



## Q&A

# Cisco Catalyst 2950 Series Switches with Cisco Standard Image and Enhanced Image Software

## PRODUCT OVERVIEW

### **Q. What devices comprise the Cisco® Catalyst® 2950 Series Switches?**

**A.** The Cisco Catalyst 2950G 12 EI, Catalyst 2950G 24 EI, Catalyst 2950G 24 EI DC, and Catalyst 2950G 48 EI Switches are stackable switches that offer wire-speed connectivity to the desktop and gigabit uplink connectivity using several optional gigabit interface converter (GBIC) uplinks. These products, as well as the Cisco Catalyst 2950T 24 and Catalyst 2950C 24 Switches, deliver intelligent services such as availability, network security, and quality of service (QoS) to the network edge—using the simple Cisco Network Assistant software with a GUI-based interface. These switches come with Cisco Enhanced Image software installed to provide intelligent services.

The Cisco Catalyst 2950C 24 and Catalyst 2950T 24 Switches belong to the Cisco Catalyst 2950 series of high-performance, standalone, 10/100 autosensing Fast Ethernet and Gigabit Ethernet switches. Both products bring intelligent services to the network edge to accommodate the needs of growing workgroups and server connectivity. The Cisco Catalyst 2950C 24 provides 24 10/100 ports plus 2 fixed 100BASE-FX ports. The Cisco Catalyst 2950T 24 offers medium-sized enterprises an easy migration path to Gigabit Ethernet by using existing copper cabling infrastructure with 24 10/100 ports plus 2 fixed 10/100/1000BASE-T uplinks. Embedded in the Cisco Catalyst 2950 Series is Cisco Device Manager software, which allows users to configure and troubleshoot a Cisco Catalyst fixed-configuration switch using a standard Web browser.

The Cisco Catalyst 2950SX 48 SI and Catalyst 2950T 48 SI Switches are fixed-configuration, managed 10/100 switches that provide basic workgroup connectivity for small to medium-sized companies. These wire-speed desktop switches offer Cisco IOS® Software functions for basic data, video, and voice services at the network edge. These switches are available only with the Cisco Standard Image software for the Cisco Catalyst 2950 Series. Depending on their density needs, customers with fiber requirements can choose between the Cisco Catalyst 2950SX 24 SI, which provides 24 10/100 ports plus 2 fixed 1000BASE-SX ports, or the Cisco Catalyst 2950SX 48 SI, which provides 48 10/100 ports plus 2 fixed 1000BASE-SX ports.

The Cisco Catalyst 2950SX 48 SI and Catalyst 2950T 48 SI Switches are fixed-configuration, managed 10/100 switches that provide basic workgroup connectivity for small to medium-sized companies. These wire-speed desktop switches offer Cisco IOS® Software functions for basic data, video, and voice services at the network edge. They are available only with the Cisco Standard Image software for the Cisco Catalyst 2950 Series. Depending on their density needs, customers with fiber requirements can choose between the Cisco Catalyst 2950SX 24, which provides 24 10/100 ports plus 2 fixed 1000BASE-SX ports, or the Cisco Catalyst 2950SX 48 SI, which provides 48 10/100 ports plus 2 fixed 1000BASE-SX ports.

These switches are ideal for networks in education and government organizations, where fiber uplinks are a requirement. Customers who do not need fiber uplinks can buy the Cisco Catalyst 2950T 48 SI, which provides 48 10/100 ports plus 2 10/100/1000 BASE-T uplink ports. Customers who require more than 24 ports and the intelligent Ethernet services on the Cisco Catalyst 2950T 24 (with Cisco Enhanced Image software) can buy two Cisco Catalyst 2950T 24 Switches or the Cisco Catalyst 2950G 48 EI. Embedded in the Cisco Catalyst 2950 Series is the Cisco Device Manager software, which allows users to configure and troubleshoot a Cisco Catalyst fixed-configuration switch using a standard Web browser.

Furthermore, Cisco Network Assistant, available at no charge, is a centralized management application that simplifies the administration tasks for up to 16 Cisco Catalyst fixed-configuration switches, routers, wireless access points, and select Cisco Systems® modular switches. Cisco Network Assistant provides configuration wizards that greatly simplify the implementation of converged networks and intelligent network services.

The Cisco Catalyst 2950 8 LRE, Catalyst 2950 24 LRE, and Catalyst 2950 LRE 997 stackable switches offer speeds of 5 to 15 Mbps at distances of up to 5000 feet over existing phone wiring (Category 1, 2, and 3) and uplink connectivity using several fixed and optional Small Form-Factor Pluggable (SFP) uplinks. They deliver intelligent services such as availability, network security, and QoS to the network edge. Cisco Enhanced Image software is installed to provide intelligent services.

Table 1 lists product specifications for the Cisco Catalyst 2950 Series.

