

Using Cisco Hub/Ring Manager for Windows

This chapter provides a detailed explanation of each window and dialog box in Cisco Hub/Ring Manager, and contains the following sections:

- Finding Cisco Hub/Ring Manager Operations
- Setup and Configuration Operations
- Hub Management Operations
- Ring Management Operations
- Ethernet Management Operations
- Describe Operations
- Miscellaneous Operations

Dialog boxes and windows are organized alphabetically in each section.

Finding Cisco Hub/Ring Manager Operations

The following tables provide a quick reference to commands. Use these tables to locate the command or function you want to perform; then refer to the corresponding section for information.

Setup and Configuration Operations

Use Table 3-1 to locate setup and configuration operations in this chapter.

Finding Cisco Hub/Ring Manager Operations

Table 3-1 Setup and Configuration Operations Index

Operation	Description	Refer to Section
Hub/Ring Manager Application Setup	Changes parameters that control LAN polling mechanisms for Cisco Hub/Ring Manager stations.	Cisco Hub/Ring Manager Application Setup
Hub Manager	Sets polling parameters that control the Hub Manager application.	Hub Manager Parameters
Ring Manager	Sets polling parameters that control the Ring Manager application.	Ring Manager Parameters
Trap Manager	Adjusts parameters of the SNMP trapping mechanism and specifies the directory to store trap configuration files.	Trap Manager Parameters

Hub Management Operations

Use Table 3-2 to locate sections of this chapter that provide information on hub management operations.

Table 3-2 Hub Management Operations Index

Operation	Description	Refer to Section
Hub Configuration	Displays the jumper settings and hardware and software revisions of the modules in a hub.	Hub Configuration
Summary File	Saves the Hub Configuration for all hubs in the map.	File
Attachment	Displays the logical attachment of devices to hub symbols.	Attaching Devices to the Router/Hub
Control Panel	Performs functions such as disconnect, reconnect, isolate, rejoin, reset, and Ethernet statistics.	Control Panel

Operation	Description	Refer to Section
Describe	Sets IP address, entities, and interfaces for a hub symbol.	Describe
Disable Polling	Disables the Hub Manager polling of all hubs.	Selective Application Polling
Enable Polling	Enables the Hub Manager polling of all hubs.	Selective Application Polling
Hub Manager Setup	Sets polling parameters for the Hub Manager application.	Cisco Hub/Ring Manager Application Setup
Identify	Identifies a selected symbol.	Identify Node

Ring Management Operations

Use Table 3-3 to locate sections of this chapter that provide information on ring management operations.

Table 3-3 Ring Management Operations Index

Operation	Description	Refer to Section
All Rings	Displays the status of all rings detected in the map.	All Rings
Check (MAC-to-Port Mapping)	Displays the Check MAC-to-Port Mapping dialog box that verifies the consistency of a device's description.	MAC-to-Port Mapping
Customization	Enables and disables the autoremoval feature.	Ring Manager Customization
Disable Polling	Disables Ring Manager's polling of all hubs in the map.	Selective Application Polling
Enable Polling	Enables Ring Manager's polling of all hubs in the map.	Selective Application Polling
Event Filter	Filters the ring events displayed.	Event Filter
Identify	Identifies a selected MAC address.	Identify Node

Finding Cisco Hub/Ring Manager Operations

Operation	Description	Refer to Section
Advanced Identify Node (Token Ring)	Displays error counters for Token Ring nodes.	Identify Node
Name	Assigns a device name to a MAC port address.	Name Settings
Ring Configuration	Displays all devices on a specified ring.	Ring Configuration
Ring Events	Displays ring events in real time.	Ring Events
Ring Manager Setup	Sets polling parameters for the Ring Manager application.	Cisco Hub/Ring Manager Application Setup
Ring Monitor	Displays ring information such as its status, Active Monitor, last beaconing, and error counters.	Ring Monitor
Ring Security	Locks the ring configuration and provides a list of prohibited devices.	Ring Security

Ethernet Management Operations

Use Table 3-4 to locate sections of this chapter that provide information on Ethernet management operations.

Table 3-4 Ethernet Operations Index

Operation	Description	Refer to Section
Ethernet Statistics	Displays real-time, port-level statistical information.	Ethernet Management Operations
Ethernet Manager	Sets Ethernet statistics collection and file management parameters.	Ethernet Manager Parameters
Advanced Identify Node (Ethernet)	Displays partition information for Ethernet nodes.	Identify Node

Miscellaneous Operations

Use Table 3-5 to locate the sections of this chapter that provide information on various other operations.

