

Cisco Catalyst 3550 Series Switches

Product Overview

Q. What are the Cisco Catalyst® 3550 Series Switches?

A. The Cisco Catalyst 3550 Series switches are a line of enterprise-class, stackable, multilayer switches that provide high availability, security and quality of service (QoS) to enhance the operation of the network. With a range of Fast Ethernet and Gigabit Ethernet configurations, the Catalyst 3550 Series can serve as both a powerful access layer switch for medium enterprise wiring closets and as a backbone switch for mid-sized networks. For the first time, customers can deploy network-wide intelligent services, such as advanced QoS, rate-limiting, Cisco security access control lists (ACLs), multicast management, and high-performance IP routing—while maintaining the simplicity of traditional LAN switching. Embedded in the Catalyst 3550 Series is the Cisco Cluster Management Suite (CMS) Software, which allows users to simultaneously configure and troubleshoot multiple Catalyst desktop switches using a standard Web browser. Cisco CMS Software provides new configuration wizards that greatly simplify the implementation of converged applications and network-wide services.

The Catalyst 3550-24 PWR switch can provide a lower total cost of ownership for deployments that incorporate Cisco IP phones and/or Cisco Aironet wireless LAN access points. With up to 15 Watts of integrated inline power on every 10/100 port, the switch provides maximum device support and eases new technology deployments by eliminating the need for wall power to each IP phone or wireless LAN access point. Additionally, delivering power via the Catalyst 3550-24 PWR switch eliminates the cost for additional electrical cabling that would otherwise be necessary in wireless LAN and IP phone deployments. Maximum power availability for a converged voice and data network is attainable when a Catalyst 3550 Switch is combined with the Cisco Redundant Power System 675 (Cisco RPS 675) (available 1HCY03) for seamless protection against internal power supply failures and an uninterruptable power supply (UPS) system to safeguard against power outages.



The complete list of Cisco Catalyst 3550 Series Switches is shown in Table 1.

Table 1 Cisco Catalyst 3550 Series Switches

Product Name	Part Number	Description
Catalyst 3550-48	WS-C3550-48-EMI	<ul style="list-style-type: none">• 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 rack unit (RU) stackable, multilayer switch• Delivers enterprise-class intelligent services to the network edge• Enhanced Multilayer Software Image (EMI) installed• Provides advanced IP routing
Catalyst 3550-48	WS-C3550-48-SMI	<ul style="list-style-type: none">• 48 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch• Delivers enterprise-class intelligent services and basic IP routing to the network edge• Standard Multilayer Software Image (SMI) installed, upgradeable to advanced IP routing
Catalyst 3550-24	WS-C3550-24-EMI	<ul style="list-style-type: none">• 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch• Delivers enterprise-class intelligent services to the network edge• EMI installed• Provides advanced IP routing
Catalyst 3550-24	WS-C3550-24-SMI	<ul style="list-style-type: none">• 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch• Delivers enterprise-class intelligent services and basic IP routing to the network edge• SMI installed, upgradeable to advanced IP routing
Catalyst 3550-24 PWR	WS-C3550-24PWR-EMI	<ul style="list-style-type: none">• 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch; integrated inline power• Delivers enterprise-class intelligent services to the network edge• EMI installed• Provides advanced IP routing
Catalyst 3550-24 PWR	WS-C3550-24PWR-SMI	<ul style="list-style-type: none">• 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch; integrated inline power• Delivers enterprise-class intelligent services and basic IP routing to the network edge• SMI installed, upgradeable to advanced IP routing
Catalyst 3550-24-DC	WS-C3550-24-DC-SMI	<ul style="list-style-type: none">• 24 10/100 ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch; DC powered• Delivers enterprise-class intelligent services and basic IP routing to the network edge• SMI installed, upgradeable to advanced IP routing



Table 1 Cisco Catalyst 3550 Series Switches (Continued)

