

Using Your Hub Software

This chapter describes procedures for configuring the Cisco Micro Hub, and contains the following sections:

- Preparing for Configuration
- Configuring the Hub
- Command Summary

Preparing for Configuration

To configure any Cisco Micro Hubs in a stack, the stack must include at least one Micro Hub 1503. You can connect to the Micro Hub 1503 to configure it in one of two ways:

- Direct Connection through the CONSOLE Port
- Connection Using Telnet

Direct Connection through the CONSOLE Port

You can configure the Micro Hub 1503, by connecting a terminal or a PC directly to the hub's CONSOLE port as described in the section "Connecting the CONSOLE Port" in the chapter "Installing Your Hub."

Connection Using Telnet

If the hub is correctly connected to a network, you can access the hub by using Telnet from anywhere on that network and can use the configuration program to communicate with the hub. Before making a Telnet connection to the hub, you must configure the hub with a valid IP address, subnet mask, and default gateway using the configuration program.

Configuration Using a PC

If you are configuring the hub with a PC (not a dumb terminal), you need a type of communication software called *terminal emulation* software to send commands to the hub.

Table 3-1 Common Terminal Emulation Software Programs

PC Operating System	Software
Windows 3.x or Windows NT 3.5x	Terminal (included with the Windows software)
Windows 95 or Windows NT 4.x	HyperTerm (included with the Windows software)
Macintosh	ProComm, VersaTerm, ZTerm (supplied separately)

Terminal emulation software has changeable settings. To enable your PC to communicate to the hub, specify the port used by your PC (for example, COM 1), and then configure the software settings to the following:

- Terminal emulation type: ANSI
- Baud: 9600
- Data bit: 8
- Parity: None
- Stop bits: 1
- Flow control: None

Command Conventions

This section describes some things you might need to know before using the commands to configure the hub. If you are familiar with these conventions, you can skip this section.

- Enter commands by typing the text of the command at the configuration prompt and then pressing the **Return** key.
- There are two configuration prompt levels:
 - The guest-level prompt is the device name followed by an angle bracket (>):

```
Hub>
```

- The administrator-level prompt is the device name followed by a pound sign (#). To reach this prompt, the user (usually the system administrator) must enter a password with the **enable** command:

```
Hub>  
Hub> enable  
Password: *****  
Hub#
```

- There are two editing modes provided by the configuration program—normal and enhanced. For more information about the enhanced editing mode, refer to the **terminal editing** command in the section “Editing Commands” later in this chapter. The following editing commands can be used on the command line in either editing mode:
 - **Backspace** erases characters to the left of the cursor.
 - **Delete** erases characters to the right of the cursor (this may be different, depending on the terminal emulation software that you are using).
 - **Ctrl-C** cancels a command prior to pressing the Return key.
 - **Tab** or **Ctrl-I** completes a command name based on partial input.

- You can abbreviate commands to the fewest letters that make them unique. For example, for the **show history** command, you can enter:

```
Hub> show his
```

- Certain commands display multiple screens with this prompt between screens:

```
--More--
```

Press the space bar to see more output from the command or press **Return** to display the next line. Press any other key to return to the prompt.

Configuration Modes

You configure the Micro Hub 1503 (or the attached stack) with the configuration program that is a part of the hub's firmware. There are two configuration modes: guest mode and administrator mode (also called privileged mode). The commands available in guest mode are a subset of those available in administrator mode.

When you first connect to the hub, the configuration program is set to guest mode. If you are connecting to the hub using Telnet, you must also enter a Telnet session password. To enter administrator mode, use the **enable** command and enter the administrator password. You will then be prompted to enter the enable password, as shown below:

```
Hub> enable  
Password: <enable_password>
```

Setting the Administrator Password

Some commands require the user to enter a password before they can be entered. This is an important feature because it prevents accidental or unauthorized changes to your hub settings and to your network.

Set the password using the **password** command, as shown below:

```
Hub# password  
Old Password: <old_password>  
New Password: <new_password>  
Hub#
```

The `<password>` field can contain from 0 to 80 uppercase and lowercase alphanumeric characters. Spaces are not allowed. The first character cannot be a number. Passwords are case sensitive.

An example of a valid password is `mypassword1`.

Forgot Your Password?

If you forget the password that provides access to administrator-level commands or if you forget the password required for Telnet sessions, you can bypass the password requirement and set a new password. You must be connected to the hub through the CONSOLE port to perform these steps.

Take the following steps:

Step 1 Turn the hub OFF, and wait 60 seconds before going to Step 2.

Step 2 Turn the hub ON, and wait while the following messages are displayed on the terminal:

```
Starting the system...
Boot option : bootp get ip

Enter BOOTP phase, wait or press Ctrl-C to break...
.....
Bootup Error: Timeout, no response from BOOTP server.

Press RETURN to start a new session
```

Step 3 Press **Ctrl-C**.