Table 3-5 Miscellaneous Operations Index

Operation	Description	Refer to Section
cmospip	Sets MIB variables in the SNMP agent for the control of IP parameters.	Using SNMP Manager
Manage/Unmanage	Allows you to enable and disable the polling of specified hubs.	Hub/Ring Object Manager

Setup and Configuration Operations

This section describes setup and configuration operations, including modifying LAN polling mechanisms and timeouts for the network management PC, and enabling or disabling the polling of specified hubs or all hubs within a submap.

Cisco Hub/Ring Manager Application Setup

Use the Cisco Hub/Ring Manager Application Setup dialog box to change parameters that control LAN polling mechanisms and timeouts for Cisco Hub/Ring Manager applications on the network management PC. You can change these parameters according to the network load and the number of hubs being managed. Local time settings affect hubs designated as local in the Describe dialog box. Remote time settings affect hubs designated as remote in the Describe dialog box. Communications are usually more frequent with local hubs and less frequent with remote hubs in order to prevent network overload and reduce the cost of transmission.

To configure Cisco Hub/Ring Manager parameters, from the Options menu select the **Hub/Ring Application Setup** command. The Hub/Ring Application Setup dialog box appears. (See Figure 3-1.) The fields of the Hub/Ring Application Setup dialog box are described in Table 3-6. Hubs are designated local or remote in the Location dialog box, which is reached from the **Location** command button in the Describe dialog box.

Figure 3-1 Hub/Ring Application Setup: Hub Manager Dialog Box

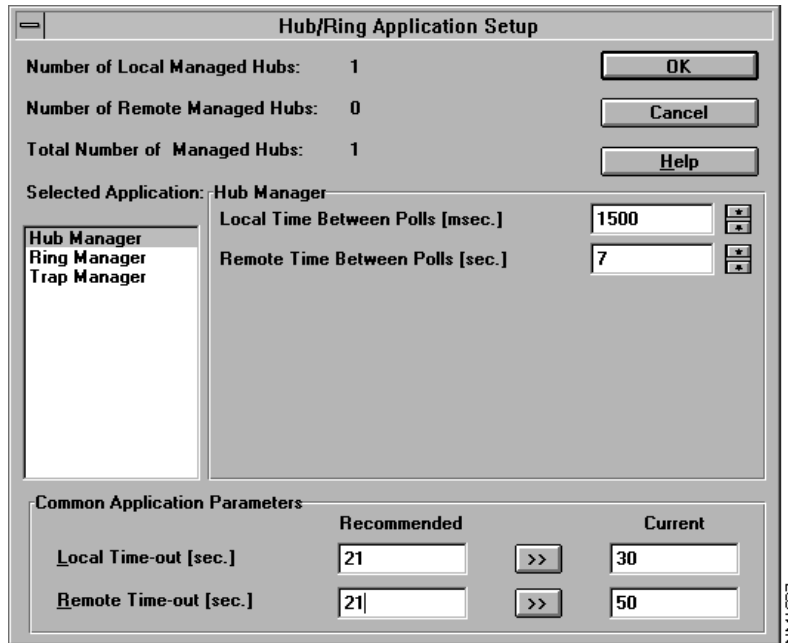


Table 3-6 Application Setup Fields

Field	Description
Number of Local Managed Hubs	Displays the current number of hubs in the map that are designated as local (set in the Describe dialog box) and designated as managed (set in the Hub/Ring Object Manager dialog box).
Number of Remote Managed Hubs	Displays the current number of hubs in the map that are designated as remote (set in the Describe dialog box) and designated as managed (set in the Hub/Ring Object Manager dialog box).

Field	Description
Total Number of Managed Hubs	Displays the current number of hubs in the map that are designated as managed. This value is the sum of the number of local managed hubs and the number of remote managed hubs.
Selected Application	Allows you to select an application. Settings for the application appear in the fields on the right.
Common Application Parameters	Lists parameters that apply to all three Cisco Hub/Ring Manager polling applications.
Local Time-out	Shows the time (in seconds) that the management station waits for a hub response message through the LAN interface. When the timeout is exceeded and a response message has not arrived from the hub, the management station either tries to resend the message or records a LAN communication error. The value should be increased in a loaded LAN. ¹
Remote Time-out	Shows the time (in seconds) that the management station waits for a hub response message through the LAN interface. When the time-out is exceeded, and a response message has not arrived from the hub, the management station either tries to resend the message or records a LAN communication error. The number should be increased in a remote network. ²
Recommended	Displays the recommended hub-response timeout setting. Click the arrow to copy this value into the Current field. This value cannot be edited.
Current	Displays the current hub-response timeout setting. Click the arrow to copy the Recommended value into this field.

