



Cisco Catalyst® 2950 Series Intelligent Ethernet Switches

This affordable line of stackable and standalone Intelligent Ethernet switches brings intelligence to the network edge—while maintaining the simplicity of traditional LAN switching.

Cisco Catalyst 2950 Series Intelligent Ethernet switches make it easy to extend intelligent services across the entire network, for increased availability, security, and quality of service (QoS).

These fixed-configuration switches are designed to provide a midsize network with wire-speed Fast Ethernet and Gigabit Ethernet connectivity, while supporting intelligent services such as advanced QoS, rate limiting, security filters, and multicast management at the network edge.

When paired with a Cisco Catalyst 3550 Series Switch, Cisco Catalyst 2950 Series Intelligent Ethernet switches enable high-performance IP routing from the edge to the core of the network.

Product Benefits

High Availability

Increase network uptime and employee productivity with rapid failover recovery, Layer 2 load balancing, bandwidth aggregation, redundancy, and simplified administration. Key features include Cisco Spanning-Tree Protocol enhancements, Dynamic Trunking Protocol, voice VLAN capabilities, Internet Group Management Protocol, and embedded Cisco Cluster Management Suite Software.

Enhanced Security

Increase LAN security with capabilities that secure network management traffic through the protection of passwords and configuration information; that offer options for network security based on users, ports, and MAC addresses; and that enable more immediate responses to intruder and hacker detection. Key features include Secure Shell Protocol, access control parameters, and port security with MAC aging.

Advanced Quality of Service

Increase network efficiency and ensure urgent needs are met by expediting time-sensitive applications such as IP voice and video—while making sure low-priority packets receive adequate bandwidth—and providing control over the amount of bandwidth across any configured interface. Key features include Weighted Round Robin, Strict Priority Scheduling, and rate limiting.

Cisco Catalyst 2950 Series Configurations

Product*	Features	Placement
Cisco Catalyst 2950G-48	Wire-speed stackable switching with 48 10/100 ports and 2 gigabit interface converter (GBIC)-based Gigabit Ethernet ports; 1 rack unit (RU)	Ideal for advanced desktop access layer connectivity
Cisco Catalyst 2950G-24	Wire-speed stackable switching with 24 10/100 ports and 2 GBIC ports; 1 RU	Ideal for advanced desktop access layer connectivity
Cisco Catalyst 2950G-24-DC	Wire-speed stackable switching with 24 10/100 ports, 2 GBIC ports, and DC power; 1 RU	Ideal for advanced desktop connectivity and telco/DCN environments
Cisco Catalyst 2950G-12	Wire-speed stackable switching with 12 10/100 ports and 2 GBIC ports; 1 RU	Ideal for advanced desktop access layer connectivity
Cisco Catalyst 2950T-24	Wire-speed standalone switching with 24 10/100 ports and 2 fixed 10/100/1000BASE-T uplink ports; 1 RU	Ideal for gigabit migration over copper backbones in the access layer
Cisco Catalyst 2950C-24	Wire-speed standalone switching with 24 10/100 ports and 2 fixed 100BASE-FX uplink ports; 1 RU	Ideal for advanced desktop access layer connectivity over fiber
Cisco Catalyst Gigabit Interface Converters (GBICs)	1000BASE-T, 1000BASE-SX, 1000BASE-LX/LH, 1000BASE-ZX, and Cisco GigaStack® GBICs	GBIC-based Gigabit Ethernet ports on the Catalyst 2950 Series switches (Catalyst 2950G-48/24/24-DC/12)

* Standard Software Image (SI) is provided on all Catalyst 2950 Series switches listed here.

Intelligence Made Easy

Cisco Cluster Management Suite (CMS) Software simplifies repetitive and time-consuming network management tasks, saving tremendous time and resources in deploying intelligence at the edge.

Cisco CMS Software allows users to configure, troubleshoot, and perform software upgrades on up to 16 Cisco Catalyst switches at once, regardless of their geographic proximity, using a standard web browser. It features wizards that automatically configure voice, video, and high-priority data ports, topology maps for a comprehensive layout of all clustered switches, link graphs and reports for real-time traffic updates, and configuration templates and guide modes to minimize training.