Product Name	Part Number	Description
Catalyst 3550-24-FX	WS-C3550-24-FX-SMI	<ul style="list-style-type: none">• 24 100FX multimode fiber ports and 2 GBIC-based Gigabit Ethernet ports• 1 RU stackable, multilayer switch• Delivers enterprise-class intelligent services and basic IP routing to the network edge• SMI installed, upgradeable to advanced IP routing
Catalyst 3550-12G	WS-C3550-12G	<ul style="list-style-type: none">• 10 GBIC-based Gigabit Ethernet ports and 2 10/100/1000 ports• 1.5 RU stackable, multilayer Gigabit Ethernet switch• Delivers enterprise-class intelligent services to the network edge• Provides advanced IP routing
Catalyst 3550-12T	WS-C3550-12T	<ul style="list-style-type: none">• 10 10/100/1000 ports and 2 GBIC-based Gigabit Ethernet ports• 1.5 RU stackable, multilayer Gigabit Ethernet switch• Delivers enterprise-class intelligent services to the network edge• Provides advanced IP routing
Enhanced Multilayer Software Image (EMI) Upgrade Kit	CD-3550-EMI=	<ul style="list-style-type: none">• EMI upgrade kit for all standard versions of the Catalyst 3550-24, 3550-24 PWR, 3550-24-DC, 3550-24-FX, and 3550-48 switches• Provides advanced IP routing

Q. What is the difference between the Enhanced Multilayer Software Image (EMI) and the Standard Multilayer Software Image (SMI)?

A. The Cisco Catalyst 3550-24, 3550-48, and 3550-24 PWR switches can be ordered with the SMI or the EMI. The Catalyst 3550-24-DC and 3550-24-FX can only be ordered with the SMI pre-installed, but as with all switches running the SMI, they can be upgraded to the EMI version using an EMI upgrade kit. The Cisco Catalyst 3550-12T and 3550-12G switches come installed with EMI. The EMI enables a richer set of enterprise-class features including, advanced hardware-based IP unicast and multicast routing, and the Web Cache Communication Protocol (WCCP). Additional details about the differences between the SMI and EMI are provided later in this document.

Q. Can I enable static IP routing using the SMI?

A. Yes, there is support for basic IP unicast routing via Static and RIPv1/v2 using the SMI. The EMI provides advanced IP unicast and multicast routing. These advanced routing protocols are Open Shortest Path First (OSPF), Interior Gateway Routing Protocol (IGRP), Enhanced Interior Gateway Routing Protocol (EIGRP), Border Gateway Protocol version 4 (BGPv4), and Protocol Independent Multicast (PIM).

Q. Is the EMI required to allow Layer 3 and Layer 4 lookups for QoS and Security?

A. No. Both the SMI and the EMI allow for Layer 3 and Layer 4 lookups for QoS and Security.



Q. Why do I need intelligence at the edge of my network?

A. Networks of today are evolving to address four new developments at the network edge:

- Increase in desktop computing power
- Introduction of bandwidth-intensive applications
- Expansion of highly sensitive data on the network
- Presence of multiple device types, such as IP phones and wireless LAN access points

These new demands are contending for resources with many existing mission-critical applications. As a result, IT professionals must view the edge of the network as critical to effectively manage the delivery of information and applications.

As companies increasingly rely on networks as the strategic business infrastructure, it is more important than ever to ensure their high availability, security, scalability and control. By adding Cisco intelligent functionality to the wiring closet, customers can now deploy network-wide intelligent services that address these requirements in a consistent way from the desktop to the core and through the WAN.

With Cisco Catalyst switches, Cisco enables companies to realize the full benefits of adding intelligent services into their networks. Deploying capabilities that make the network infrastructure highly available to accommodate time-critical needs, scalable to accommodate growth, secure enough to protect confidential information, and capable of differentiating and controlling traffic flows are key to further optimizing network operations.