1. The local timeout value affects all hubs designated local. Cisco Systems suggests using the timeout in the Recommended field, which is calculated as (number of local hubs + 1) x (maximum time between polls under Hub Manager and Ring Manager) x 3.

2. The remote timeout value affects all hubs designated remote. Cisco Systems suggests using the timeout in the Recommended field, which is calculated as (number of remote hubs + 1) x (maximum time between polls under Hub Manager and Ring Manager) x 3.

Setup and Configuration Operations

Hub Manager Parameters

When you select Hub Manager from the Selected Application list box, the corresponding settings appear in the fields to the right, as shown in Figure 3-1 and listed in Table 3-7.

Table 3-7 Hub Manager Local and Remote Polling Fields

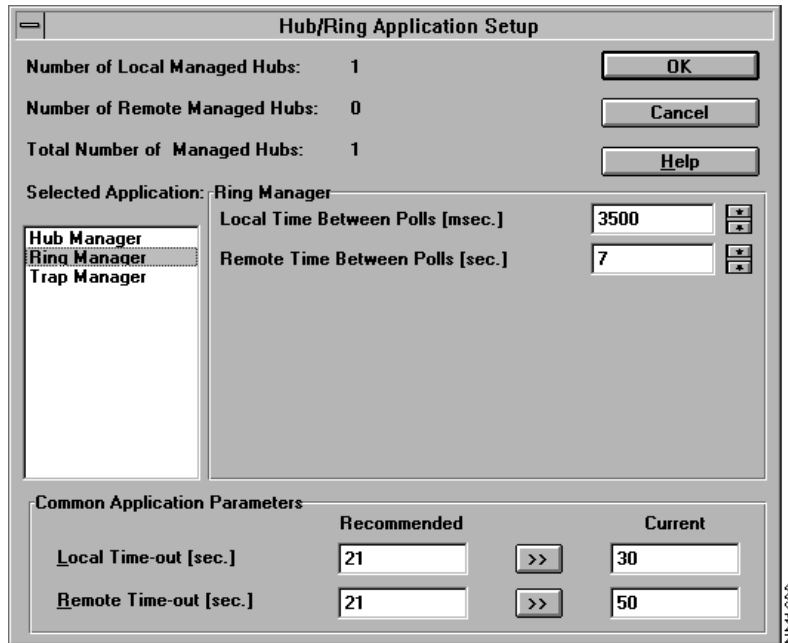
Field	Description
Local Time Between Polls	Displays the time (in ms) between two consecutive Hub/Ring Manager pollings in the LAN. This value should reflect the number of hubs in the network. The default value is 3000. The recommended values are: <ul style="list-style-type: none">• For one hub—3500 ms• For three hubs—2500 ms• For 10 or more hubs—1000 ms The local polling time should be significantly more frequent than the remote polling time. ¹
Remote Time Between Polls	Displays the time (in seconds) between two consecutive Hub/Ring Manager pollings in the LAN. The default value is 7 seconds. ¹

1. Decreasing this number enables the management station to reflect changes in the hubs faster, but also increases the network load.

Ring Manager Parameters

When you select Ring Manager from the Selected Application list box, the fields shown in Figure 3-2 and listed in Table 3-8 appear.