To make things easy right from the start, Cisco CMS Software is embedded in the switch—no installation required.

Cisco Catalyst 2950 Series Intelligent Ethernet Switches

High Availability Ensures employees can access data at all times, locally and remotely

Redundancy

- 802.1s Multiple Spanning-Tree Protocol enables load balancing and improves network fault tolerance by providing multiple forwarding paths for data traffic.
- 802.1w Rapid Spanning-Tree Protocol provides rapid recovery of uplink connectivity following failure.
- Cisco Spanning-Tree Protocol enhancements such as BackboneFast/UplinkFast/PortFast and CrossStack UplinkFast provide rapid recovery following failure.
- Support for the 300W Cisco redundant power system 300 (optional).

Management

- Award-winning Cisco Cluster Management Suite Software now enhanced with embedded

help, guide mode, and several configuration wizards.

- Support for dynamic VLAN assignment provides flexibility in assigning ports, enabling users to move to another location/port on the network and retain the same VLAN.
- Dynamic Trunking Protocol (DTP) enables dynamic trunk configuration across all ports on the switch. VLAN Trunking Protocol (VTP) supports dynamic VLANs and dynamic trunk configuration across all switches.

Bandwidth Optimization

- Voice VLAN allows network administrators to assign voice traffic to a VLAN dedicated to IP telephony, simplifying phone installations and providing easier network traffic administration and troubleshooting.

- Perform bandwidth aggregation via Cisco Fast EtherChannel® and Gigabit EtherChannel technology, the industry standard for aggregating ports for up to 2 Gbps full duplex on network or server connections. Use Port Aggregation Protocol (PagP) for automatic configuration.

- Monitor and manage delivery of multicast applications (e-learning and videoconferencing) while minimizing impact on performance using Internet Group Management Protocol (IGMP) to manage group membership information.
- Per-VLAN Spanning-Tree Plus (PVST+) increases available bandwidth by using redundant links for data traffic.

Enhanced Security Protects sensitive data and network resources from internal and external threats

- Secure Shell Protocol (SSH) and Simple Network Management Protocol v3 (SNMPv3) provide network security by encrypting administrator traffic—preventing unauthorized users from accessing passwords or configuration information.
- Filtering incoming traffic flows on a port basis in hardware is based on Layer 2–4 access control parameters (ACPs) to prevent unauthorized users from accessing restricted areas of the network.

- 802.1x, the industry standard for port-level authentication, ensures users are logged on and authenticated before data packets are transmitted.
- Private VLAN edge provides security and isolation between ports on a switch, ensuring that voice traffic travels directly from its entry point to the aggregation device through a virtual path and cannot be directed to a different port.
- Port security prevents unauthorized users from accessing the network by limiting the

number of MAC addresses allowed per port. An aging feature is used to remove MAC addresses after a specified time to allow another device to connect to the same port.

- MAC Address Notification allows administrators to be notified when new users are added or removed from the network.
- Support for RADIUS/TACACS+ authentication enables centralized control of the switch and restricts unauthorized users from altering the configuration.

Advanced Quality of Service Prioritizes critical traffic and applications to avoid bottlenecks

- Identify traffic flows or traffic groups, and classify or reclassify these groups using Diffserv Code Point (DHCP) in the IP packet and/or the 802.1p class of service (CoS) field in the Ethernet packet.
- Perform ingress rate limiting to control the amount of bandwidth across any configured interface, ensuring appropriate distribution of available bandwidth.

- Scheduling is performed in egress to assign the appropriate queues to the outgoing packets. Four egress queues allow network administrators to be more discriminating and specific in assigning priorities for the various applications on the LAN.
- Weighted Round Robin (WRR) is a queuing algorithm that ensures that the lower priority packets receive adequate bandwidth and are serviced without compromising the priority setting administered by the network.

- Strict Priority Scheduling ensures that the highest priority packets will always get serviced first, ahead of all other traffic. All other queues will be serviced by WRR.
- 6 policers per 10/100 port, 60 per gigabit port used to allocate bandwidth based on source/destination [IP address, MAC address] or Transmission Control Protocol (TCP)/User Datagram Protocol (UDP) port numbers.

For more information

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