

Overview

This chapter describes the features and components of the Cisco 1548M Micro Switch 10/100 (hereafter referred to as the “Micro Switch”). The Micro Switch is part of the Cisco Networked Office stack, a family of small-office networking platforms.

Overview of the Micro Switch

The Micro Switch is an 8-port managed switch with dual-speed, autonegotiated 10/100 Ethernet ports. The switch supports Spanning-Tree Protocol (STP), port-based virtual LANs (VLANs), Simple Network Management Protocol (SNMP) and web management functions.

Features

Table 1-1 describes the features of the Micro Switch.

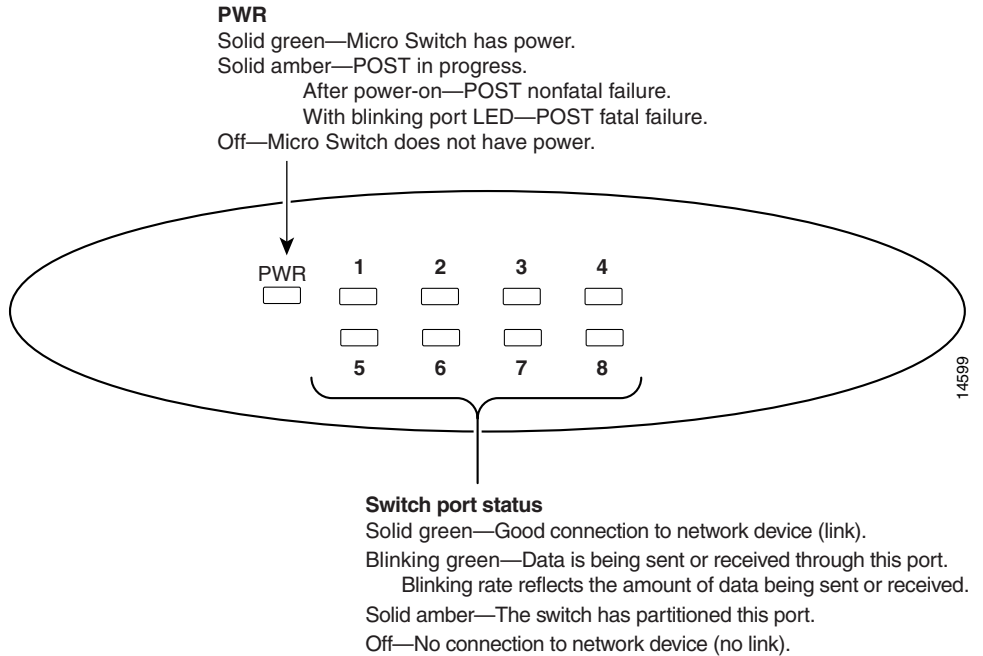
Table 1-1 Feature Summary of the Micro Switch

Feature	Description
Management	<ul style="list-style-type: none">• SNMP and Remote Monitoring (RMON) support provides full configuration, management, and monitoring on a per-port basis.• Three management interface options:<ul style="list-style-type: none">— The Cisco ConfigMaker configuration management application provides a single configuration interface for all products in the Cisco Networked Office stack.— A web console with an embedded HTTP server provides an interface for all supported management functions.— A command-line interface (CLI) provides the option of management through Telnet in-band or console port out-of-band connections.• Menu-based diagnostic console for switch recovery tasks.• CiscoView software, a GUI-based device management application, provides dynamic status, statistics, and comprehensive configuration information.• Cisco Discovery Protocol (CDP) enables network management stations to discover the switch in a network topology.
VLANs	<ul style="list-style-type: none">• The switch supports up to four port-based VLANs. Each port can be assigned to one or to all VLANs.
Performance	<ul style="list-style-type: none">• Autosensing on all ports allows automatic configuration for either 10BaseT or 100BaseT connections.• Each port automatically negotiates with a connected network device to operate in either half- or full-duplex mode.• The switch stores each incoming packet in memory and then forwards the packet to the appropriate port for delivery.
Security slot	<ul style="list-style-type: none">• The switch can be secured to a desktop or other surface using lockdown equipment.
Supported addresses	<ul style="list-style-type: none">• The switch supports 4096 source and destination addresses.
Standards conformance	<ul style="list-style-type: none">• The switch complies with IEEE 802.3 10BaseT and IEEE 802.3u 100BaseTX standards.

Front-Panel LEDs

Figure 1-1 describes the switch front-panel LEDs.