Figure 3-2 Hub-Ring Application Setup: Ring Manager Dialog Box



Setup and Configuration Operations

Table 3-8 Ring Manager Local and Remote Polling Fields

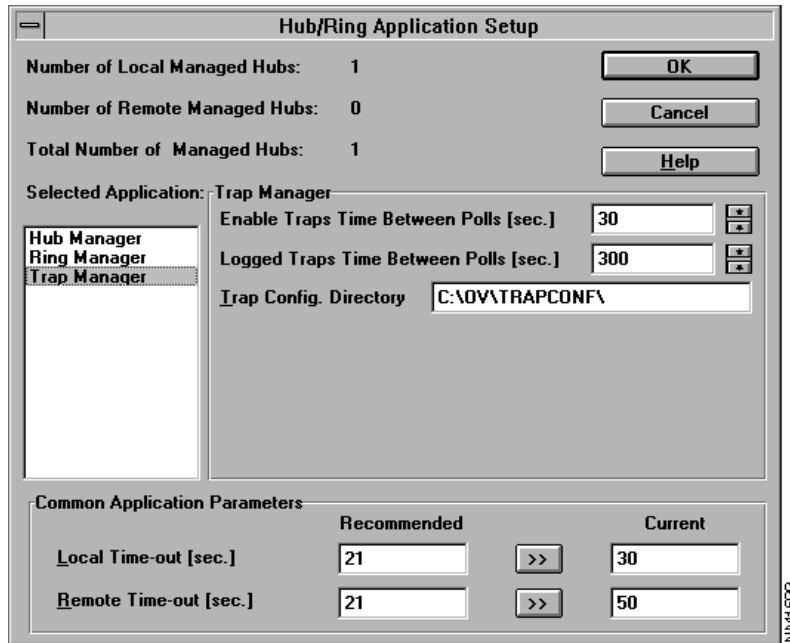
Field	Description
Local Time Between Polls	Indicates the time (in ms) between two consecutive Ring Manager pollings in the LAN. This value should reflect the number of rings in the network. The default value is 3500. The recommended values are: <ul style="list-style-type: none">• For one ring—3500 ms• For three rings—2500 ms• For 10 or more rings—1000 ms The default value is 3500 ms. ¹
Remote Time Between Polls	Indicates the time (in seconds) between two consecutive Ring Manager pollings of remotely managed hubs in the LAN. The default value is 7 seconds. ¹

1. Decreasing this number enables the management station to more quickly reflect changes on the ring to which the NMS is attached. It also increases the network load. Local and remote polling times affect all hubs designated as local or remote, respectively, in the Router/Hub Location dialog box. Local polling should be significantly more frequent than remote polling.

Trap Manager Parameters

When you select Trap Manager from the Selected Application list box, the corresponding settings appear in the fields to the right, as shown in Figure 3-3 and listed in Table 3-9.

Figure 3-3 Hub/Ring Application Setup: Trap Manager Dialog Box



Setup and Configuration Operations

Table 3-9 Trap Manager Polling and Directory Status Fields

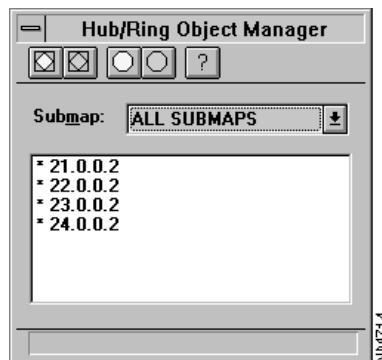
Field	Description
Enable Traps Time Between Polls	Indicates the time (in seconds) between two consecutive Trap Manager polls that verify that the SNMP agent's trapping mechanism is active. This parameter should be modified only by experienced users. The default value is 30.
Logged Traps Time Between Polls	Indicates the time (in seconds) between two consecutive Trap Manager polls for buffered traps. This parameter should be modified only by experienced users. The default value is 300.
Trap Config. Directory	Contains the trap configuration files. You can specify a new directory or use the default.

Hub/Ring Object Manager

From the Hub/Ring Object Manager dialog box, you can perform selective management of specified hubs or all hubs in a submap.

To open the Hub/Ring Object Manager dialog box, from the Options menu select **Hub/Ring Object Manager**. The dialog box appears, as shown in Figure 3-4.

Figure 3-4 Hub/Ring Object Manager Dialog Box



Note An asterisk (*) before an object name in the Hub/Ring Object Manager dialog box indicates that the object is currently managed by Cisco Hub/Ring Manager for Windows.

Submap objects and hub objects that are unmanaged remain unmanaged, even in subsequent Hub/Ring Manager sessions, until they are set to managed.

If a submap is unmanaged, the polling of all applications to all hubs in that submap is disabled. The managed or unmanaged status is not propagated to other submaps in the hierarchy. If you unmanage all hubs in a submap, they are no longer managed; however, all submaps within the submap remain managed.

You can also perform selective management functions in the following way:

Step 1 From your HP OpenView network map, select a submap object, hub, or ring object, then click the right mouse button to display its popup menu.

Step 2 From a submap object, select either **Manage Submap** or **Unmanage Submap**.

Step 3 From a hub or ring object, select either **Manage Object** or **Unmanage Object**.

Table 3-10 describes the fields in the Hub/Ring Object Manager dialog box.