**Table 1.** Cisco Catalyst 2950 Series Switches

Product Name	Product Number	Product Description
<b>Cisco Enhanced Image Software</b>		
Cisco Catalyst 2950G 12 EI	WS-C2950G-12-EI	<ul style="list-style-type: none"> <li>• 12 10/100 ports and 2 fixed GBIC-based 1000BASE-X uplink ports</li> <li>• 1-rack unit (1-RU) stackable switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950G 24 EI	WS-C2950G-24-EI	<ul style="list-style-type: none"> <li>• 24 10/100 ports and 2 fixed GBIC-based 1000BASE-X uplink ports</li> <li>• 1RU stackable switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950G 48 EI	WS-C2950G-48-EI	<ul style="list-style-type: none"> <li>• 48 10/100 ports and 2 fixed GBIC-based 1000BASE-X uplink ports</li> <li>• 1RU stackable switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950G 24 EI DC	WS-C2950G-24-EI-DC	<ul style="list-style-type: none"> <li>• 24 10/100 ports and 2 fixed GBIC-based 1000BASE-X uplink ports</li> <li>• 1RU stackable, DC-powered switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950T 24	WS-C2950T-24	<ul style="list-style-type: none"> <li>• 24 10/100 ports and 2 fixed 10/100/1000BASE-T uplink ports</li> <li>• 1RU switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950C 24	WS-C2950C-24	<ul style="list-style-type: none"> <li>• 24 10/100 ports and 2 fixed 100BASE-FX uplink ports</li> <li>• 1RU switch</li> <li>• Delivers intelligent services to the network edge</li> <li>• Cisco Enhanced Image software installed</li> </ul>
<b>Cisco Standard Image Software</b>		
Cisco Catalyst 2950SX 48 SI	WS-C2950SX-48-SI	<ul style="list-style-type: none"> <li>• 48 10/100 ports and 2 fixed 1000BASE-SX uplink ports</li> <li>• 1RU switch</li> <li>• Cisco Standard Image software installed</li> </ul>
Cisco Catalyst 2950T 48 SI	WS-C2950T-48-SI	<ul style="list-style-type: none"> <li>• 48 10/100 ports and 2 fixed 10/100/1000BASE-T uplink ports</li> <li>• 1RU switch</li> <li>• Cisco Standard Image software installed</li> </ul>

Cisco Catalyst 2950SX 24	WS-C2950SX-24	<ul style="list-style-type: none"> <li>• 24 10/100 ports and 2 fixed 1000BASE-SX uplink ports</li> <li>• 1RU switch</li> <li>• Cisco Standard Image software installed</li> </ul>
Cisco Catalyst 2950 24	WS-C2950-24	<ul style="list-style-type: none"> <li>• 24 10/100 ports</li> <li>• 1RU switch</li> <li>• Cisco Standard Image software installed</li> </ul>
Cisco Catalyst 2950 12	WS-C2950-12	<ul style="list-style-type: none"> <li>• 24 10/100 ports</li> <li>• 1RU switch</li> <li>• Cisco Standard Image software installed</li> </ul>
<b>Other Cisco Catalyst 2950 Series Switches</b>		
Cisco Catalyst 2950 24 LRE	WS-C2950ST-8-LRE	<ul style="list-style-type: none"> <li>• 24 Long-Reach Ethernet (LRE) ports</li> <li>• 2 10/100/1000 RJ-45 fixed uplinks</li> <li>• 2 SFP uplinks</li> <li>• 1RU stackable switch</li> <li>• Delivers intelligent services over existing phone wiring</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950 8 LRE	WS-C2950ST-8-LRE	<ul style="list-style-type: none"> <li>• 8 LRE ports</li> <li>• 2 10/100/1000 RJ-45 fixed uplinks</li> <li>• 2 SFP uplinks</li> <li>• 1RU stackable switch</li> <li>• Delivers intelligent services over existing phone wiring</li> <li>• Cisco Enhanced Image software installed</li> </ul>
Cisco Catalyst 2950 LRE 997	WS-C2950LRE-24-997	<ul style="list-style-type: none"> <li>• 24 LRE ports</li> <li>• 2 10/100/1000 RJ-45 fixed uplinks</li> <li>• 2 SFP uplinks</li> <li>• 1RU stackable switch</li> <li>• Delivers intelligent services over existing phone wiring</li> <li>• Conforms to ETSI very-high-bit-rate DSL (VDSL) 997 Bandplan standard</li> <li>• Cisco Enhanced Image software installed</li> </ul>

**Q. What is Cisco Enhanced Image software?**

**A.** The Cisco Catalyst 2950C 24, Catalyst 2950G, and Catalyst 2950T 24 Switches are installed with Cisco Enhanced Image software, which delivers intelligent services such as advanced QoS, rate limiting, security filters, and multicast management to the network edge.

**Q. What is the difference between the Cisco Standard Image software and Cisco Enhanced Image software?**

**A.** These two software image versions support different degrees of capability. The version of software depends solely on the model of switch selected, with no upgrade capabilities.

The Cisco Standard Image software is embedded in Cisco Catalyst 2950 12, Catalyst 2950 24, Catalyst 2950SX 24, Catalyst 2950T 48 SI, and Catalyst 2950SX 48 SI Switches and supports basic Cisco IOS Software functions, Fast Ethernet connectivity, and community management.

The Cisco Enhanced Image software is embedded in Cisco Catalyst 2950C 24, Catalyst 2950G 12 EI, Catalyst 2950G 24 EI, Catalyst 2950G 48 EI, and Catalyst 2950T 24 Switches and supports advanced intelligent services, gigabit connectivity, and a richer set of features. These features include Spanning Tree Protocol enhancements for high availability, access control parameters (ACPs) for enhanced network security, and differentiated services code point (DCSP) and rate limiting for advanced QoS.

