

Overview of the Hub

The Cisco Micro Hub is a small, desktop hub used for connecting network devices in a small branch or remote office. You can connect up to eight network devices to one Cisco Micro Hub.

By purchasing a Cisco Micro Hub, you can be confident about designing, installing, and maintaining a reliable, scaleable, easy-to-configure network for your branch office or small business.

If you have never set up a network before, then this user guide is written for you. We have tried to define networking terms that you may be unfamiliar with, and we have tried to identify the technical areas in which you may not have experience.

This chapter describes the Cisco Micro Hub, defines some network terms that you may not be familiar with, and includes the following information:

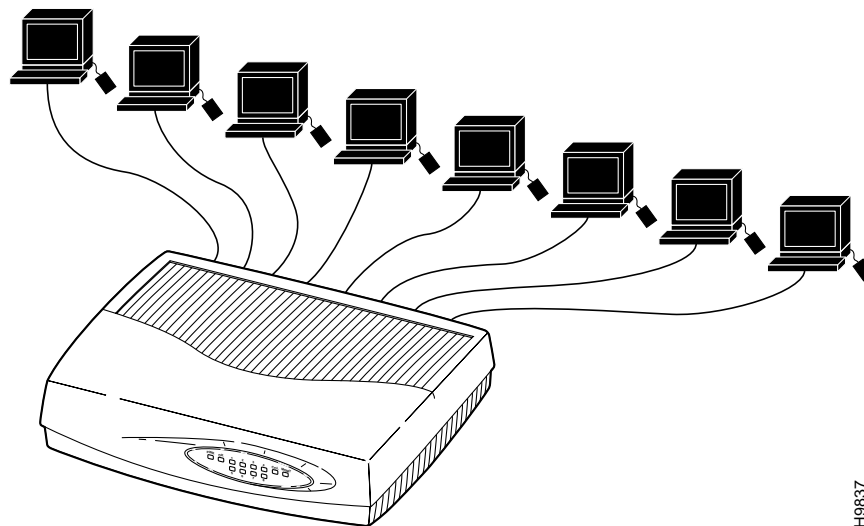
- Cisco Micro Hub Overview—A description of where the Cisco Micro Hub fits into your network.
- Networking Terms—Definitions of some networking terms that might be unfamiliar.
- Cisco Micro Hub Features—Detailed description of the hub's features and benefits.
- Hub Connectors—Detailed description of the connectors on the rear panel of the hub.
- Hub LEDs—Detailed description of the informative LEDs on the front panel of the hub.

Cisco Micro Hub Overview

The hubs are available in three models. Up to four hubs can be stacked and interconnected, in any combination of the three models.

- Micro Hub 1503—An 8-port hub that can be monitored and controlled through the CONSOLE port on the rear panel or using Telnet. The Micro Hub 1503 can be configured with its own firmware or remotely, using optional network management software (such as CiscoView StackMaker).
- Micro Hub 1502—An 8-port hub that does not have a CONSOLE port, but can be monitored and controlled by connecting it to a Micro Hub 1503.
- Micro Hub 1501—An 8-port hub that does not have a CONSOLE port and cannot be monitored or controlled, even when connected to a Micro Hub 1503. This model can also be used alone, if no management capabilities are required.

Figure 1-1 **Connect Up to Eight Workstations to the Cisco Micro Hub**

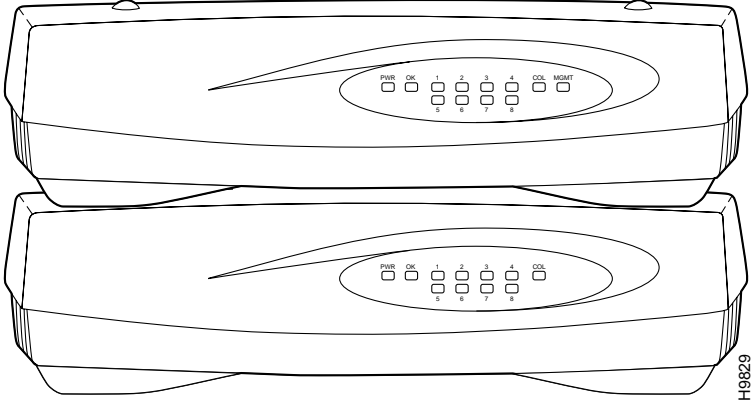


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You can use any of the hub models as a standalone networking device, or connected to other compatible 10BaseT hubs or switches to form a larger network. You can also stack and connect up to four hubs through rear panel ports, to form a larger network.