Table 3-10 Hub/Ring Object Manager Dialog Box Fields

Field	Description
Submap	<p>Specifies the submap that contains the hubs you want to manage or unmanage.</p> <ul style="list-style-type: none">• Click the arrow of the Submap field and scroll through the list to select the submap.• Click the Manage Submap button (the green octagon) or the Unmanage Submap button (the pale yellow octagon).
Hub Objects	<p>Displays all hub objects included in the specified submap. This parameter allows you to manage or unmanage a specified object.</p> <ul style="list-style-type: none">• Click the hub name to select it.• Click the Manage Object button (the green diamond) or the Unmanage Object button (the pale yellow diamond).• To deselect a hub, click its name again. <p>The functions for managing all hubs in a submap and managing an individual hub can be used together. For example, you might want to disable management of all but one hub in a submap. To do this, first select the submap name and click on the Unmanage Submap button. Next select the name of the object for which you want to enable management, then click on the Manage Object button.</p>

Selective Application Polling

You can choose which Hub/Ring Manager applications are active—that is, which applications should poll selected hubs in the map. In the Control menu, applications that are active have a checkmark next to their names. Each Hub/Ring Manager session starts with all Hub/Ring Manager applications active.

To deactivate an application, perform the following steps:

Step 1 From the Control menu, select the application that you want to disable—Ring Manager, Hub/Ring Trap Manager, or Hub Manager.

Ethernet Manager does not appear in this list, because it polls only when the Ethernet Statistics window is open.

Step 2 From the submenu, select **Disable Polling**.

The checkmark moves from Enable Polling to Disable Polling to indicate that the application is deactivated. To reenable the application, follow the same procedure and select **Enable Polling**.

Hub Management Operations

This section describes management operations that apply to both Ethernet and Token Ring hubs.

Asset Management

Use the **Asset Management** command in the Control menu to view broad configuration information on your router/hub. **Asset Management** consists of two subcommands: **Hub Configuration** and **Summary File**.

Hub Configuration

Use the **Hub Configuration** command to view a list of hardware and software revisions and the state of all jumpers and DIP switches for each module installed in a selected hub.

To use the **Hub Configuration** command, perform the following steps:

Step 1 Select a hub object in your network map.

Step 2 From the Control menu, select **Asset Management**.

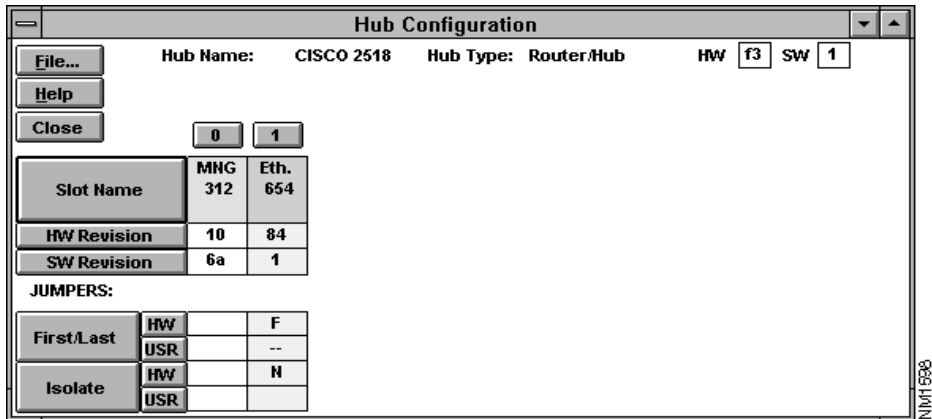
Step 3 Select **Hub Configuration**.

The Hub Configuration window appears.

The items shown in this window depend on the type of hub that is selected and the modules installed in it.

Step 4 To view the jumper and switch settings for a module, click on the box that indicates the slot in which the module is installed. The window expands to show relevant jumper and user settings for all Token Ring or Ethernet modules installed in the hub, as shown in Figure 3-5.

Figure 3-5 Hub Configuration Window



A dash (--) indicates that this setting is not available or is irrelevant. An empty jumper setting in the USR box indicates that the user has not overridden the hardware setting.

Table 3-11 describes the fields, command buttons, and other parameters of the Hub Configuration window.