**Q. Do the Cisco Catalyst 2950T 24 and Catalyst 2950T 48 SI Switches have the same software image?**

**A.** No. The Cisco Catalyst 2950T 48 SI has the Cisco Standard Image software, and the Cisco Catalyst 2950T 24 has the Cisco Enhanced Image software. Customers who require 48 ports and the intelligent Ethernet services on the Cisco Catalyst 2950T 24 can buy two Cisco Catalyst 2950T 24 Switches or one Cisco Catalyst 2950G 48 EI Switch.

**Q. Do the Cisco Catalyst 2950SX 24 and Catalyst 2950SX 48 SI Switches have the same software image?**

**A.** Yes. The Cisco Catalyst 2950SX 24 and Catalyst 2950SX 48 SI both have the Cisco Standard Image software.

**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 (WLAN) 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 try to ensure their high availability, security, scalability, and control. By adding intelligent Cisco capabilities to the wiring closet, customers can now deploy networkwide intelligent services that address these requirements in a consistent way from the desktop to the core network and through the WAN.

With Cisco Catalyst switches, Cisco Systems helps companies 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 is critical to further optimizing network operations.

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

**A.** New applications are requiring higher bandwidth and creating a need to differentiate and control the traffic flow. Applications such as enterprise resource planning (ERP) (Oracle and SAP, for example), voice (IP telephony traffic), and computer-aided design and manufacturing require prioritization over less-time-sensitive applications such as 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 giving voice traffic proper classification and priority throughout the network. Cisco switches implement superior QoS to help ensure that network traffic is classified and prioritized and that congestion is avoided. QoS configuration is greatly simplified through automatic QoS, a feature that detects Cisco IP phones and automatically configures the switch for the appropriate classification and egress queuing. This feature optimizes traffic prioritization and network availability without the challenge of a complex configuration.

**Q. Does the Cisco Catalyst 2950 Series have redundant power supply support?**

**A.** Yes, each Cisco Catalyst 2950 model has a redundant power supply option.

**Q. What is the difference between the Cisco RPS 675 Redundant Power System and the Cisco RPS 300 Redundant Power System?**

**A.** The Cisco RPS 300 has reached end-of-sale status; customers should buy the Cisco RPS 675. The Cisco RPS 675 is the next generation of the Cisco RPS 300. It provides more power (675W) than the Cisco RPS 300 (300W). The Cisco RPS 675 can provide

up to 375W of –48V power and 300W of 12V power. Unlike the Cisco RPS 300, the Cisco RPS 675 comes up in active mode—the customer does not need to push a button to activate the Cisco RPS 675 after a power failure.

**Q. Can Cisco Catalyst 2950 Series Switches be upgraded to enable IP routing?**

**A.** No. None of the Cisco Catalyst 2950 Series Switches can be upgraded to enable IP routing. Cisco Catalyst 3560 and 3750 Series Switches can enable IP routing.

**Q. Do Cisco Catalyst 2950 Series Switches support Gigabit Ethernet connectivity? Do they support GBIC-based uplinks?**

**A.** Cisco Catalyst 2950 Series Switches support Gigabit Ethernet connectivity through either fixed 10/100/1000BASE-T ports, fixed 1000BASE-SX ports, or GBIC ports. The following GBICs are supported: 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, 1000BASE-T, coarse wavelength-division multiplexing (CWDM), and the Cisco GigaStack® stacking GBIC.

The Cisco Catalyst 2950T 24 provides 24 10/100 ports with 2 fixed 10/100/1000BASE-T uplink ports, and the Cisco Catalyst 2950T 48 SI provides 48 10/100 ports with 2 fixed 10/100/1000BASE-T uplink ports. The 10/100/1000BASE-T ports on these switches can be connected to other switches that support 1000BASE-T GBICs or ports, or they can be connected to copper gigabit-enabled servers.

The Cisco Catalyst 2950SX 24 provides 24 10/100 ports with 2 fixed 1000BASE-SX uplink ports, and the Cisco Catalyst 2950SX 48 SI provides 48 10/100 ports with 2 fixed 1000BASE-SX uplink ports. The 1000BASE-SX ports on these switches can be connected to other switches that support 1000BASE-SX ports or GBICs, or they can be used as uplinks to fiber connections.

The Cisco Catalyst 2950G 12 EI, Catalyst 2950G 24 EI, Catalyst 2950G 24 EI DC, and Catalyst 2950G 48 EI Switches each have 10/100 ports with 2 GBIC ports. The 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, 1000BASE-T, and 1000BASE-CWDM GBICs can be used in the GBIC ports to provide gigabit-speed uplinks using fiber cabling.

**Q. Do Cisco Catalyst 2950 LRE Series Switches support Gigabit Ethernet connectivity? Do they support GBIC-based uplinks?**

**A.** Cisco Catalyst 2950 LRE Series Switches support Gigabit Ethernet connectivity through either fixed 10/100/1000 ports or SFP ports. The following SFPs are supported: 1000BASE-SX, 1000BASE-LX, 1000BASE-ZX, and 1000BASE-T.