Step 4 When the following prompt appears, enter a new administrator password:

```
New administrator password: <new_password>
```

Step 5 When the following prompt appears, re-enter the new password:

```
Confirm administrator password: <new_password>
```

Step 6 You are then prompted to enter and confirm a new Telnet session password, as follows:

```
New telnet-session password: <new_telnet-session_password>
Confirm telnet-session password: <new_telnet-session_password>
```

Step 7 The following message appears, confirming that your new passwords have been accepted:

```
Administrator and telnet passwords are modified.  
Welcome to Cisco hub model 150x
```

Configuring the Hub

This section describes basic hub configuration.

Before you configure a Micro Hub 1503, have the following information available:

- IP address and IP subnet mask that you will assign to the hub if you are accessing the configuration program using Telnet or SNMP.
- IP address for the TFTP server if you want to use TFTP bootup feature.
- IP address for the BOOTP server if you want to use the BOOTP feature.
- IP address of the hub's gateway if you want to use Telnet or SNMP.
- IP addresses for authorized Trap Managers, if you want management stations to receive trap messages generated by the hub.

Note If you do not have this information, you might need to get it from your system administrator or from your network plan before you can complete your hub configuration.

Hub ID Numbers

This section describes how to determine the hub ID number of a particular Micro Hub in a stack of Micro Hubs. Before configuring the hub, you should understand how hubs in a stack are identified.

You cannot manually assign a hub ID number to a hub in a stack. The hub ID number is assigned based on how the hubs are cabled together.

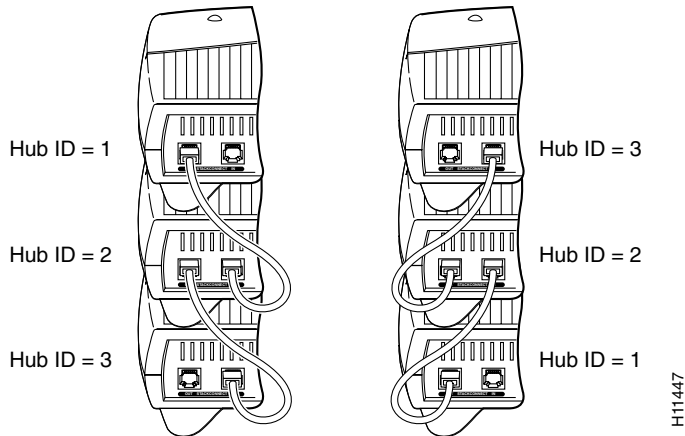
Note The physical location of a hub in a stack does not determine a hub's ID number.

Here are two rules that determine hub ID numbers in a stack of hubs:

- 1 The lowest hub ID number in a stack (1) is always assigned to the hub with another hub connected to its OUT port and with no hub connected to its IN port.
- 2 The highest hub ID number in a stack (any number from 2 to 5) is always assigned to the hub with no hub connected to its OUT port and with another hub connected to its IN port.

Figure 3-1 illustrates these rules.

Figure 3-1 Hub ID Numbers for Stacked Hubs



Configuring the hub takes place in three major steps:

- 1 Entering Administrator Mode
- 2 Configuring IP and SNMP Parameters
- 3 Configuring the SNMP Management Station

All of the commands used in the configuration steps are fully explained in the section “Command Summary” later in this chapter.

Entering Administrator Mode

Step 1 Connect a console by following the instructions in the section “Connecting the CONSOLE Port” in the chapter “Installing Your Hub” or start a Telnet session with the hub.

Step 2 Turn the hub ON by setting the power switch to the ON (I) position.

Step 3 After a few seconds, you will see the user prompt. Use the **enable** command to enter administrator mode:

```
Hub> enable
```

Step 4 After entering the command, you will be prompted to enter the administrator password. If the administrator password has not been set, you can enter administrator mode by pressing the **Return** key, as shown below:

```
Hub> enable
Password: <Return>
Hub#
```

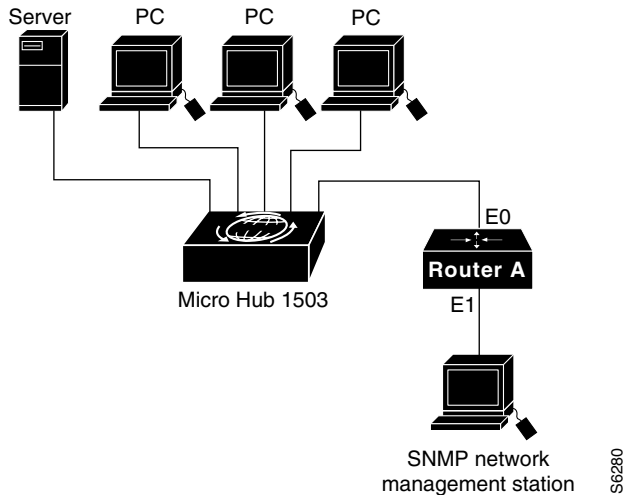
Note If the administrator password has not been set, you should set it following the steps in the section “Setting the Administrator Password” earlier in this chapter. Record the password in a secure location.