Table 3-11 Hub Configuration Window Fields

Field	Description
Hub Name	The name of the hub selected in the map.
Hub Type	The type of map object, such as router/hub.
HW	In the upper right corner, specifies the hardware revision of the router/hub. Under Slot Name, specifies the hardware revision of each hub module. Under each jumper, specifies the jumper's hardware setting.
SW	In the upper right corner, specifies the software revision of the router/hub. Under Slot Name, specifies the software revision of each hub module. Under each jumper, specifies the user's software override setting.

File

The **File...** command opens the Save As dialog box, allowing you to save configuration information for all hubs in the map to a file.

Attaching Devices to the Router/Hub

The **Attachment** command under the HP OpenView Control menu displays the Hub Attachment dialog box. Use the Hub Attachment dialog box to associate mapped devices with router/hub ports or to associate the router component with the hub component.

Attachment establishes a graphical connection between LAN nodes and hub ports, and adds a corresponding entry to the HP OpenView database. It enables you to document your network topology by matching devices with hub ports. For example, when you click on a hub port in the Control Panel and select **Identify** from the popup menu, you see the IP address, MAC address, and map icon name of the attached device.

Attachment also aids in automatic configuration. If you attach the router portion of the router/hub, the **Perform** command button

in the Check MAC-to-Port Mapping dialog box automatically scans the database for devices attached to hub ports.

Attachment does not change the physical connections between nodes and ports. You can change physical connections only by plugging in and unplugging cables. Attachment also does not enable or disable nodes on the hub; to do that, use the **Reconnect** and **Disconnect** commands in the popup menu on the Control Panel.

To open the Hub Attachment dialog box, do one of the following:

- Highlight a hub object, click the right mouse button, and select **Attachment**.
- Highlight a hub object, then from the Control menu, select **Attachment**.

The Hub Attachment dialog box appears, as shown in Figure 3-6. Table 3-12 describes the Hub Attachment dialog box fields and command buttons.

Figure 3-6 Hub Attachment Dialog Box

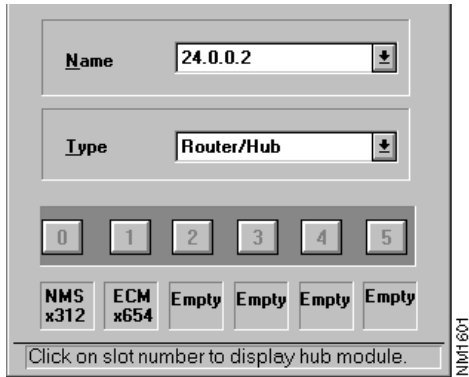
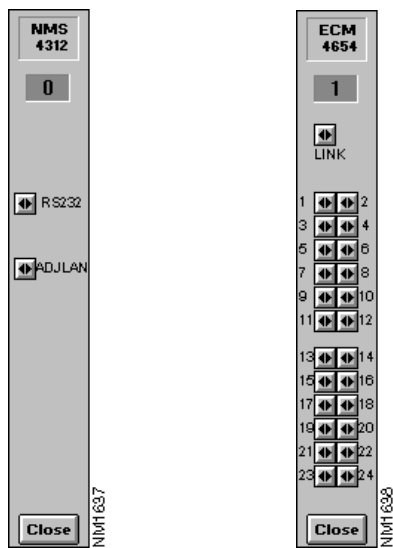


Table 3-12 Hub Attachment Dialog Box Fields and Command Buttons

Field or Command Button	Meaning
Name	Name of the object selected in the map.
Type	Type of map object, such as PC or router/hub.
Slot number	Click on a slot number to display the module installed in that slot. The NMS and hub modules are opened by default, as shown in Figure 3-7. You can move a module display by dragging on its name.
Attach (plus sign)	Attaches the selected items.
Detach (minus sign)	Detaches the selected items.
Deselect All (X icon)	Deselects all ports.
Identify (eyeglasses icon)	Opens the Identify Node dialog box. See the “Identify Node” section.
Open (opening folder icon)	Opens a new Hub Attachment dialog box for another object without closing the one that is open.

The NMS module in slot 0 and the Ethernet or Token Ring module in slot 1 are displayed automatically, as shown in Figure 3-7 for an Ethernet module.

Figure 3-7 NMS and Hub Module Displays



Slots with gray numbers cannot be opened and indicate one of the following:

- There is no module in that slot.
- The module display for that slot is already open.

If all module numbers are gray, there may be no communication with the hub.