**Q. Do Cisco Catalyst 2950G Series Switches support the Cisco 1000BASE-T GBIC?**

**A.** Yes. Cisco Catalyst 2950G Series Switches support the Cisco 1000BASE-T GBIC.

**Q. What are the highlights of the Cisco fixed-configuration 1000BASE-T (Gigabit Ethernet over copper) solution for medium-sized businesses and enterprise branches?**

**A.** When combined with a Cisco Catalyst 3560 or Catalyst 3750 Series Switch with IP routing, the Cisco Catalyst 2950 Series Switches are an affordable way to complete a LAN solution that deploys intelligent services such as advanced QoS, rate limiting, network security, and multicast management to the edge of a network. The Cisco Catalyst 2950T 24 Switches have two built-in 10/100/1000BASE-T uplinks, ideal for midsize-business and enterprise-branch customers moving from Fast Ethernet to a higher-performance Gigabit Ethernet backbone using existing Category 5 copper cabling.

**Q. What are the highlights of the Cisco fixed-configuration, 1000BASE-SX (Gigabit Ethernet over fiber), and 1000BASE-T (Gigabit Ethernet over copper) solutions for small to medium-sized businesses and government and education organizations?**

**A.** The Cisco Catalyst 2950SX 24, Catalyst 2950SX 48 SI, and Catalyst 2950T 48 SI Switches are cost-effective standalone, managed switches for basic connectivity.

Dual integrated 1000BASE-SX ports and 1000BASE-T ports provide redundancy and increased availability, as well as a cost-effective means for cascading switches and managing them in a community. These switches are extremely easy to install and manage

using Cisco Network Assistant software, a GUI-based network-management tool that allows users to configure and troubleshoot up to 16 Cisco Catalyst fixed-configuration switches, routers, access points, and select Cisco modular switches.

**Q. What software features are available on the Cisco Catalyst 2950 Series Switches?**

- A.** The Cisco Catalyst 2950 software feature set delivers intelligent services to the edge of the network. Important additions to the feature set include advanced QoS with an ability to map DSCP to class of service (CoS) or CoS to DSCP; rate limiting based on several ACPs such as source or destination IP address, source or destination MAC, and TCP or User Datagram Protocol (UDP) port number; and sophisticated security through filtering. In addition to Layer 3 and 4 lookups, the Cisco Catalyst 2950 Series offers new ease-of-use and deployment features such as Dynamic Trunking Protocol (DTP), Port Aggregation Protocol (PAgP), dynamic VLANs, and VLAN Trunking Protocol (VTP) pruning. For a full listing of software features supported by the Cisco Catalyst 2950 Series, refer to the Cisco Catalyst 2950 Series EI data sheet at [www.cisco.com/go/catalyst2950](http://www.cisco.com/go/catalyst2950).

The Cisco Catalyst 2950 12, Catalyst 2950 24, Catalyst 2950SX 24, Catalyst 2950SX 48 SI, and Catalyst 2950T 48 SI Switches do not support the intelligent services described earlier. These products—aimed at the price-sensitive customer—deliver superior LAN-edge Layer 2 QoS, superior multicast management using Internet Group Management Protocol Version 3 (IGMPv3) snooping in hardware, ease of use using the Express Setup feature, and wire-speed performance. For a full listing of software features available on these switches, refer to the Cisco Catalyst 2950 Series SI data sheet at [www.cisco.com/go/catalyst2950](http://www.cisco.com/go/catalyst2950).

All Cisco Catalyst 2950 Series Switches support all traditional wiring-closet features such as a Web management interface, Network Timing Protocol (NTP), port-based VLANs, Cisco Fast EtherChannel® technology, Cisco Gigabit EtherChannel technology, 802.1Q VLAN tagging support, VTP, UplinkFast, Per VLAN Spanning Tree Plus (PVST+), TACACS+, and RADIUS.

**Q. What are the highlights of the network security features available on Cisco Catalyst 2950 Series Switches?**

- A.** Cisco Catalyst 2950 Series Switches offer enhanced data security through several security features, which allow customers to secure network-management traffic by encrypting passwords and configuration information; provide options for network security based on users, ports, or MAC addresses; and restrict access to sensitive areas of the network. The security enhancements are available free of charge by downloading the latest software release for the Cisco Catalyst 2950 Series Switches.

Private VLAN Edge, available on both Cisco Standard Image and Enhanced Image software, isolates ports on a switch, to help ensure that users cannot snoop on other users' traffic. Local proxy Address Resolution Protocol (ARP) works in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth. Port-based ACPs, available only on Cisco Enhanced Image software, restrict sensitive portions of the network by denying packets based on source and destination MAC addresses, IP addresses, or TCP/UDP ports. ACP lookups are performed in hardware, so forwarding performance is not compromised when implementing this type of security in the network.

Port security provides another means to help ensure that the appropriate user is on the network by limiting access based on MAC addresses. In addition, all Cisco Catalyst 2950 Series Switches support IEEE 802.1x user authentication and many Cisco IEEE 802.1x enhancements, including:

- IEEE 802.1x with voice VLAN, which permits an IP phone access to the voice VLAN regardless of the authorized or unauthorized state of the port
- IEEE 802.1x with port security, which authenticates the port and manages network access for all MAC addresses, including that of the client
- IEEE 802.1x with guest VLAN, which allows guests without 802.1x clients to have limited network access on the guest VLAN

- IEEE 802.1x with VLAN assignment, which allows a dynamic VLAN assignment for a specific user regardless of where the user is connected

Secure Shell (SSHv2) Protocol Version 2 and Simple Network Management Protocol Version 3 (SNMPv3) protect information from tampering or eavesdropping by encrypting information that passes along the network, thereby guarding administrative information.