The pound sign (#) after the prompt indicates that you are in administrator mode and can enter the commands to configure the hub for IP and SNMP parameters.

Configuring IP and SNMP Parameters

The illustration below shows the network that is being configured in this section:

Figure 3-2 Example Network



Note The network addresses used in the steps below are examples only; they will not work for your network. You should substitute them with the IP addresses that apply to your network devices.

Step 1 Use the **ip address** command to configure the hub's IP address, subnet mask, and gateway address:

```
Hub# ip address 172.16.10.2 255.255.255.0 172.16.10.1
```

Step 2 Use the **snmp community** command to configure the SNMP communities and their options:

```
Hub# snmp community 1 private rw
```

Step 3 Use the **ip trap-manager** command to configure the IP address of the SNMP management station:

```
Hub# ip trap-manager 1 172.16.20.2
```

Basic IP and SNMP configuration is now complete. To return to guest mode, enter **exit**. Enter **exit** a second time to close the current terminal session:

```
Hub# exit
Hub> exit
>
```

Configuring the SNMP Management Station

Make sure that the SNMP management station receives traps from the Micro Hub 1503 (and any Micro Hubs connected to it in a stack) by configuring the management station as follows:

- Make sure the management station has entries for all the Micro Hubs in the stack.
- The entries for the Micro Hubs should have Get Community and Set Community configured as private.
- The management station should be able to read SNMP information from the Micro Hubs, such as port status and traffic counts.
- The management station should be able to control and manage the Micro Hubs, including enabling and disabling ports and changing contact information.

Command Summary

This section provides a summary of the commands used to configure the Micro Hub 1503. The configuration commands are organized into the following categories:

- System Help Commands
- User Interface Commands
- Firmware Load and Restart Commands
- System Information Commands
- Management Configuration Commands
- Hub Configuration Command
- Port Configuration Commands
- Statistics Commands
- Chassis Information Commands

Commands are defined and described in the format shown below:

show hub information } — The name of the command.

Syntax: **show hub information** [*hub id*]

Mode: Guest } — What command mode you must be in to enter the command.

Description: Displays information about one or more hubs in a stack.

How the command is entered. Keywords in [square brackets] are optional. Keywords in {curly brackets} are required. Enter keywords shown in bold exactly as they appear. Keywords shown in italics are values that are provided by you.

Definitions of keywords used in the command syntax.

Command Keyword Definition

- *hub id* — (Optional) The number of the hub in the stack. An integer between 1 and 5. To determine the number of the hub, use the position of the hub in the order from first to last hub connected through the rear panel IN and OUT ports. If no number is entered, information about all hubs in the stack will be displayed.

The display appears as follows:

Example of a command display.

```

hub> show hub info
Hub  ID  Type  H/W ver  F/W ver  SNMP-Agent
-----
1     1503  1.0   1.01    Active
2     1502  1.0   1.01    No
3     1503  1.0   1.01    Inactive
    
```

Describes the command. Some commands may not require all of the information shown here.

Definitions of fields that are shown in command displays.

Command Display Definitions

- Hub ID—Number of the hub in the stack, from top to bottom.
- Type—Model number of the hub: 1502 or 1503.
- H/W ver—Hardware version of the hub.
- F/W ver—Firmware version of the hub.
- Agent—Whether or not the hub contains an SNMP.

System Help Commands

Use the commands in this section to obtain system help when configuring the hub.

help

Syntax: **help**

Mode: Guest

Description: Lists a brief description of the context-sensitive help system.

?

Syntax: ?

Mode: Guest

Description: Use this command in the following ways:

- At anytime to list all commands available in the current command mode (guest or administrator).
- After an abbreviated command to list commands that start with that particular character set.
- In a command, in place of a keyword or argument, to list the command's keywords or arguments.

User Interface Commands

Use the commands in this section to configure the user interface for the hub software.

Command Mode Access Commands

Use the commands in this section to change configuration mode for the hub:

disable

Syntax: **disable**

Mode: Guest

Description: Exits administrator mode and returns the user to guest mode.

enable

Syntax: **enable**

Mode: Guest

Description: Use this command to enter administrator mode. If you forgot your administrator password, follow the process described in the section “Forgot Your Password?” earlier in this chapter.

After entering **enable**, you will be prompted for the administrator password, as shown below:

```
Hub> enable  
Password: <password>  
Hub#
```

exit

Syntax: **exit**

Mode: Guest

Description: Exits any command mode or closes an active terminal session.

help

Syntax: **help**

Mode: Guest

Description: Refer to the previous section “System Help Commands” for more information on the **help** command.