Hub Management Operations

Ports that are not attached have a black symbol consisting of two triangles pointing away from each other. Ports that are attached have a blue symbol consisting of two triangles pointing toward each other. To select a port for attachment, click on the port. The port's symbol changes to green. To deselect the port, click on it again, or click on the **Deselect All** icon in the Hub Attachment dialog box.

The Hub Attachment dialog box and the module displays associated with it are coded with matching colors, so that you can identify the modules belonging to each hub. These colors do not reflect the status of the port, slot, or hub.

Attaching a Router/Hub Port to a PC

To attach a router/hub port to a PC, perform the following steps:

- Step 1** Select the router/hub in the network map and open its Hub Attachment dialog box.
- Step 2** Click on the slot to display the module.
- Step 3** Click on the port. The port's color changes to green.
- Step 4** Select the PC object by clicking on it in the map. If necessary, you can drag the Hub Attachment dialog box and the module displays by their names to uncover the PC object.

Another way to select the PC object is to click on the **Open** button (opening folder icon) in the router/hub Hub Attachment dialog box. If a device is selected in the map, the Device Attachment dialog box for that device appears. If no device is selected, an Open dialog box appears. Select the device name or type from the lists in this dialog box and click **OK**. The Device Attachment dialog box appears.

Select the PC from the list in the Device Attachment dialog box, then click on the triangle symbol. The symbol changes to green.

- Step 5** Click on the **Attach** icon in the Hub Attachment dialog box. The port symbol changes to blue.

Note Click on the **Attach** icon in the Hub Attachment dialog box, not the Device Attachment dialog box.

Step 6 From the Control menu, select **Sync. Attachment**.

The PC icon on the map now changes color to indicate its status; this change can take up to several minutes, depending on your polling settings. The color coding is shown in Table 3-13.

Note Attached devices do not change color to indicate their status until you perform **Sync. Attachment**.

If you attach a device to an occupied port, the device that was previously attached is detached automatically.

Note Configure HP OpenView not to poll attached PCs and other non-IP devices.

Attaching the Router to a LAN Segment

For proper operation of Cisco Hub/Ring Manager, the router component of the router/hub must be both physically connected and logically attached to a LAN segment.

In Token Ring environments, the TR port on the router component must be connected to port 1 on the Token Ring (LBM) module (or to port 2 if port 1 is set to EXT mode on a Cisco 2517). The Cisco Hub/Ring Manager package provides a cable for this purpose.

In Ethernet environments, the ETH port on the router component can be connected to any port on the Ethernet (ECM) module. It is usually connected to the nearest port.

Since the router component does not appear in the Hub Attachment dialog box, its TR or ETH port is represented as an ADJ LAN port on the network management processor system (NMS) module in slot 0.

To make this attachment, perform the following steps:

Step 1 Select the router/hub object in the network map and open its Hub Attachment dialog box.

Step 2 Click on slot 0 to display the NMS module.

Hub Management Operations

- Step 3** Click on the ADJ LAN port. The port's color changes to green.
- Step 4** Click on the slot that holds the hub module.
- Step 5** Click on the hub port to which the router component is connected. The port's color changes to green.
- Step 6** Click on the **Attach** icon. Both port symbols change to blue.

Synchronizing Attachments

After you have completed attaching devices, open the Control menu and select **Sync. Attachment**. The icon on the map for the attached device changes color to indicate its status. This change may take up to several minutes, depending on your polling settings.

Detaching an Object

To detach an object, follow the procedure for attachment, select the items to be detached, and click on the **Detach** icon. All selected map objects and ports are detached simultaneously.

Color Coding

The color of objects in the network map indicates their status. Table 3-13 describes the meaning of these colors.

Table 3-13 Attached Device Color Code

Color	Meaning
Green (normal)	The device is working normally and can be reached by SNMP.
Magenta (informational)	The device has been disconnected by the user, for example, through the Control Panel.

Color	Meaning
Yellow (warning)	The device is operating, but in a warning state, for example: <ul style="list-style-type: none">• An Ethernet port is partitioned.• A node frequency error has been detected on a Token Ring network.
Red (critical)	Communication has been lost or a severe error has been detected.
Blue (unknown)	The status is unknown, because, for example: <ul style="list-style-type: none">• The device is not attached to any port.• The device is off.• The device lobe is not plugged in on a Token Ring network.• There is no communication with the hub to which the device is attached.
Pale yellow (unmanaged)	The device is unmanaged.

Control Panel

The Control Panel provides a graphical representation of the router/hub and its installed modules. The screen is continuously updated to reflect any changes to the port, LED, or module.