With the Cisco Enhanced Image software and Cisco Catalyst 2950 Switches, network managers can implement high levels of console security. Multilevel access security on the switch console and the Web-based management interface prevents unauthorized users from accessing or altering switch configuration. TACACS+ and RADIUS authentication enables centralized access control of the switch and restricts unauthorized users from altering the configuration. Cisco Network Assistant software security wizards ease the deployment of security features that restrict user access to a server, a portion of the network, or the entire network.

**Q. Do Cisco Catalyst 2950 Series Switches support Cisco Switch Clustering?**

**A.** Yes. Cisco Catalyst 2950 Series Switches can be managed using the Cisco Network Assistant software, which uses Cisco Switch Clustering technology. Through Cisco Network Assistant software, users can manage an unlimited number of switch clusters with up to 16 of these switches per cluster, regardless of their physical proximity. However, Community is the next-generation discovery mechanism that allows common services to be applied to switches, routers, and access points. These services include Cisco IOS Software upgrades, configuration management, inventory reports, network events, alerts, and password synchronization. Moving to Community allows you to use the new features such as the drag-and-drop Cisco IOS Software upgrade.

**Q. What kind of network management is available on the Cisco Catalyst 2950 Series?**

**A.** The Cisco Catalyst 2950 Series can be managed via the embedded Cisco Device Manager, the free Cisco Network Assistant software, and through SNMP network-management platforms such as CiscoWorks.

The Cisco Catalyst 2950 Series delivers a comprehensive set of management tools to provide the required network visibility and control. Managed with CiscoWorks, Cisco Catalyst switches can be configured and managed to deliver end-to-end device, VLAN, traffic, and policy management. CiscoWorks Resource Manager Essentials, a Web-based management tool, offers automated inventory collection, software deployment, easy tracking of network changes, views into device availability, and quick isolation of error conditions.

The Cisco Catalyst 2950 Series supports the following applications:

- CiscoWorks Campus Manager
- CiscoWorks CiscoView
- CiscoWorks Resource Manager Essentials
- CiscoWorks Device Fault Manager
- Cisco Secure User Registration Tool (VLAN Membership Policy Server [VMPS])
- Cisco Secure Access Control Server (RADIUS, TACACS+)
- CiscoWorks Internetwork Performance Monitor
- Cisco Service Assurance Agent

**Q. Are the Cisco Catalyst 2950 Series Switches available with Web-based setup?**

**A.** The Cisco Catalyst 2950 Series Switches support Express Setup, a feature designed to simplify the initial out-of-the box deployment experience with Cisco Catalyst fixed-configuration switches. In the past, users had to connect a computer to the console port of the switch (using a special rollover cable); launch a terminal emulation program; and then configure an IP address, switch name, password, and so on using the CLI. With Express Setup, the user can now simply connect a PC with an Ethernet cable into any port

on the switch, hold the Mode button to activate Express Setup, and launch a Web browser. The switch can then be set up using a single Webpage.

## PRODUCT POSITIONING

### Q. What is the positioning of Cisco Catalyst 2950 Series Switches?

- A.** Cisco Catalyst 2950 Series Switches are fixed-configuration, stackable models that provide wire-speed Fast Ethernet and Gigabit Ethernet connectivity for small and medium-sized networks. The Cisco Catalyst 2950 Series with Cisco Enhanced Image software is an affordable product line that brings intelligent services such as advanced QoS, enhanced network security, and high availability to the network edge—while maintaining the simplicity of traditional LAN switching. When a Cisco Catalyst 2950 Series Switch is combined with a Cisco Catalyst 3560 Series Switch, the solution helps enable IP routing from the edge to the core of the network. Embedded in the Cisco Catalyst 2950 Series is Cisco Device Manager software, which allows users to configure and troubleshoot a Cisco Catalyst fixed-configuration switch using a standard Web browser. Cisco Network Assistant software provides new configuration wizards that greatly simplify the implementation of converged applications and networkwide services.

The Cisco Catalyst 2950 12, Catalyst 2950 24, Catalyst 2950SX 24, Catalyst 2950SX 48 SI, and Catalyst 2950T 48 SI Switches are standalone, fixed-configuration, managed 10/100 switches providing basic workgroup connectivity for small to medium-sized companies. These wire-speed desktop switches come with Cisco Standard Image software features and offer Cisco IOS Software functions for basic data, video, and voice services at the edge of the network. Embedded in the Cisco Catalyst 2950 Series is Cisco Device Manager software, which allows users to configure and troubleshoot a Cisco Catalyst fixed-configuration switch using a standard Web browser.