Console Access Commands

Use the commands in this section to control console access to the hub configuration.

show console lockout info

Syntax: **show console-lockout info**

Mode: Guest

Description: Displays information about the console lockout settings. The following information is displayed:

- Status—Whether console lockout is enabled or disabled.
- Delay time—Length of time of no keyboard activity until console access to the hub is locked.

console-lockout

Syntax: **console-lockout**

Mode: Administrator

Description: Sets the console access to locked after a designated period of no keyboard activity.

no console lockout

Syntax: **no console-lockout**

Mode: Administrator

Description: Disables the console lockout feature.

console-lockout time

Syntax: **console-lockout time** *<minutes>*

Mode: Administrator

Description: Configures the amount of time of no keyboard activity before console access is locked.
minutes—Integer between 1 and 20.

Administrator Password Commands

Use the commands in this section to configure hub passwords.

password

Syntax: **password**

Mode: Administrator

Description: Configures the password used to enter administrator mode.

After entering the command, you will be prompted to enter the current password and then the new password. You will then be prompted to confirm the new password. Password characters are represented by asterisks on the screen when you enter them, as shown below:

```
Hub# password
Old password: *****
New password: *****
Re-type new password: *****
```

Passwords can:

- Contain up to 14 characters.
- Contains any combination of alphanumeric characters, including uppercase and lowercase letters.
- Use spaces as valid characters.

no password

Syntax: **no password**

Mode: Administrator

Description: Deletes any password that has been set with the **password** command.

telnet-session password

Syntax: `telnet-session password`

Mode: Administrator

Description: Configures the hub with the password that is required to start a Telnet session with the hub.

no telnet-session password

Syntax: `no telnet-session password`

Mode: Administrator

Description: Clears any password that was entered with the `telnet-session password` command.

telnet-session

Syntax: `telnet-session { enable | disable }`

Mode: Administrator

Description: Configures the hub for allowing Telnet sessions.

Command Keyword Definitions

- **enable**—Configures the hub to allow Telnet sessions.
- **disable**—Configures the hub to prevent Telnet sessions.

History Commands

Use these commands in this section to configure how the hub stores and displays command input history.

show history

Syntax: **show history**

Mode: Guest

Description: Displays the commands that are stored in the history buffer.

terminal history

Syntax: **terminal history**

Mode: Guest

Description: Enables the terminal history feature, which configures the hub to retain commands in working memory. The number of commands retained is configured with the **terminal history size** command. The commands are not saved after the hub is rebooted with the **restart** command.

terminal no history

Syntax: **terminal no history**

Mode: Guest

Description: Disables the terminal history feature (the hub retains past commands in memory).

Command Summary

terminal history size

Syntax: `terminal history size <size>`

Mode: Guest

Description: Sets the number of commands kept in the history buffer.

Command Keyword Definition

size—Integer value between 1 and 64.

Editing Commands

Use the commands in this section to configure the hub for terminal editing.

Note Command-line editing features are described in the appendix “Terminal Editing Command Reference.”

terminal editing

Syntax: `terminal editing`

Mode: Guest

Description: Configures the hub for enhanced editing. Enhanced editing enables you to use the key sequences listed in the appendix “Terminal Editing Command Reference.” This is the default configuration.

terminal no editing

Syntax: `terminal no editing`

Mode: Guest

Description: Disables enhanced editing.

Firmware Load and Restart Commands

Use the commands in this section to configure how the hub loads and copies firmware.

Bootup Option Commands

Use the commands in this section to configure how the hub gets the firmware and IP address when it is first powered up.

bootup-option

Syntax: `bootup-option {normal | tftp-download | bootp-get-ip | bootp-download}`

Mode: Administrator

Description: Configures how the hub will obtain an IP address when it is first turned on. This setting is stored in the hub Flash read-only memory.

Command Keyword Definitions

- **normal**—Default setting for the Micro Hub 1502. The hub uses the IP address stored in the onboard firmware.
- **tftp-download**—Downloads firmware from a TFTP server. The download process is repeated every time the hub is rebooted.
- **bootp-get-ip**—Default setting for the Micro Hub 1503. The hub obtains the IP address from the local BOOTP server.
- **bootp-download**—The hub obtains the IP address and firmware from a local BOOTP server. The firmware is then saved in Flash memory.

no bootup-option

Syntax: `no bootup-option`

Mode: Administrator

Description: Resets the hub to the default bootup option, which is to use the onboard ROM code and the default IP address (**normal**).

TFTP Download Commands

Use the commands in this section to configure how the hub downloads firmware from a TFTP server. Use a server that has been configured to provide the firmware for your hub.

show tftp-download information

Syntax: `show tftp-download information`

Mode: Guest

Description: Displays download information for TFTP, including the TFTP server address and firmware filename, for example:

```
Hub> show tftp-download info
ServerIP: 10.10.10.1
Filename: 1503R01.bin
```

tftp-download

Syntax: `tftp-download {server-ip-address} [filename]`

Mode: Administrator

Description: Sets the IP address of the TFTP server that supports the hub.