Q. Can you provide more details on how an intelligent switch from Cisco will help my network?

A. New applications are requiring higher bandwidth and the need to differentiate and control the traffic flow. Applications such as Enterprise Resource Planning (ERP) (Oracle, SAP, etc.), voice (IP telephony traffic), video (videoconferencing or e-learning apps), and CAD/CAM require prioritization over less time-sensitive applications such as File Transfer Protocol (FTP) or e-mail (Simple Mail Transfer Protocol [SMTP]). It would be highly undesirable to have a large file download destined to one port on a wiring closet switch and have quality implications such as increased latency in voice traffic, destined to another port on this switch. This condition is avoided by ensuring that voice traffic is properly classified and prioritized throughout the network. Cisco switches implement superior QoS to ensure that network traffic is classified, prioritized, and congestion is avoided.

Q. What about handling the security needs of a network?

A. With the rise in internal threats to a network, Cisco switches enhance data security through a wide range of features including SSH, Kerberos, Simple Network Management Protocol version 3(SNMPv3), ACLs, 802.1x, 802.1x with VLAN assignment, 802.1x with ACL assignment, 802.1x with Voice VLAN, 802.1x with port security, Port Security, Private VLAN Edge, Dynamic Host Configuration Protocol (DHCP) Interface Tracker, MAC Address Notification, Switched Port Analyzer (SPAN) for Intrusion Detection System (IDS) support, and Remote Access Dial-In User Service (RADIUS)/Terminal Access Controller Access Control System (TACACS+). Depending on your security needs, the Catalyst 3550 Series complements devices such as firewalls, VPNs, and Intrusion Detection Systems.

Q. For security purposes, how can I protect unauthorized users from accessing my network?

A. The Catalyst 3550 supports 802.1x that works in conjunction with a RADIUS server to authenticate users as they access a network. The 802.1x standard is considered port-level security and is commonly used for both wired and wireless LANs. Additionally, portions of the network can be restricted by using ACLs. Access can be denied based on Media Access Control (MAC) addresses, IP addresses, or Transmission Control Protocol (TCP)/User Datagram



Protocol (UDP) ports. ACL lookups are done in hardware—thus forwarding and routing performance is not compromised when implementing ACL-based security. An additional protection method is to use Port Security, which ensures the appropriate user is on the network by limiting access to the port based on MAC addresses.

Q. For security purposes, how can I allow mobility of the user base while also ensuring security?

A. 802.1x in conjunction with a RADIUS server allows for dynamic port-based user authentication. 802.1x-based user authentication can be extended to dynamically assign a VLAN or an ACL based on a specific user regardless of where they connect on the network. This intelligent adaptability allows IT departments to offer greater flexibility and mobility to their stratified user populations. By combining access control and user profiles with secure network connectivity, services, and applications enterprises can more effectively manage user mobility and drastically reduce the overhead associated with granting and managing access to network resources.

Q. For security purposes, how can I monitor or track activities in my network?

A. IDS are tailored to monitor and track activities in a network. The Catalyst 3550 supports SPAN enhancements that allow an IDS to take action if an intruder is detected. Additionally, the Catalyst 3550 can complement this through features such as MAC Address Notification, which will send an alert to a management station so that network administrators know when and where users came on to the network and can take appropriate actions. The DHCP Interface Tracker (Option 82) feature will track where a user is physically connected on a network by providing both switch and port ID to a DHCP Server.

Q. For security purposes, how do I protect administration passwords and traffic going to the switch during configuration or troubleshooting?

A. To protect administration traffic during the configuration or troubleshooting of a switch (such as passwords or device configuration settings), the best approach is to encrypt the data. Secure Shell (SSH), Kerberos, and SNMPv3 (crypto version) provide encryption of data during Telnet and SNMP sessions. These features require the use of an image with strong encryption technology. Due to export restrictions, this image does not ship pre-installed on the switches and must be downloaded from a special area on Cisco.com

Q. Do the Cisco Catalyst 3550 switches support Cisco Switch Clustering technology?

A. Yes, the Catalyst 3550 switches can be managed using the Web-based Cisco CMS Software, which uses Cisco Switch Clustering technology. Cisco CMS is Web-based software that is embedded in Catalyst 3550, 2950, 3500 XL, 2900 XL, 2900 LRE XL, and 1900 switches. Through Cisco Switch Clustering technology, users access Cisco CMS with any standard Web browser to manage up to 16 of these switches at once, regardless of their physical proximity—with the option of using a single IP address if desired.

