Catalyst 1800



This chapter provides information on the Catalyst 1800. The information is organized into the following sections:

- Product Overview
- Standard Features
- Expansion Modules
- Product Numbers

Note Documentation for the Catalyst 1800 is available in two forms: on a CD called Cisco Connection Documentation, Enterprise Series and printed books. A CD and hard-copy installation documentation ship with each chassis, and a configuration note ships with each component ordered. All configuration notes are available on the CD. Additional CDs and a subscription CD update service are also available.

You can also access Cisco technical documentation on the World Wide Web URL http://www.cisco.com. For more information, see the chapter "Documentation" at the end of the catalog.

Product Overview

The Catalyst 1800 is a Token Ring switch that dramatically increases performance, flexibility, and management of Token Ring installations. The Catalyst 1800 inserts into existing Token Ring topologies without disrupting operation of the network and provides the following benefits:

- Increases throughput and decreases latency of the backbone connection
- Improves performance on each individual Token Ring
- Provides for the segregation of 4- and 16-Mbps nodes, allowing the 16-Mbps nodes to run at maximum speed
- Provides server centralization while maintaining logical server dedication to a specific ring
- Enhances network security
- Optimizes network management using standard tools such as SNMP



All network connections are made from the front of the system. The switched Token Ring ports use shielded RJ-45 connectors, supporting either UTP or STP cabling without requiring configuration changes. Each port is autosensing and autoconfiguring for 4-Mbps or 16-Mbps ring speeds and UTP or STP cabling. The console port, a DB-9 RS-232 connector located on the front of the system, supports local switch management. The switch can also be managed remotely via Telnet or CiscoView.

All of the switched Token Ring ports have identical physical interfaces. Standard shielded RJ-45 Token Ring interface connectors are provided on the front of the Catalyst 1800. The hardware has been designed to support Categories 3 and 5 UTP cables and Type 1 STP cables. No configuration changes or switch settings are required for the different cable types. Each port presents an active MAC interface that is suitable for connection directly into a concentrator.

The Catalyst 1800 can support up to 16 Token Ring ports. The 16 physical ports can be configured from 1 to 16 logical ring groups, where each group is defined by a token segment number (that is, ring number). Each logical ring group can then be part of a Source Route/Source Route Transparent (SR/SRT) group, bridged internally to the other logical ring group(s).

You can choose from two ring modes of operation: single-ring and multi-ring.

• In single-ring mode, each physical port is part of the same logical ring group, which is defined by a single segment number. Each port connects to a physical ring which can have one or more nodes connected to it. Logically, all nodes connected to all ring segments in a logical ring group see themselves as connected to the same ring. When all the ports of the Catalyst 1800 are configured to be part of a single ring, all frames (source routed and transparent) will be switched to the appropriate destination port primarily based upon their MAC destination address. Additionally, you can interconnect multiple Catalyst 1800s in this mode by connecting a single port between each device via a concentrator.

Any segment that is part of a logical single-ring group can have connections to other rings through either external bridges or routers. In some cases, this may create topologies that result in source routed packets from the same node arriving at two different ports that are part of the same logical ring group. When these topologies exist, theCatalyst 1800 automatically detects this and uses a combination of destination MAC address and the Routing Information Field (RIF) to determine the appropriate port to which to forward the packet.

 In multi-ring mode, you can internally connect logical ring groups via user-defined SR/SRT pairs. The Catalyst 1800 can be configured so that each port connects to a unique ring for a total of up to 16 rings. Links can then be established between pairs of SR/SRT groups. A fully meshed network can be created such that every SR/SRT group is connected to every other group.

The Catalyst 1800 can also be configured to create secure "firewalls" by not establishing these links between groups. Traffic will not be forwarded between SR/SRT groups that do not have a link defined.

The Catalyst 1800 also provides per port MAC address and protocol filtering. The MAC address filtering can based on destination address, source address, destination service access point, and Ethertype in Subnetwork Access Protocol frames.



The rear of the Cisco 1800 chassis has two identical slots, each of which can hold one power supply. All power supplies are identical and can be installed in either slot.

Figure 132 Catalyst 1800 Front View



Table 267 summarizes the features of the Catalyst 1800. Table 268 lists the environmental specifications.

Characteristic	Description	
Ports	8 or 16 Token Ring or 12 Token Ring with 1 FDDI	
Front panel indicators	Base switch: Power System status Failure Individual ports: Ring status Port activity 16 Mbps	
Console interface	1 DB-9 RS-232	
Ring speed	Autosense 4 or 16 Mbps	
Power supply	1 or 2 replaceable units	
Addresses	8000 MAC addresses per switch	
Protocol compatibility	Transparent to higher-level protocols	
Network management	SNMP MIB II (RFC 1213) SRT Bridge MIB (RFC 1525) Managed Objects for Bridges (RFC 1493) IEEE 802.5 Token Ring (RFC 1231) Catalyst 1800 MIB	
Dimensions (HxWxD)	Standalone: 3.5 x 17 x 21" (89 x 432 x 534 mm) Rack-mount: 3.5 x 19 x 21" (89 x 483 x 534 mm)	
Weight	40 lbs	