Command Keyword Definitions

- *server-ip-address*—IP address of the server where the firmware file is stored. Should be in the format xxx.xxx.xxx.xxx, where xxx is a value between 0 and 255. The default value for this field is 255.255.255.255. The default value will work only if the TFTP server is not on the same local network segment as the hub.
- *filename*—Filename of the firmware file. The filename is case sensitive and contains between 1 and 28 alphanumeric characters. The default file name for firmware *c1500.bin*. You can use different names for hub firmware files but the file name must end in *.bin*.

start tftp-download

Syntax: **start tftp-download**

Mode: Administrator

Description: Starts the firmware download process. In order to use this command, the hub and the TFTP server must be connected to the same Ethernet LAN segment. To test whether or not both devices are connected to the same network segment, send a **ping** command from the TFTP server to the hub. If the **ping** command is unsuccessful, confirm that you have configured the hub with an IP address using the **ip-address** command.

Xmodem Download Command

Use this command to download firmware to the hub with the Xmodem protocol.

start xmodem-download

Syntax: **start xmodem-download**

Mode: Administrator

Description: Downloads firmware updates to the hub with the Xmodem protocol.

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After entering this command, open the file transfer function in your terminal emulation software. The software must support the Xmodem protocol. Specify the firmware filename, and start the file transfer, being sure to specify “Send” or “Upload” for the firmware file.

The default file name for firmware *c1500.bin*. You can use different names for hub firmware files but the file name must end in *.bin*.

Download Status

The status of the firmware download is shown at the bottom of the terminal or PC screen. After downloading firmware, you will have to log into the configuration program again.

Restart Command

Use this command to reset the hub.

restart

Syntax: **restart**

Mode: Administrator

Description: Performs a firmware reset for the hub using the bootup option selected with the **bootup-option** command. (See the section “Bootup Option Commands” earlier in this chapter for a description.)

The hub, ports, and statistic configurations are saved during a firmware reset.

System Information Commands

Use the commands in this section to display general information about the hub and the stack of hubs.

show system information

Syntax: **show system information**

Mode: Guest

Description: Displays system information as shown below:

```
Hub> show system information
System description: Cisco Stackable Ethernet Hub
System up time: hour, 56 minutes
System name: Stack 1
System contact: Mike
System location: Software Group
```

Command Display Definitions

- System description—Hub model.
- System up time—Length of time that the management agent inside the hub has been running.
- System name—Name of the hub, configured with the **system name** command.
- System contact—Name of the person responsible for the hub, configured with the **system contact** command.
- System location—Where the hub is located, configured with the **system location** command.

system name

Syntax: **system name** <*string*>

Mode: Administrator

Description: Configures the hub with a descriptive name.

Command Keyword Definition

string—String containing 1 to 255 alphanumeric characters, which can be any combination of uppercase and lowercase. Spaces are valid characters, but leading spaces are ignored. If nothing is entered for this option, the default (“hub”) is used.

no system name

Syntax: **no system name**

Mode: Administrator

Description: Resets the hub’s system name to the default system name (“hub”).

system contact

Syntax: **system contact** <*string*>

Mode: Administrator

Description: Configures the hub with the name of the person responsible for the hub.

Command Keyword Definition

string—String containing 1 to 255 alphanumeric characters, which can be any combination of uppercase and lowercase. A number cannot be the first character. Spaces are valid characters, but leading spaces are ignored. If nothing is entered for this option, the default (“system administrator”) is used.

no system contact

Syntax: **no system contact**

Mode: Administrator

Description: Resets the hub's system contact to the default system contact ("system administrator").

system location

Syntax: **system location** <*string*>

Mode: Administrator

Description: Configures the hub with the name of the hub location.

Command Keyword Definition

string—String containing 1 to 255 alphanumeric characters, which can be any combination of uppercase and lowercase. A number cannot be the first character. Spaces are valid characters, but leading spaces are ignored. If nothing is entered for this option, the default ("headquarters") is used.

no system location

Syntax: **no system location**

Mode: Administrator

Description: Resets the hub's system location to the default system location ("headquarters").

show management information

Syntax: **show management information**

Mode: Guest

Description: Displays information about the network management hub as follows:

```
Hub> show management information
Hub id: 1
H/W version : 1.
F/W version: 1.01
Bootup option : normal
Physical address: 00-00-12-34-56-78
```

Command Display Definitions

- Hub id—Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- H/W version—Hardware version of the hub.
- F/W version—Firmware version of the hub.
- Bootup option—Bootup option configured with the **bootup-option** command as described in the section “Bootup Option Commands” earlier in this chapter.
- Physical address—Hardware address (also called the MAC address or the Ethernet address) of the hub. This address is assigned by the device’s manufacturer and usually appears somewhere on the device itself.