Cisco CMS provides an integrated management interface for delivering intelligent services, such as multilayer switching, QoS, multicast, and security ACLs. Thus, Cisco CMS allows administrators to take advantage of benefits formerly reserved for only the most advanced networks without having to learn the command-line interface (CLI) or even the details of the technology. The new Guide Mode in Cisco CMS leads the user step-by-step through the configuration of high-end features and provides enhanced online help for context-sensitive assistance. In addition, AVVID (Architecture for Video, Voice, and Integrated Data) Wizards provide automated configuration of the switch to optimally support video streaming or videoconferencing, voice over IP (VoIP), and mission-critical applications. Wizards for LAN security and multicast are also provided.



Because Cisco Switch Clustering technology is not limited to a single stack of switches, Cisco CMS expands the traditional cluster domain beyond a single wiring closet and saves time and effort for network administrators. The switches must merely be connected to each other via Ethernet, Fast Ethernet, Fast EtherChannel®, Gigabit Ethernet, Gigabit EtherChannel, and/or GigaStack® connectivity.

Cisco Catalyst 3550 switches can be configured either as command or member switches in a Cisco switch cluster. Cisco CMS also allows the network administrator to designate a standby or redundant command switch, which takes the commander duties should the primary command switch fail. Other key features include the ability to configure multiple ports and switches simultaneously, perform software updates across the entire cluster at once, and clone configurations to other clustered switches for rapid network deployments. Bandwidth graphs and link reports provide useful diagnostic information and the topology map gives network administrators a quick view of the network status. A troubleshooting toolbox, including L2 and L3 trace route and Ping, helps administrators find network problems quickly.

Q. What Gigabit Interface Converters (GBICs) are supported on the Catalyst 3550 switches?

A. Catalyst 3550 switches support the following Cisco GBICs: 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-ZX, 1000BASE-T, 1000BASE-CWDM, and the GigaStack Stacking GBIC.

Q. Is there any limit to the number of a particular GBIC or combination of different GBICs that can be used on a Catalyst 3550 switch?

A. No. Users can populate all the GBIC ports of any Catalyst 3550 switch with the same GBIC or with a combination of different GBICs. Catalyst 3550 switches support the following Cisco GBICs: 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-ZX, 1000BASE-T, 1000BASE-CWDM, and the GigaStack Stacking GBIC.

Q. Do the Catalyst 3550 switches have RPS support?

A. Yes, the Cisco RPS 300 supports all Catalyst 3550 switches except the Catalyst 3550-24 PWR. A new Cisco RPS 675 will support the 3550-24 PWR and all other Catalyst 3550 and 2950 models. The Cisco RPS 300 and Cisco RPS 675 provide superior internal power source redundancy for up to six Cisco networking devices resulting in improved fault tolerance and network uptime. Please see Cisco RPS 300 Switch Compatibility matrix for other Cisco devices supported by the Cisco RPS 300: <http://www.cisco.com/univercd/cc/td/doc/product/lan/c2900xl/rps300/rpscomp.htm>

Q. When will the Cisco RPS 675 available?

A. It will be available 1HCY03.

Q. Do the Catalyst 3550 switches support Inter-Switch Link (ISL) virtual LAN (VLAN) trunking?

A. Yes, the Catalyst 3550 switches support both 802.1Q trunking and ISL trunking. VLAN trunks can be created from any port using either standards-based 802.1Q tagging or the Cisco ISL VLAN architecture.