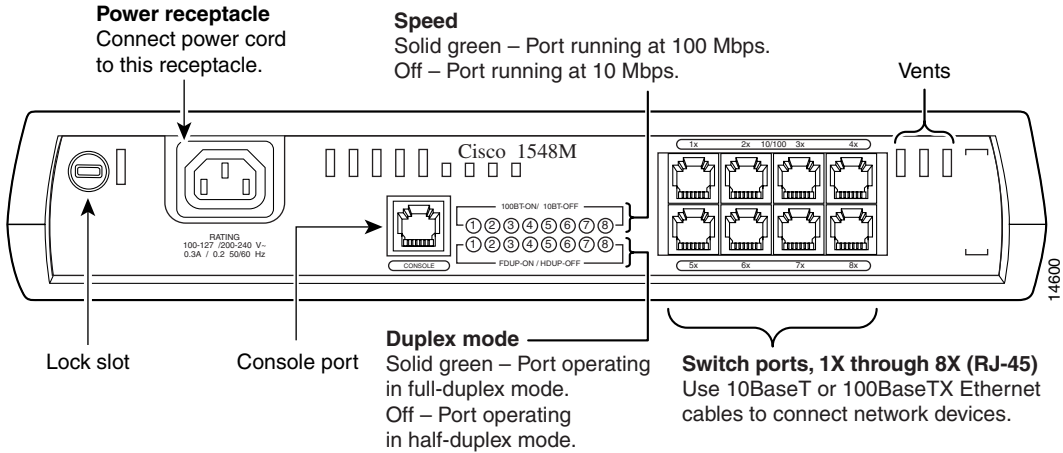
Figure 1-1 Front-Panel LEDs



Rear-Panel Components

Figure 1-2 shows the rear-panel ports, connectors, and LEDs.

Figure 1-2 Rear-Panel LEDs and Components of the Micro Switch



Management Options

You can use the default settings shipped with the switch, or you can customize the configuration through the Cisco 1548 Switch Manager web-based interface, the CLI, or SNMP.

The Cisco 1548 Switch Manager is the easiest interface to use for the basic configuration and monitoring tasks. To perform all the configuration and monitoring tasks, use the CLI and SNMP.

This section provides the following information:

- List of default configuration settings for the switch
- Overview of the Cisco 1548 Switch Manager and the basic management tasks you can perform using it

Note Procedures for performing management tasks and detailed information about the Cisco 1548 Switch Manager pages are also provided in the Cisco 1548M Micro Switch 10/100 Switch Manager online help.

- Overview of the CLI, which is fully described in the *Cisco 1548M Micro Switch 10/100 Command Reference*.
- Overview of SNMP and the switch Management Information Base (MIB) files.

Note The menu-based diagnostic console is described in the “Recovery Procedures Using the Diagnostic Console” section on page 4-6.

Default Configuration Settings

The switch is designed to operate with little or no user intervention. After you assign the IP information, the switch uses its default settings (Table 1-2) and begins forwarding packets as soon as it is powered up and connected to compatible devices.

Table 1-2 Default Settings and Cisco 1548 Switch Manager Pages

Feature	Default Setting	Switch Manager Page
Management		
IP information	0.0.0.0	IP Management Page
VLAN membership	VLAN 1	VLAN Management Page
Address table	—	Address Table Management Page
Cisco Discovery Protocol (CDP)	Disabled	CDP Management Page
Performance Tuning		
Speed of ports	Autonegotiate	Port Management Page
Duplex mode of ports	Autonegotiate	Port Management Page
Network Redundancy		
Spanning-Tree Protocol (STP)	Enabled	Spanning-Tree Management Page
Security		
Switch password	None	Home Page
Community string	public/private	SNMP Management Page
Trap manager	None	SNMP Management Page
Write manager	None	SNMP Management Page
Diagnostics		
Port monitoring	Disabled	SPAN Configuration Page
Usage reports	—	Detailed Port Statistics Page
	—	Statistics Reports Page
Remote monitoring	Enabled	—
Upgrades		
Firmware	—	System Configuration Page

For procedures on how to reset all switch console port settings to the factory defaults, see the “Resetting the Hub to the Factory Defaults” section on page 4-14.

Overview of the Cisco 1548 Switch Manager

The Cisco 1548 Switch Manager (hereafter referred to as the switch manager) is a web-based graphical user interface for basic switch configuration and monitoring. Using the switch manager, you can configure and monitor the switch from anywhere on your intranet.

Each switch manager page

- Provides fields, check boxes, and lists for changing the configuration settings
- Displays current information about the switch
- Provides online help for each page
 - Detailed information about the fields, lists, check boxes, and buttons
 - Specific procedures for performing management tasks

To use the switch manager, you must have one of these web browsers installed on your management station:

- Netscape Communicator 4.03 or higher
- Microsoft Internet Explorer 4.01 or higher

Management Tasks Supported on the Switch Manager

The management tasks you can perform from the switch manager can be grouped as described in Table 1-3.

Procedures for accessing and using the switch manager are provided in

- “Accessing the Cisco 1538 Hub Manager” section on page 2-27
- Chapter 3, “Configuring and Monitoring from the Hub Manager”

Note Information provided in Chapter 3, “Configuring and Monitoring from the Switch Manager,” is also provided in the switch manager online help.