### Q. What is the positioning of the Cisco Catalyst 2950 LRE Series Switches?

- A.** Cisco provides a breadth of technologies that allow customers to extend intelligent services across any combination of wired and wireless infrastructures. Cisco Catalyst 2950 LRE Series Switches help customers extend intelligent services over existing phone lines and traditional wiring to distances up to 5000 feet. The Cisco Catalyst 2950 LRE Series helps customers easily deploy and use all the enhanced features and functions of Cisco Catalyst 2950 Series Switches while eliminating the costs of rewiring.

## PRODUCT TRANSITIONS

### Q. What is the positioning of the Cisco Catalyst 2960 Series with respect to Cisco Catalyst 2950 Series Switches?

- A.** The Cisco Catalyst 2960 Series Switches are the company's intelligent switching and 10/100/1000 offerings. Both product families are designed for similar topological positions in the network, deploying networkwide intelligent services such as advanced QoS, rate limiting, access control lists (ACLs), multicast management, and high-performance routing. In contrast to the Cisco Catalyst 2950 Series, the Cisco Catalyst 2960 Series offers 10/100/1000 models as well as the flexibility of dual-purpose uplink options through SFP-based Gigabit Ethernet ports instead of GBIC-based ports. The Cisco Catalyst 2950T 24, Catalyst 2950T 48 SI, Catalyst 2950G 12 EI, Catalyst 2950G 24 EI, or Catalyst 2950G 48 EI Switches are being end-of-saled. Customers purchasing these switches are encouraged to buy the equivalent Cisco Catalyst 2960 Switch, which provides better functions and greater longevity—at the same price. For more information about Cisco Catalyst 2960 Series Switches, visit [www.cisco.com/go/catalyst2960](http://www.cisco.com/go/catalyst2960).

### Q. What is the positioning of the Cisco Catalyst 2950 Series with respect to Cisco Catalyst 2900 XL Series Switches?

- A.** The Cisco Catalyst 2950 Series includes hardware configurations that support GBIC-based gigabit connectivity as well as stacking. The Cisco Catalyst 2950 Series also delivers numerous intelligent services to the network edge, at prices lower than those of Cisco Catalyst 2900 XL and Catalyst 3500 XL Series configurations.

Customers previously purchasing fixed-configuration Cisco Catalyst 2900 XL Series Switches now have superior alternatives with the Cisco Catalyst 2950, 2960, 2970, 3560, and 3750 Series Switches. Cisco announced the end of sale of the fixed-configuration Cisco



Catalyst 2900 XL Series on October 31, 2001. For more information, visit

[http://www.cisco.com/en/US/products/hw/switches/ps607/prod\\_eol\\_notice09186a008063c51a.html](http://www.cisco.com/en/US/products/hw/switches/ps607/prod_eol_notice09186a008063c51a.html).

**Q. What is the positioning of the Cisco Catalyst 2950 Series with respect to Cisco Catalyst 3500 XL Series Switches?**

**A.** Customers previously purchasing a Cisco Catalyst 3512 XL, Catalyst 3524 XL, Catalyst 3548 XL, or Catalyst 3550 Series Switch now have superior alternatives with the Cisco Catalyst 2950, Catalyst 2960, Catalyst 2970, Catalyst 3560, and Catalyst 3750 Series. Cisco announced the end of sale of the Cisco Catalyst 3512 XL, 3524 XL, and 3548 XL Switches on July 27, 2002. The company announced the end of sale of the Cisco Catalyst 3550 Series Switches on May 2, 2005. For more information, visit [http://www.cisco.com/en/US/products/hw/switches/ps607/prod\\_eol\\_notice09186a008063c51a.html](http://www.cisco.com/en/US/products/hw/switches/ps607/prod_eol_notice09186a008063c51a.html).

**Q. Is the Cisco Catalyst 2950 Series compatible with the Cisco Catalyst 2900 XL and Catalyst 3500 XL Series?**

**A.** The Cisco Catalyst 2950 Series Switches are mostly compatible with the Cisco Catalyst 3500 XL and Catalyst 2900 XL Series Switches, but they do not support Inter-Switch Links (ISLs). The “Cisco Catalyst 2950 Series Roadmap” section has more information. Committed to protecting customer investments in desktop switches, Cisco has tried to ensure that all desktop switching platforms—Cisco Catalyst 2940, Catalyst 2950, Catalyst 2960, Catalyst 2970, Catalyst 3550, Catalyst 3560, and Catalyst 3750 Series—can be used together and managed using the Cisco Network Assistant software, a PC-based GUI network-management application.

**Q. What is the future of the modular products in the Cisco Catalyst 2900 XL Series Switches?**

**A.** The Cisco Catalyst 2900 XL Series ATM modules reached end of sale on July 27, 2002. The other Cisco Catalyst 2900 XL Series modules and the modular Cisco Catalyst 2900 XL Series Switches reached end of sale on April 9, 2004.