Q. Does it cost more for a Layer 3 or special-features license?

A. The Catalyst 3550-24-EMI, 3550-48-EMI, 3550-24PWR-EMI, 3550-12T, and 3550-12G are loaded with the EMI, so all feature license fees are part of the standard list price. However, the Catalyst 3550-24-SMI, 3550-48-SMI, 3550-24PWR-SMI, 3550-24-DC-SMI, and 3550-24-FX-SMI switches are loaded with the SMI; these switches can be upgraded to the Enhanced Multilayer Software Image with the purchase of the Enhanced Multilayer Software Image upgrade kit (part number CD-3550-EMI=).



Q. What features are only supported on the EMI?

A. The following features and functionality are only supported with the EMI:

- Advanced IP routing protocols for load balancing and constructing scalable LANs:
 - OSPF
 - IGRP and EIGRP
 - BGPv4
- WCCP to allow switch interaction with a cache for the purpose of redirecting content requests to a cache and performing basic load balancing across multiple caches
- PIM for IP multicast routing within a network that enables the network to receive the multicast feed requested and for switches not participating in the multicast to be pruned—support for PIM sparse mode (PIM-SM), PIM dense mode (PIM-DM), and PIM sparse-dense mode
- Distance Vector Multicast Routing Protocol (DVMRP) tunneling for interconnecting two multicast-enabled networks across non multicast networks

Q. Are there five packs or multi-packs for the Cisco Catalyst 3550 switches?

A. No.

Comparison to Other Cisco Catalyst Series Stackable Switches

Q. Are there plans to end-of-life (EOL) the Catalyst 3500 Series XL switches?

A. The Catalyst 3550 and 2950 switches have replaced the Catalyst 3500 XL switches. The end-of-sale for the Catalyst 3512 XL, 3524 XL, and 3548 XL was July 27, 2002. Information can be found at: http://www.cisco.com/en/US/products/hw/switches/ps637/prod_bulletin09186a00800925ca.html. This end-of-sale announcement does not include the Catalyst 3524-PWR XL and the 3508G XL.

Q. What is the positioning of the Catalyst 3550 Series switches relative to the Catalyst 3500 XL switches?

A. The Catalyst 3550 switches are expected to be deployed in similar topological positions in the network as the Catalyst 3500 XL switches. These positions include the access layer and network backbone of enterprise wiring closets and branch office networks. The Catalyst 3550 switches are ideal for those networks requiring multilayer services like IP routing, advanced quality of service, multicast management, and security access control lists.

Q. What is the positioning of the Catalyst 3550 Series switches relative to the Catalyst 2950 Series switches?

A. The Catalyst 3550 switches and the Catalyst 2950G switches are capable of delivering intelligent services such as advanced quality of service, rate-limiting, security filtering, and multicast management to the network edge. The Catalyst 3550 switches are the premium fixed-configuration switches and offer greater product family breadth, a richer set of enterprise-class features, and a platform that supports dynamic, hardware-based IP routing.

Q. Are the Catalyst 3550 Series switches compatible with the Catalyst 3500 Series XL switches?

A. The Catalyst 3550 switches are completely compatible with the Catalyst 3500 Series XL switches. Committed to protecting customers' investments in desktop switches, Cisco has ensured that all desktop switching platforms including the Catalyst 3550, 2950, 3500 XL, 2900 XL, 2900 LRE XL, and 1900 can be mixed and managed using



the Cisco Cluster Management Suite (CMS) Software. Additionally, the GBIC ports on the Catalyst 3550 support the Cisco GigaStack GBIC for point-to-point or cascade stacking configurations. These investments provide a guarantee of investment value over time for Cisco customers.