Management Configuration Commands

Use the commands in this section to configure community strings and trap managers, which are required when using SNMP.

IP Parameter Commands

Use the commands in this section to configure the Micro Hub 1503 with IP parameters. The hub must be configured with IP parameters to use SNMP, Telnet, and TFTP functions.

show ip configuration

Syntax: **show ip configuration**

Mode: Guest

Description: Shows the current configuration for IP, as shown below:

```
Hub> show ip configuration  
IP address: 10.10.10.10  
Subnet mask : 255.255.255.0  
Gateway IP: 10.10.10.254
```

Command Display Definitions

- IP address—Hub's IP address.
- Subnet mask—Hub's subnet mask (the host address bits used for routing traffic to the subnet).
- Gateway IP—Gateway used to pass trap messages from the hub to the management stations, for example, the IP address of a router on the same LAN as the hub.

ip address

Syntax: **ip address** {*ip-address*} [*subnet mask*] [*gateway ip*]

Mode: Administrator

Description: Configures the IP parameters for the hub.

Command Keyword Definitions

- *ip-address*—IP address of the hub. The default value is 0.0.0.0.
- *subnet-mask*—IP subnet mask of the hub. The default value is 255.255.255.0.
- *gateway-ip*—IP address of the gateway used by the hub. The default value is xxx.xxx.xxx.254, where xxx.xxx.xxx are the same fields as the first three fields of the *ip-address* field. The gateway address is usually the IP address of a router on the same LAN as the hub.

no ip address

Syntax: **no ip address**

Mode: Administrator

Description: Resets the hub with the default IP address (0.0.0.0), the default subnet mask (255.255.255.0), and the default gateway address (0.0.0.0).

SNMP Communities Commands

Use the commands in this section to configure the SNMP community strings. These strings are used by the network management software to access the Micro Hub 1503.

show snmp communities

Syntax: `show snmp communities`

Mode: Administrator

Description: Displays information about all of the configured community strings. Following is example output from this command.

```
Hub> show snmp communities
Index  Community Name  Access Right  Status
-----
1      public          read/write   enabled
2      private         read only    enabled
3                        read only    disabled
4                        read only    disabled
```

Command Display Definitions

- Index—Index number of the community string.
- Community Name—Name used for management access. Can be up to 20 alphanumeric characters.
- Access Right—Management access setting: either read/write or read only.
- Status—Community string status: either enabled or disabled.

snmp community

Syntax: `snmp community {index} {string} [ro | rw]`

Mode: Administrator

Description: Creates or modifies community strings or associated access rights. All new entries are enabled by default. To disable an entry, use the **snmp community disable** command.

Command Keyword Definitions

- *index*—Index of one of the community table entries. An integer from 1 to 5.
- *string*—Community name. An alphanumeric string that contains from 1 to 20 characters. A number cannot be the first character. Spaces are not valid characters.
- **ro**—(Optional) Sets the community for read-only access. This is the default value.
- **rw**—(Optional) Sets the community for read-write access.

snmp community disable

Syntax: `snmp community disable [index]`

Mode: Administrator

Description: Disables a community string.

Command Keyword Definition

index—(Optional) Index of an entry in the community table. An integer between 1 and 5. If no value is entered, all community strings are disabled.

snmp community enable

Syntax: `snmp community enable {index}`

Mode: Administrator

Description: Enables a community string.

Command Keyword Definition

index—Index of an entry in the community table. An integer between 1 and 5.

snmp trap-authentication

Syntax: `snmp trap-authentication`

Mode: Administrator

Description: Enables trap message authentication. Trap message sent from the hub are authenticated by the SNMP community string.

no snmp trap-authentication

Syntax: `no snmp trap-authentication`

Mode: Administrator

Description: Disables trap message authentication.

Configuring Trap Managers

Use the commands in this section to configure the Micro Hub 1503 trap information. Trap information enables the hub to send information to connected network devices. These messages notify network devices about events on the network.

show ip trap-managers

Syntax: `show ip trap-managers`

Mode: Guest

Description: Displays information about authorized trap managers as shown in the following example:

```
Hub> show ip trap-managers
Index  IP Address      Community Name  Status
-----
1      222.222.222.222 public          enabled
2      11.11.11.11     public          disabled
3      0.0.0.0         public          disabled
4      0.0.0.0         public          disabled
5      0.0.0.0         public          disabled
```

Command Display Definitions

- IP Address—IP address of the network management station.
- Community Name—Name used to identify an SNMP community.
- Status—Whether or not the community is enabled or disabled.

ip trap-manager

Syntax: **ip trap-manager** {*index*} {*ip-address*} [*community name*]

Mode: Administrator

Description: Configures trap manager information.

Command Keyword Definitions

- *index*—Index of an entry in the trap manager table. An integer from 1 to 5.
- *ip-address*—IP address of the trap receiver, in the following format:
xxx.xxx.xxx.xxx
- *community name*—Community string that is required for trap access.

ip trap-manager enable

Syntax: **ip trap-manager enable** {*index*}

Mode: Administrator

Description: Enables a trap manager entry.