By adding one Micro Hub 1503 to a stack of Micro Hub 1502s, you can configure and manage all the hubs in the stack from a remote location. Stacking four Cisco Micro Hubs together enables you to manage up to 32 hub ports.

Figure 1-2 Stack Cisco Micro Hubs to Create Larger Managed Networks



Networking Terms

Following are some terms that are used in this guide:

bootp	Bootstrap Protocol—A protocol that can be used to boot the Micro Hub 1503. Select this option with the bootup-option bootp-download command. This command configures the hub to download an IP address and operating firmware from a file server on the same LAN as the hub.
collision	When two devices on an Ethernet network transmit data at the same time, the data packets from each device collide on the network cable and are damaged.
device	A piece of computer equipment, such as a workstation or printer, on a network that communicates with equipment on the network. Also referred to as a node.
Ethernet	A type of LAN that connects network devices by cable and data is broken into packets before being sent to the destination on the cable.
firmware	Software that is stored in read-only memory (ROM). The hub uses this type of software. Firmware controls hub operation when the hub is first powered up.
gateway address	An IP address for a router that is on the same network segment as the hub. The gateway address is required if the workstation used for managing the hub is on a different network segment from the hub. Configuring the hub with a gateway address enables the hub to send data through the router, to the workstation.
IP	Internet Protocol—A network layer protocol in the TCP/IP stack offering a connectionless internetwork service. An IP address identifies a device on an IP network in the following form: xxx.xxx.xxx.xxx, where xxx is a number between 0 and 255. The actual numbers used in an IP address depend on what type of IP network the device is on (Class A, Class B, or Class C).
IPX	Protocol used by Novell NetWare. A router with IPX routing can interconnect LANs so that Novell NetWare clients and servers can communicate.
LAN	local-area network—A geographically limited network, usually within one office or building. Ethernet is an example of a LAN standard.
loop	Occurs when network devices are connected to each other by more than one path. The Cisco Micro Hub detects when a loop occurs and breaks the loop by isolating one path.
packet	A logical unit of data. Devices on an Ethernet network send information back and forth in data packets.

partition	In order to maintain network efficiency, the hub partitions a malfunctioning network device from the rest of the network. The hub does this automatically in some cases, for example, if there are too many data collisions caused by packets being sent from from the device. You can use the port-operation command to manually partition any network device connected to the hub.
protocol	A set of rules that describes how data is transmitted between devices on a network. For example, some protocols describe electrical and physical standardst. Other protocols define how the data is formatted on a LAN and on a WAN.
<ul style="list-style-type: none"> • MDI • MDI-X 	<ul style="list-style-type: none"> • media-dependent interface—A port on a network device (such as workstation, server, or router) that connects that device to the network, usually through a hub or switch. • media-dependent interface, crossover—A port on a hub (such as the Cisco Micro Hub) that connects to the MDI port on a network device. <p>You can use a straight-through Ethernet cable when connecting devices to port 5 on the Cisco Micro Hub. Use the The MDI/MDI-X button on the rear panel of the hub to configure port 5 for the the following two types of connections:</p> <ul style="list-style-type: none"> • Connecting to a network device—When connecting port 5 to a network device such as a PC, workstation, router, or server (that use MDI ports), leave the button in the default position (OUT), and connect the device to port 5. • Connecting to other hubs—When connecting port 5 to another hub or switch (that does not have the rear panel IN and OUT ports) such as the Micro Hub 1501 or other compatible 10BaseT hubs, push the button to the IN position, and connect the hub to port 5.
SNMP	<p>Simple Network Management Protocol—A network protocol that enables devices on a network to be managed by a management agent. Other SNMP terms are the following:</p> <ul style="list-style-type: none"> • MIB—Management Information Base. Database of network management information that is used and maintained by SNMP to monitor or configure the Cisco Micro Hub. • Trap—Message sent by the network management station to a network device, such as the hub. This message usually informs the device of a network occurrence, such as workstation that has been turned off.
SLIP	Serial Line Internet Protocol—A network protocol that enables IP information, normally used on Ethernet, to be used over a serial line.
subnet mask	A bit mask used to identify which bits in an IP address correspond to the network portion of the IP address and which bits correspond to the device portions of the IP address. A subnet mask is in the form of an IP address, usually beginning with 255.

