Support Community is a collaborative space where you can gather and share knowledge about small-business networking and communications. To join the community, visit <https://www.myciscocommunity.com/community/smallbizsupport>.

Q. Is Cisco SMARTnet Service available for the Cisco ESW 500 Series Switches?

- A.** No, Cisco SMARTnet is not available for the ESW 500 switches. The Cisco® ESW 500 Series Switches have a 5-year limited hardware warranty and are supported by the Cisco Small Business Support Center. The Cisco Small Business Pro Service for ESW 500 Series Switches offers additional service and software updates beyond the product's 5-year limited warranty to provide additional peace of mind. This service provides an additional three years of telephone support and one year of online chat support.

Additional Product Information**Q. Where can I find product specifications and other information about the Cisco ESW 500 Series Switches?**

- A.** For product literature such as data sheets and product specifications, visit <http://www.cisco.com/go/esw500>.



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