Command Keyword Definition

index—Index of a trap manager table entry. An integer between 1 and 5.

ip trap-manager disable

Syntax: **ip trap-manager disable** [*index*]

Mode: Administrator

Description: Disables a trap manager entry.

Command Keyword Definition

index—Index of a trap manger table entry. An integer between 1 and 5.

Hub Configuration Command

Use the commands in this section to display information about hubs in a stack.

show hub information

Syntax: `show hub information [hub id]`

Mode: Guest

Description: Displays information about one or more hubs in a stack.

Command Keyword Definition

- *hub id*—(Optional) Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers. If no number is entered, information about all hubs in the stack will be displayed.

The display appears as follows:

```
Hub> show hub information
Hub ID  Type  H/W ver  F/W ver  SNMP-Agent
-----
1       1503  1.0     1.01     Yes
2       1502  1.0     1.01     No
3       1503  1.0     1.01     No
```

Command Display Definitions

- Hub ID—Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- Type—Model number of the hub: 1502 or 1503.
- H/W ver—Hub’s hardware version.
- F/W ver—Hub’s firmware version.
- Agent—Whether or not the hub contains an active SNMP agent.

Port Configuration Commands

Use the commands in this section to display or edit information about any port in the stack.

show port information

Syntax: `show port information [hub id]`

Mode: Guest

Description: Displays information about all the network ports on the selected hub.

Command Keyword Definition

- *hub id*—(Optional) Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.

Information is displayed as follows:

```
Hub> show port information 1
Hub id: 1
Port ID Admin Status Link Status Partition Status
-----
1 enabled Not connected not partitioned
2 enabled Not connected not partitioned
3 enabled Connected not partitioned
4 enabled Not connected not partitioned
5 enabled Not connected not partitioned
6 enabled Connected not partitioned
7 enabled Not connected not partitioned
8 enabled Not connected not partitioned
```

Command Display Definitions

- Hub ID—Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- Port ID—Number (1 through 8) of one of the yellow network station ports.
- Admin status—Whether or not the port has been manually disabled.
- Oper status—Whether or not the device connected to this port has a valid connection to the hub.
- Partition status—Whether or not the port has been partitioned by the hub, which usually happens as a result of a network loop.

port operation

Syntax: **port-operation** {*hub id*} {*port id*} {**enable** | **disable**}

Mode: Administrator

Description: Enables or disables any port on any hub in the stack.

Command Keyword Definitions

- *hub id*—Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- *port id*—Number of the port on the hub, based on the yellow label on the rear panel of the hub. A number from 1 to 8.
- **enable**—Enables the port.
- **disable**—Disables the port.

Statistics Commands

Use the commands in this section to display statistics for a stack, a specific hub in a stack, or a specific port in a stack since a restart or since the counter was last cleared.

show system statistics

Syntax: `show system statistics`

Mode: Guest

Description: Displays statistics for the entire stack.

Statistics are displayed in the following format:

```
Hub> show system statistics
Frames: 9755
Bytes: 78040
Collisions: 671
Alignment errors: 45
CRC errors: 33
Total errors: 867
```

Command Display Definitions

- Frames—Number of frames (packets) passing through the hub.
- Bytes—Number of bytes passing through the hub.
- Collisions—Number of times that network devices attached to any one of the hubs in the stack have attempted to send data simultaneously.
- Alignment errors—Number of mis-synchronized data packets.
- CRC errors—Number of cyclic redundancy check (CRC) errors.
- Total errors—Total number of errors of the following types: frame control sequence, alignment, frames-too-long, short events, late events, jabber, and data rate mismatches.

show hub statistics

Syntax: `show hub statistics [hub id]`

Mode: Guest

Description: Displays statistics for the specified hub since the last time the **clear-counter** or **restart** command was entered.

Command Keyword Definition

- *hub id*—(Optional) Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.

Statistics are displayed in the following format:

```
Hub> show hub statistics 1

Hub ID  Frames  Bytes  Collisions  Alignment  CRC  Total
        Errors  Errors
-----
1         1039   29354   264         23         12   486
```

Command Display Definitions

- Hub ID—Position of the hub in the stack, from top to bottom.
- Frames—Number of frames (packets) passing through the hub.
- Bytes—Number of bytes passing through the hub.
- Collisions—Number of times that network devices attached to any one of the hubs in the stack have attempted to send data simultaneously.
- Alignment errors—Number of mis-synchronized data packets.
- CRC errors—Number of CRC errors.
- Total errors—Total number of errors, including the following types: frame control sequence, alignment, frames-too-long, short events, late events, jabber, and data rate mismatches.

show port statistics

Syntax: `show port statistics {hub id} {port id}`

Mode: Guest

Description: Displays statistics for the specified port on the specified hub since the last time the **clear-counters** or **restart** command was entered.