Table 1-3 Configuration and Monitoring Tasks

Changing Switch and Port Configuration Settings

Assigning or Changing Basic Switch Information on page 3-4

Changing the Port Settings on page 3-9

Maintaining the Address Table on page 3-15

Changing the Switch IP Information on page 3-16

Changing the CDP Settings on page 3-23

Assigning Ports to Different VLANs on page 3-26

Changing the Spanning-Tree Protocol Settings on page 3-28

Changing the System Configuration on page 3-36

Changing Switch Security

Assigning or Changing the Switch Password on page 3-6

Changing the SNMP Settings on page 3-18

Monitoring Switch and Port Conditions

Using the Switch Image to Monitor the Switch on page 3-7

Checking or Resetting Port Statistics on page 3-13

Checking or Resetting Exception and Utilization Statistics on page 3-34

Monitoring Port Activity on page 3-21

Remote Monitoring on page 2-28

Overview of the Command-Line Interface

Using the CLI, you can access the switch software and perform the same basic system configuration and system monitoring tasks available through the switch manager. You can also perform privileged configuration and troubleshooting tasks available only through the CLI and SNMP.

Procedures describing how to access the CLI are in the “Accessing the CLI” section on page 2-29. For complete information about using the CLI, refer to the *Cisco 1548M Micro Switch 10/100 Command Reference*.

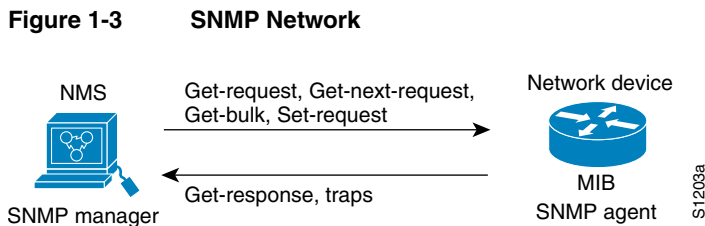
Overview of SNMP

You can configure and monitor the switch by accessing the Management Information Base (MIB) variables through Simple Network Management Protocol (SNMP), an application-layer protocol facilitating the exchange of management information between network devices. The switch supports a comprehensive set of MIB objects, including four Remote Monitoring (RMON) groups. (The “Accessing the MIB Files through SNMP” section on page 2-26 provides information about the MIB files and about accessing them.)

The SNMP system consists of three parts: SNMP manager, SNMP agent, and the MIB files. SNMP places all operations in a *get-request*, *get-next-request*, and *set-request* format. For example, an SNMP manager can get a value from an SNMP agent or store a value into that SNMP agent. The SNMP manager can be part of a network management system (NMS), and the SNMP agent can reside on a networking device such as a switch. You can compile the switch MIB files with your network management software. The SNMP agent can respond to MIB-related queries being sent by the NMS.

An example of an NMS is the CiscoWorks network management software. CiscoWorks uses the switch MIB variables to set device variables and to poll devices on the network for specific information. The results of a poll can be displayed as a graph and analyzed in order to troubleshoot internetworking problems, increase network performance, verify the configuration of devices, monitor traffic loads, and more.

Figure 1-3 shows how the SNMP agent gathers data from the MIB file, which holds information about device parameters and network data. The agent can send traps, or notification of certain events, to the manager.



Note Make sure you use the correct Read and Write community strings so that your SNMP request does not fail. Refer to the online help SNMP Management Page for the correct community strings.

The SNMP manager uses information in the MIB files to perform the operations described in Table 1-4.

Table 1-4 SNMP Manager Operations

Operation	Description
get-request	Retrieves a value from a specific variable.
get-next-request	Retrieves a value from a variable within a table. ¹
get-response	Reply to a get-request, get-next-request, and set-request sent by an NMS.
set-request	Store a value in a specific variable.
trap	Send an unsolicited message from an SNMP agent to an SNMP manager indicating that some event has occurred.

1. An SNMP manager does not need the exact variable name. It sequentially searches to find the needed variable from within a table.

Network Examples Using the Micro Switch

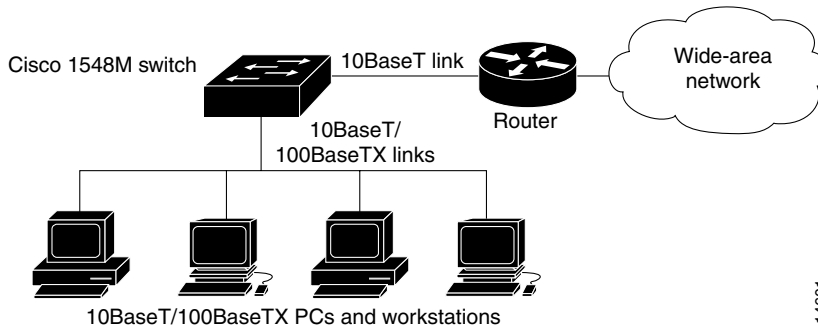
This section describes common examples of how you can use the switch:

- Connecting high-performance desktops
- As a network backbone for a small- to medium-sized network

High-Performance Desktop

You can build a network of high-performance users for your small business or workgroup by using the Micro Switch and other compatible network devices such as a router, PCs, or workstations. Figure 1-4 shows an example of such a network.

Figure 1-4 High-Performance Desktop Configuration



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Network Backbone

Figure 1-5 shows an example of a network backbone for a small business or workgroup using a Micro Switch and other network devices.

Figure 1-5 Network Backbone