Table 267 Catalyst 1800 Summary of Features



Description	Specification	
Temperature	32 to 104 F (0 to 40.0 C) ambient room temperature	
Relative humidity	0% to 90% non-condensing	
Electrical power	60 to 120 watts; 90-230 volts @ 50-60 hertz	

Table 268 Catalyst 1800 Environmental Specifications



Standard Features

The Catalyst 1800 provides the following features:

- Support for up to 8,000 MAC addresses in the forwarding database
- Support for source-route switching (SRS), source-route bridging (SRB), and source-route transparent bridging (SRTB)
- IEEE 802.5 compliant
- Self-diagnostics at power-up
- Support for NetBIOS name caching for reduction of broadcast explorer frames
- Support for all routes explorer frame broadcast reduction in redundant, dual backbone technologies
- RMON support for statistical analysis
- Support for IEEE 802.1d and IBM Spanning-Tree Protocol for transparently switched and source-route bridged topologies
- Support for Simple Network Management Protocol (SNMP v1) including the applicable objects of MIB-II (RFC 1213), Bridge MIB (RFC 1493), SRT Bridge MIB (RFC 1525), and 802.5 Transmission MIB (RFC 1231)
- Switch port analyzer port capability for mirroring port traffic
- Onboard storage of configuration parameters in Non-Volatile RAM
- Onboard PROM for board configuration data and MAC addresses
- Per-port LEDs for status
- Redundant power supplies
- Time of day port security is available to lock out ports on a per hour/day/week schedule
- 1 MB of Flash memory

If you need to upgrade your Catalyst 1800 software, you can use the same serial port used for configuration. The code can be downloaded from a customer-supplied programmable workstation using the Xmodem protocol or via TFTP.



Expansion Modules

The Catalyst 1800 has two expansion modules: an 8-port Token Ring module and an FDDI Uplink module.

8-Port Token Ring Module

The 8-port Token Ring module allows you to expand the base 8-port Catalyst 1800 to a 16-port Token Ring switch.

FDDI Uplink Module

The Catalyst 1800 FDDI Uplink module includes four switched Token Ring ports and an FDDI Uplink. This module provides connectivity for Token Ring sites with campus-based FDDI 100-Mbps backbone rings. Using the FDDI backbone, the Catalyst 1800 can provide communications to other Catalyst 1800 switches, to directly connected FDDI resources such as file servers, or through bridges and routers to a wide variety of other networks. The Catalyst 1800 supports full translational switching between a Token Ring port and an FDDI port. The source routing information is terminated and frames without source routing are sent on the FDDI link. In addition, IP and IPX MAC addresses are translated to insure interoperability. This allows up to seven source routing hops on each side of the FDDI backbone. This means that any device, including the Cisco router, connected to the FDDI ring can communicate with any other device connected to the Catalyst 1800 Token Ring port.

Also, this module allows the Catalyst 1800 to perform source-route bridging (SRB) over FDDI networks for interoperability with other SRB over FDDI devices.

In addition to providing versatile network applications, the Catalyst 1800 FDDI Uplink module supports the following special features:

Token Ring and FDDI translational switching

The Catalyst 1800 implements full translational switching when sending traffic between a Token Ring port and the FDDI port. This means that any device connected to the FDDI ring can communicate with any other device attached to one of the Catalyst 1800's Token Rings. Many switches use an encapsulation technique when sending traffic over their FDDI ports. With this method, only another switch from the same manufacturer can interpret the packet. A Token Ring device connected to the Catalyst 1800 can communicate with any type of server attached directly to the FDDI ring, regardless of the manufacturer.

In addition, this same Token Ring device can communicate with an Ethernet node attached to the FDDI ring, via a router or an Ethernet switch.

SRTB conversion mode support for FDDI

In this mode, Token Ring end systems that use source-routed frames can communicate with FDDI end systems that use transparent frames.





Product Numbers

The base Catalyst 1800 ships with a chassis, 8-port Token Ring card, power supply, power cable, and documentation. Table 269 lists the product numbers you can use to order a base Catalyst 1800, a customized Catalyst 1800, expansion modules, and spare parts. If a product number ends with an equal sign (=), the item can be ordered only as a spare. If a product number does not end with an equal sign, the item can only be ordered as a configurable part of a system order.

Table 269 Catalyst 1800 Product Numbers

Description	Product Numbers
8-port Catalyst 1800 Token Ring switch	WS-T1800
8-port Token Ring card	WS-T1800-8R
4-port Token Ring card with FDDI Uplink module	WS-T1800-4R1F
Chassis with 1 power supply	WS-T1800-CHASSIS
Power supply	WS-T1800-PWR
Spare power supply	WS-T1800-PWR=
Spare 8-port Token Ring card	WS-T1800-8R=
Spare 4-port card with FDDI uplink	WS-T1800-4R1F=