Command Keyword Definitions

- *hub id*—(Optional) Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- *port id*—(Optional) Number of the network device port (yellow). This number is shown on the rear panel. A number from 1 to 8. If no value is entered, statistics for all ports are displayed.

Statistics are displayed in the following format:

```
Hub> show port statistics 1 5
Hub id:1          Port id:5
Readable frames:78040  Readable bytes:2360
CRC errors:671      Alignment errors:16
Frames too long:16   Short events:45
Runts:12           Collisions:33
Late events:32      Data rate mismatches:867
Auto partitions:0   Total errors:124
LSA changes:0      Last source address:0000000093AE
```

Command Display Definitions

- Hub id—Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- Port id—Port number, shown on the rear panel of the hub.
- Readable frames—Number of valid frames (packets) passing through the hub.
- Readable bytes—Number of valid bytes passing through the hub.
- CRC errors—Number of Ethernet CRC errors detected by this device.
- Alignment errors—Number of mis-synchronized data packets detected by this device.

Command Summary

- Frames too long—Number of times that the frame length has exceeded the maximum allowable size (1518 bytes).
- Short events—Number of short packet fragments.
- Runts—Number of fragments that were too long to qualify as short events.
- Collisions—Number of times network devices attached to the stack have attempted to transmit data simultaneously.
- Late events—Number of frames that experienced a collision late in transmission.
- Data rate mismatches—Number of frames for which the data rate does not match the local frequency.
- Auto partition—Number of times this port has been automatically partitioned due to a network loop.
- Total errors—Total number of errors, including the following types: frame control sequence, alignment, frames too long, short events, late events, jabber, and data rate mismatches.
- LSA changes—Number of times the source address has changed.
- Last source address—Last source address that passed through this port.

clear counters

Syntax: `clear counters {stack | hub [hub id] | port [hub id] [port id] }`

Mode: Administrator

Description: Clears all accrued statistics for the specified stack, hub, or port, or a combination of these.

Command Keyword Definitions

- **stack**—Clears statistics for all ports on all hubs in the stack.
- **hub**—Clears statistic for the specified hub. If no hub is specified, statistics are cleared for all hubs in the stack.
- **port**—Clears statistics for the specified port on the specified hub. If no port is specified, statistic are cleared for all ports in the stack.
- *hub id*—(Optional) Number used to identify the hub in a stack. An integer between 1 and 5. Read the section “Hub ID Numbers” earlier in this chapter for information about how to determine hub ID numbers.
- *port id*—(Optional) Port number that is shown on the rear panel of the hub. A value from 1 to 8.

Chassis Information Commands

Use the commands in this section to display chassis information for the Cisco Micro Hub.

show chassis information

Syntax: **show chassis information**

Mode: Guest

Description: Displays general information about the hub's hardware and software.

Information is shown in the following format:

```
Hub> show chassis information
```

```
Chassis type: c1500(72)
```

```
Chassis version: 1.0
```

```
Chassis ID:
```

```
ROM system software version:: 1.0
```

```
Bytes of RAM available to CPU: 2048K Bytes
```

```
System up time at last chassis change: 2 days, 10 hours,  
56 minutes
```

show card table

Syntax: **show card table**

Mode: Guest

Description: Displays information about the hardware and firmware in the hub.
Information is shown in the following format:

```
Hub> show card table
```

```
Card index: 2  
Function type of this card: cpu-1503(38)  
Card serial number: 0  
Hardware version : 1.0  
Firmware version : 1.0  
Slot number relative to the containing card: 2  
Operational status of this card: up  
Number of slots on this card: 0
```

show stack information

Syntax: `show stack information`

Mode: Guest

Description: Displays a description of hubs in a stack.
Information is displayed as follows:

```
Hub> show stack information
```

```
Stack name: Marketing
```

Index	IP address
1	123.34.18.5
2	123.34.18.17
3	123.34.18.32
4	123.34.18.25

Command Display Definitions

- Stack name—Name of the stack.
- Index—Location of hub in the stack, from top to bottom.
- IP address—IP address of the hub.

stack name

Syntax: `stack name {name}`

Mode: Administrator

Description: Configures the Micro Hub 1503 with a name for the stack.

Command Keyword Definition

name—(Optional) String of 1 to 32 alphanumeric characters. Characters can be any combination of uppercase and lowercase. A number cannot be the first character. Spaces are valid characters, but leading spaces are ignored.

stack ip address

Syntax: **stack ip address** {*ip address*}

Mode: Administrator

Description: Configures a Micro Hub 1503 that is a part of a stack with an IP address.

Command Keyword Definition

ip address—IP address of the stack. Must be in the format xxx.xxx.xxx.xxx.

clear stack table

Syntax: **clear stack table**

Mode: Administrator

Description: Clears all general stack information from the stack table.