**Q. What is the positioning of the Cisco Catalyst 2950 Series with respect to the Cisco Catalyst 1900 Series, the Cisco Catalyst 2820 Modular Ethernet Switch, and Cisco FastHub 400 10/100 Series repeaters?**

**A.** The Cisco Catalyst 2950 Series offers the ideal solution for customers migrating from switched Ethernet in their LANs to switched Fast Ethernet or Gigabit Ethernet. For customers who have Cisco Catalyst 1924 A or Catalyst 1924 EN Switches installed in their LANs, the Cisco Catalyst 2950T 24 offers the most appropriate migration path. The Cisco Catalyst 2950T 24 offers 24 10/100 desktop ports and 2 fixed 10/100/1000BASE-T uplink ports, and the Cisco Catalyst 2950T 48 SI offers 48 10/100 desktop ports and 2 fixed 10/100/1000BASE-T uplink ports, providing an easy migration path to Fast Ethernet and Gigabit Ethernet using existing Category 5 cabling. The Cisco Catalyst 2950SX 24 and Catalyst 2950SX 48 SI also offer 24 and 48 10/100 desktop ports, respectively, but with 2 fixed 10/100/1000BASE-SX uplink ports for gigabit connectivity where fiber is a requirement. For customers who are looking for robust connectivity to the desktop, the Cisco Catalyst 2950 24 also offers an affordable alternative to the Cisco Catalyst 1924 A, Catalyst 1924 EN, or Catalyst 2828-A Ethernet. The end of sale for the Cisco Catalyst 1900 Series, the Cisco Catalyst 2820, and the Cisco FastHub 400 10/00 Series was announced on July 27, 2002. For more information, visit <http://www.cisco.com/en/US/products/hw/switches/ps574/index.html> or <http://www.cisco.com/en/US/products/hw/hubcont/ps858/index.html>.

**Q. What is the positioning of the Cisco Catalyst 2950 LRE Series with respect to Cisco Catalyst 2900 Series LRE XL Switches?**

**A.** The Cisco Catalyst 2950 Series includes hardware configurations that support SFP-based Gigabit Ethernet connectivity as well as stacking. The Cisco Catalyst 2950 Series also delivers numerous intelligent services to the edge of a network more cost-effectively than Cisco Catalyst 2900 Series LRE XL configurations. Customers previously purchasing fixed-configuration Cisco Catalyst 2900 XL Series Switches now have superior alternatives with the Cisco Catalyst 2950 Series.

**Q. Is the new Cisco Catalyst 2950 LRE Series compatible with Cisco Catalyst switches and Cisco LRE customer premises equipment (CPE)?**

**A.** The Cisco Catalyst 2950 LRE Series is compatible with the entire Cisco Catalyst Family product line. Cisco LRE devices are fully interoperable with both the Cisco Catalyst 2900 Series LRE XL and the Cisco Catalyst 2950 LRE Series.

**Q. How is the Cisco Catalyst 2970G-24T Switch positioned relative to the Cisco Catalyst 2950 Series?**

- A.** The Cisco Catalyst 2970G-24T is a cost-effective means for customers of the Cisco Catalyst 2950 Series to migrate to gigabit at the access layer. As the Catalyst 2970 Series switches are being end-of-sales, customers buying these switches are encouraged to buy Catalyst 2960G-24TC and Catalyst 2960G-48TC switches instead.

**CISCO CATALYST 2950 SERIES ROADMAP****Q. Does the Cisco Catalyst 2950 Series support ISL trunking? Are there any plans to support ISL in the future?**

- A.** No. The Cisco Catalyst 2950 Series does not support ISL trunking, and there are no plans to support it on the Cisco Catalyst 2950 Series platform. For customers with a requirement to deploy ISL trunking, the Cisco Catalyst 3560 Series supports both ISL and 802.1Q trunks. A recommended migration to the ISL trunking standard while using the Cisco Catalyst 2950 Series is to place an ISL or dot1Q-capable device between the ISL-supported device and the Cisco Catalyst 2950 Series Switch.

**Q. Does Cisco offer five packs or multipacks of the Cisco Catalyst 2950 Series Switches?**

- A.** No. Cisco does not offer global five packs or other multipacks for the Cisco Catalyst 2950 Series.

**SOFTWARE UPDATES****Q. How do I get a “no additional cost” Cisco IOS Software update for my Cisco Catalyst 2950 Series switch?**

- A.** Customers who own a software license for the Cisco Catalyst 2950 Series can obtain a software update at the Cisco.com Website.

Go to the following URL: <http://tools.cisco.com/support/downloads/pub/MDFTree.x?butype=switches> or from <http://www.cisco.com>, click Downloads and select Switch Software. 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: <http://tools.cisco.com/RPF/register/register.do>.

**WARRANTY AND SERVICE****Q. What is the warranty for Cisco Catalyst 2950 Series switches?**

- A.** Cisco Catalyst 2950 switches come with the Cisco Limited Lifetime Hardware Warranty.

**LIMITED LIFETIME WARRANTY**

The hardware warranty available on the Cisco Catalyst 2900 XL and Catalyst 3500 XL Series and Cisco Catalyst Express 500, Catalyst 2940, Catalyst 2950, Catalyst 2960, Catalyst 2970, Catalyst 3550, Catalyst 3560, Catalyst 3750, Catalyst 3560-E and Catalyst 3750-E Series is the Limited Lifetime Hardware Warranty. This warranty automatically comes with the purchase of eligible Cisco Catalyst products, free of charge. Additionally, it offers free advanced replacement of products within 10 business days. For details on the Limited Lifetime Hardware Warranty, visit [http://www.cisco.com/en/US/docs/general/warranty/English/LH2DEN\\_.html](http://www.cisco.com/en/US/docs/general/warranty/English/LH2DEN_.html).