Networking Terms

TCP/IP	Transmission Control Protocol/Internet Protocol—A group of protocols that defines how data is transferred between network devices.
Telnet	A network protocol used for logging into a system from a remote location.
Terminal emulation software	Software that enables a computer to function as a terminal, for example a VT100. The computer then appears as a terminal to the device that it is connected to.
TFTP	Trivial File Transfer Protocol—This is an optional way to boot up the hub, using the bootup-option tftp-download command. This command configures the hub to download operating firmware from a TFTP server that is on the same LAN as the hub every time the hub is turned on.
WAN	wide-area network—A network that extends over a larger distance than a LAN. Devices on the network are usually connected over serial, ISDN, or analog lines.
XModem	A protocol used for transferring data over serial lines (for example, between modems). This is an optional way to download firmware updates to the hub using the start xmodem-download command.

Cisco Micro Hub Features

Following are the features of Cisco Micro Hubs:

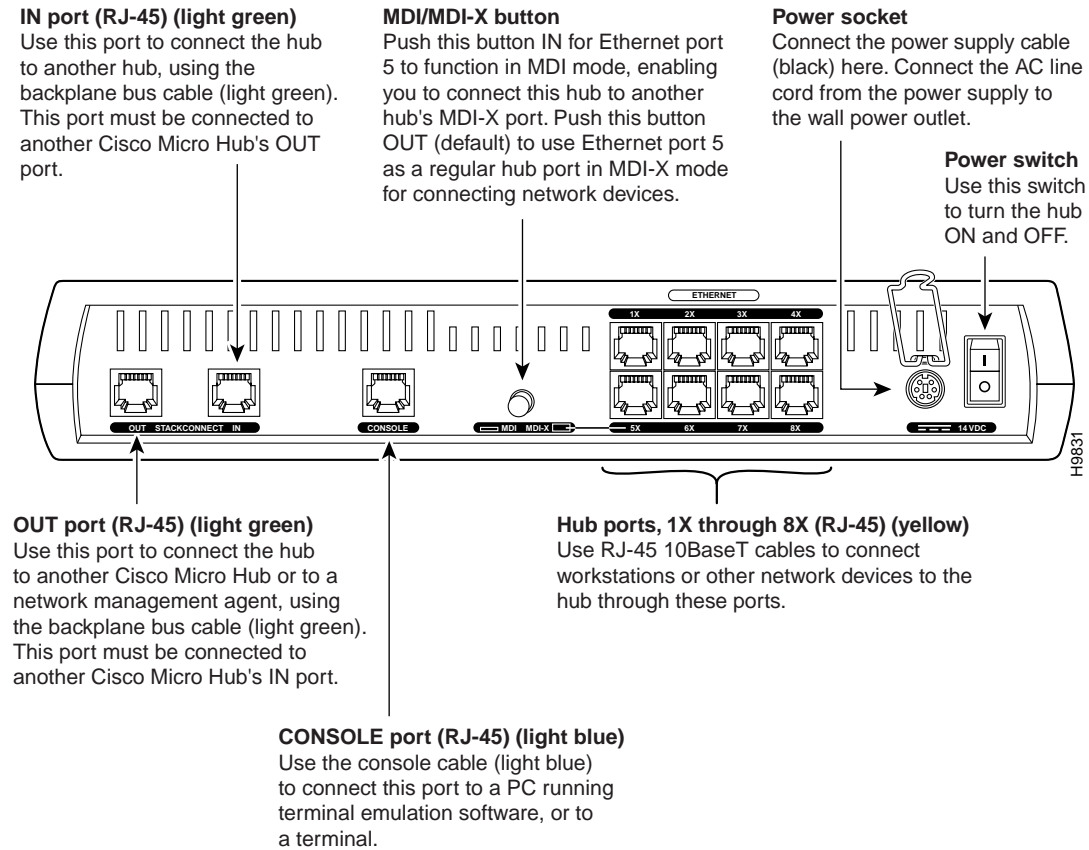
Feature	Description
Easy to use	<ul style="list-style-type: none"> • Easy system monitoring with front panel LEDs. • Configuration program can be used either from a local or a remote terminal connection to the CONSOLE port or with a Telnet connection. • Plug-and-play installation. • Hubs connected to a Micro Hub 1503 are automatically configured.
High performance	<ul style="list-style-type: none"> • Automatically partitions and reconnects network devices that cause too many network collisions. • Performs self-tests during the power-on process. • Automatically detects and corrects network wiring errors. • Automatically assigns hub IDs for automatic stack configuration.
Multiple users	<ul style="list-style-type: none"> • Eight Ethernet ports for connecting devices to the network. • Port 5 can be used to connect the Micro Hub 1503 to a compatible 10BaseT hub or switch, eliminating the need for special cables. • Two rear panel ports for connecting up to four hubs in a stack (Micro Hub 1502, Micro Hub 1503).
Upgradeable (Micro Hub 1503)	<ul style="list-style-type: none"> • Firmware update with either Xmodem file transfer through the CONSOLE port or TFTP file transfer over the network. • Flash memory on board for easy firmware updates, including SNMP agent updates.
Network management features (Micro Hub 1503)	<ul style="list-style-type: none"> • Hub management over the network using SNMP when the stack includes a Micro Hub 1503 (optional network management software not included with this package). • Dynamic IP address assignment with BOOTP.
Complete standards conformance	<ul style="list-style-type: none"> • Meets IEEE 802.3 repeater specification and 10BaseT standard. • Supports Repeater MIB, Ethernet MIB, MIB II, Cisco Stack MIB, and Cisco Repeater MIB. • Conforms to SNMP.