Q. What is the positioning of the Catalyst 3550 Series switches relative to the Catalyst 4908G-L3 and 2948G-L3?
A. The Cisco Catalyst 3550 switches are the next-generation, fixed-configuration multilayer switches. The product teams have worked closely together on feature development. Cisco expects customers to migrate to the Catalyst 3550-12G from the 4908G-L3, and to the 3550-48 from the 2948G-L3. This migration is expected because the Catalyst 3550 switches are able to provide some features not supported by the 4908G-L3 and 2948G-L3 switches—such as support for 802.1p, 802.1p to DSCP mapping, and SPAN—at a significantly lower price per port.

Q. Does the Catalyst 3550-24 PWR switch support the upcoming 802.3af inline power standard?
A. This switch will support the Cisco inline power implementation and 15.4W/port on all 24 ports. 802.3af compliance cannot be claimed due to the current status of the proposed standard (draft form) and litigation involving an alleged patent violation for the power disconnect portion of this standard. Full 802.3af compliance is dependent on the outcome of this litigation. Vendors claiming current support for this standard should also inform their customers of the risk associated with draft standard claims. The 802.3af standard is expected to be ratified Q2CY03. Backward compatibility will ensure that previously sold Cisco IP phones and wireless access points will be compatible with the new Catalyst 3550 inline power switch. Development of an 802.3af inline power Catalyst 3550 switch has been difficult because of the uncertainty that has existed in the formation of the final IEEE standard.

Service & Warranty

Q. What is the warranty for the Cisco Catalyst 3550 Series Switches?
A. Cisco Catalyst 3550 switches come with the Cisco Limited Lifetime Hardware Warranty. Ongoing software updates are available to customers on the Cisco Web site free of charge.

Limited Lifetime Warranty

The hardware warranty available on Catalyst 3550, 2950, and 3500 XL switches is the Limited Lifetime Hardware Warranty. This warranty automatically comes with the purchase of eligible Catalyst products, free of charge. For specific details on the Limited Lifetime Hardware Warranty visit http://www.cisco.com/univercd/cc/td/doc/es_inpk/lh2cen_.htm.

Software Updates

In addition to the Limited Lifetime Hardware Warranty, Cisco is offering ongoing Cisco IOS® Software updates on LAN access switches FREE of charge for these platforms. For the life of the product, updates within the release and feature set purchased will be made available to customers through the Software Center at <http://www.cisco.com/public/sw-center/sw-switching.shtml>.

Ongoing software updates will be available for the Cisco Catalyst 3550 Series. Updates are applicable only for releases that Cisco makes available. This statement supersedes any previous warranty or software statement and is subject to change without notice.



Q. What type of service and support are available for the Cisco Catalyst 3550 Series switches?

A. A full complement of life-cycle service and support is available for the Cisco Catalyst 3550 Series. From implementation to operation and optimization, Cisco offers Technical Support Service and Advanced Service delivered either directly by Cisco or through one of its best-in-class partners.

Technical Support Service

Technical Support Service is available through SMARTnet™ and SMARTnet Onsite. SMARTnet augments the resources of your operations staff by providing them with access to a wealth of expertise, both online and via telephone, and a range of hardware Advance Replacement options. SMARTnet Onsite complements the hardware Advance Replacement feature by adding the services of a field engineer, services that can be critical for those locations where staffing is insufficient or unavailable to perform parts replacement activities. For more information on SMARTnet, visit http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2978/serv_overview.html.

Advanced Service

Total Implementation Solutions (TIS) offers a full range of implementation solutions including project management, project engineering, configuration, staging, and rollout coordination, and ensuring correct installation and deployment. Configuration services now include development and verification of configuration for intelligent services such as QoS and multicast. For more information on Total Implementation Solutions, visit http://www.cisco.com/en/US/products/svcs/ps11/ps2902/ps3061/serv_overview.html. For more information on configuration services for QoS and multicast, contact gps-pds-west@cisco.com.

Product & Contact Information

Q. Where can I find technical/product specifications and other additional information on the Catalyst 3550 switches?

A. For a variety of product literature including data sheets and product specifications, please refer to the Catalyst 3550 web site at: <http://www.cisco.com/go/catalyst3550>.



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