**Q. What service and support is available for the Cisco Catalyst 2950 Series?**

- A.** A full complement of lifecycle service and support is available for the Cisco Catalyst 2950 Series. From implementation to operation and optimization, Cisco offers technical support services and advanced services delivered either directly by Cisco or through one of its best-in-class partners.

**TECHNICAL SUPPORT SERVICE**

Technical support service is available through the Cisco SMARTnet<sup>®</sup> and Cisco SMARTnet Onsite programs. Cisco SMARTnet services augment the resources of your operations staff by giving them access to a wealth of expertise, both online and by telephone, and several hardware Advance Replacement options. Cisco SMARTnet Onsite services complement 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

replace parts. For more information about Cisco SMARTnet solutions, visit [http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2978/serv\\_group\\_home.html](http://www.cisco.com/en/US/products/svcs/ps3034/ps2827/ps2978/serv_group_home.html).

## PRODUCT AND CONTACT INFORMATION

**Q. Where can I find technical and product specifications and other information about the Cisco Catalyst 2950 Series?**

**A.** For product literature such as data sheets and product specifications, visit: [www.cisco.com/go/catalyst2950](http://www.cisco.com/go/catalyst2950).

## CISCO CATALYST 2950 SERIES TECHNICAL Q&A

**Q. If I want to use the Cisco RPS 300 or RPS 675 to provide redundant power to my Cisco Catalyst 2950 Series Switches, how would I implement this redundant power solution?**

**A.** The Cisco RPS 300 has reached end-of-sale status, so customers should buy the Cisco RPS 675. The Cisco RPS 300 and RPS 675 support the Cisco Catalyst 2950 Series by providing DC power to one failed unit at a time. You can connect up to six Cisco Catalyst 2950 Series, Catalyst 3524 XL, or Catalyst 3550 Series Switches (except the Cisco Catalyst 3550 24 PWR Switch) to the Cisco RPS 300. You can connect up to six Cisco Catalyst 2940, Catalyst 2950, Catalyst 2960, Catalyst 2970, Catalyst 3550, Catalyst 3560, or Catalyst 3750 Series Switches to the Cisco RPS 675. If one switch fails, the connected Cisco RPS 300 or RPS 675 will provide redundant power to that switch until you can replace the unit.

**Q. How can I connect the 100BASE-FX ports of the Cisco Catalyst 2950C 24 to the 100BASE-FX port device that has an SC or ST connector?**

**A.** Fiber patch cables are available from Cisco in 1-, 3-, or 5-meter lengths for connecting the MT-RJ connector on your Cisco Catalyst 2950C 24 to another 100BASE-FX device with an SC or ST connector. Table 2 lists the part numbers.

**Table 2.** Cisco Fiber Patch Cables

Description	Product Number	Availability
1-meter MT-RJ-to-SC patch cable	CAB-MTRJ-SC-MM-1M	Now
3-meter MT-RJ-to-SC patch cable	CAB-MTRG-SC-MM-3M	Now
5-meter MT-RJ-to-SC patch cable	CAB-MTRJ-SC-MM	Now
1-meter MT-RJ-to-ST patch cable	CAB-MTRJ-ST-MM	Now
3-meter MT-RJ-to-ST patch cable	CAB-MTRJ-ST-MM	Now
5-meter MT-RJ-to-ST patch cable	CAB-MTRJ-ST-MM	Now

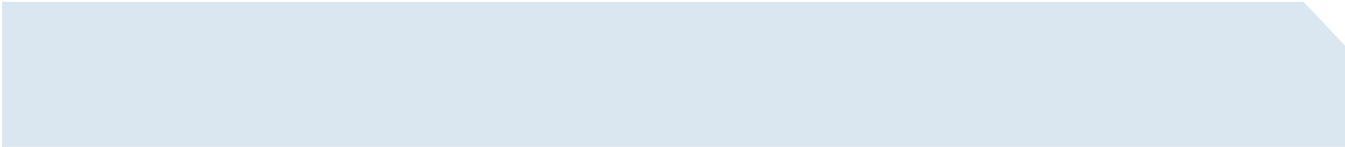
**Q. What network interface cards (NICs) have been tested for interoperability with the Cisco Catalyst 2950 Series?**

**A.** The following NICs have been tested and confirmed as interoperable with the Cisco Catalyst 2950 Series:

- 3Com 3c905 XL PCI 3c905-TX
- Compaq Netelligent 10/100 TX PCI UTP Option 169845-001
- HP NetServer 10/100 TX PCI LAN Adapter D5013
- Farrallon FastEthernet 10/100 TX PCI Card PN996L-TX FastEtherTX-10/100 PCI Plus Card
- IBM 10/100 EtherJet PCI Adapter 34L0801
- SOHWARE PCI FastEthernet Card SFA110A
- Netgear FA-310TX 10/100 FastEthernet PCI Card

- Intel PRO/1000 Server Adapter (Cisco and Intel have performed extensive interoperability testing between the Cisco Catalyst 2950 Series and the Intel PRO/1000 Server Adapter. Testing included autosensing and autonegotiation for all duplex and speed settings on all types of ports [10/100 and 10/100/1000], VLAN tagging, Fast EtherChannel technology, and Fast Gigabit technology.)

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