Hub Connectors

This section describes the connectors on the rear panel of the hub.

Note The Micro Hub 1501 does not have an IN, OUT, or CONSOLE port. The Micro Hub 1502 does not have a CONSOLE port.

Figure 1-3 Rear Panel Connectors

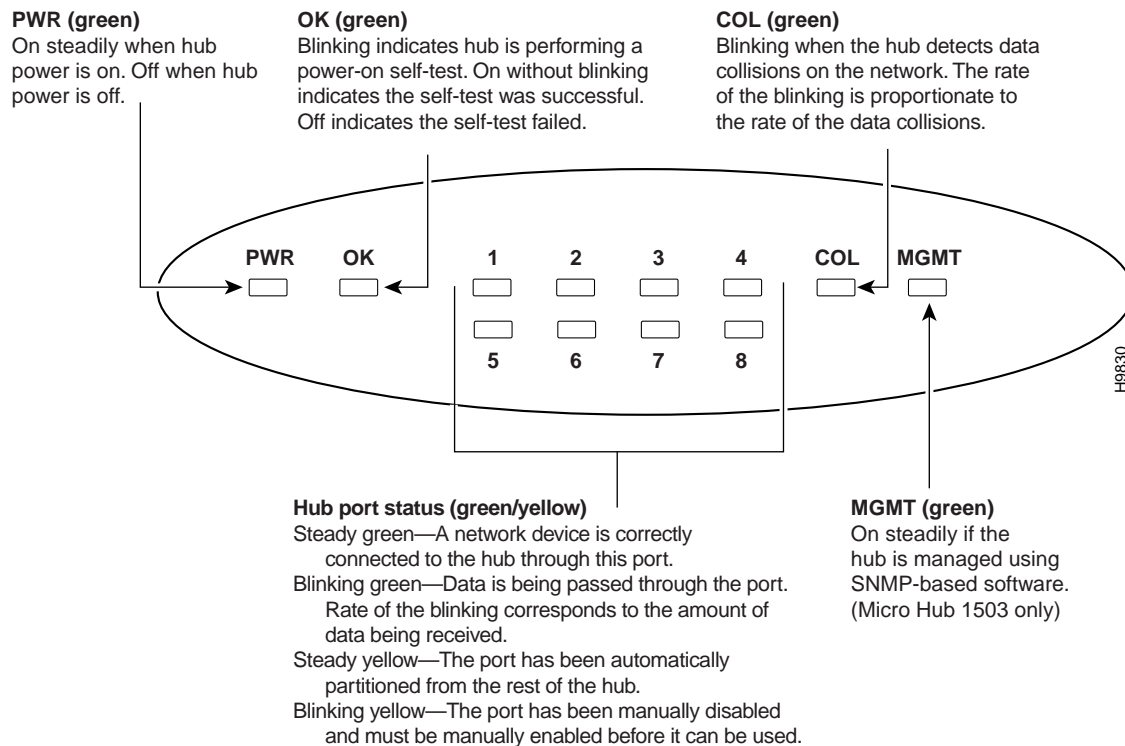


Hub LEDs

This section describes the LEDs on the front panel of the hub.

Note The Micro Hub 1503 is the only model with a MGMT LED.

Figure 1-4 Front Panel LEDs



Hub LEDs