To open the Control Panel, perform the following steps:

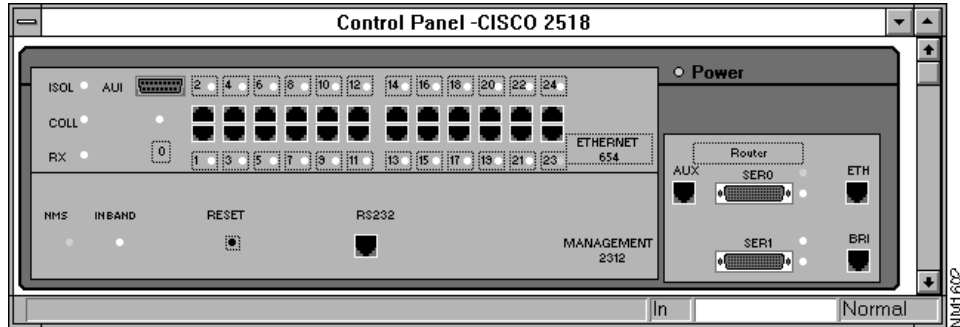
Step 1 From your network map, select a router/hub.

Step 2 From the Control menu, select **Hub Manager**, then select **Control Panel**.

Alternatively, select the router/hub in the network map, click the right mouse button to display the popup menu, and select **Control Panel**.

Figure 3-8 shows an example of a router/hub Control Panel.

Figure 3-8 Cisco 2518 Control Panel



From the router/hub Control Panel, you can perform the following functions:

- Logically disconnect, reconnect, and reset both individual ports and entire modules.
- Override a module's jumper settings (for example, to isolate and rejoin modules from the backplane segment).
- Identify a selected port.

Selecting an Item from the Control Panel

From the Control Panel, you can select an individual port or an entire module. You can also perform other functions by clicking the hot spots shown in dotted boxes. When you click a hot spot, a popup menu appears from which you can apply commands related to the selected item.

Table 3-14 describes Control Panel hot spots and the commands available.

Table 3-14 Control Panel Hot Spots

Hot Spot	Available Commands
Dotted box under RESET on MANAGEMENT 2312 module	Resets the network management module (not the hub).
Dotted box around Router	Resets the router.

Hot Spot	Available Commands
Dotted box around TOKEN RING 242 (Cisco 2517)	<ul style="list-style-type: none"> • Disconnects or reconnects all ports on this module. • Sets port 1 to extension or lobe mode. • Resets the module (but not the hub). • Isolates the module from the backplane (the module's jumper must be set to nonisolate). • Rejoins an isolated module to the backplane.
Dotted box around ETHERNET 654 (Cisco 2518)	<ul style="list-style-type: none"> • Isolates the module from the backplane (the module's jumper must be set to nonisolate). • Rejoins an isolated module to the backplane. • Disconnects or reconnects the entire hub. • Resets the module (but not the hub).
Dotted box around TOKEN RING x292 (Cisco 2519)	<ul style="list-style-type: none"> • Disconnects or reconnects the entire hub. • Resets the module (but not the hub). • Isolates the module or a group of 12 ports from the backplane (the module's jumper must be set to nonisolate). • Rejoins an isolated module or group of 12 ports to the backplane. • Sets the Ring In or Ring Out port to MAU mode. • Sets the Ring In or Ring Out port to repeater mode.
Dotted box around WRAP (Cisco 2519)	<ul style="list-style-type: none"> • Wraps or unwraps the Ring Out port. • Identifies the node.
Dotted box around a port number	<ul style="list-style-type: none"> • Identifies, disconnects, or reconnects the port. Port 0 on an Ethernet module is the AUI port. • Shows statistics for an Ethernet port.
Dotted box around a port number on TOKEN RING 242	<ul style="list-style-type: none"> • Identifies, disconnects, or reconnects the port.

Color Coding in the Control Panel

LEDs and module names are color-coded in the Control Panel, as shown in Table 3-15, Table 3-16, and Table 3-17. The Control Panel for NMS modules reflects the actual status of the LEDs. Before performing disconnect, reconnect, isolate, rejoin, unpartition, or reset actions, use the Control Panel displays to verify that you have active communications.

Table 3-15 LED Color Code (Ethernet)

LED	Color	Meaning
RX	Green	A port is receiving.
RX	White	None of the ports are receiving.
COL	Green	A port has detected a collision.
COL	White	No collisions have been detected.
ISO	Green	Jumper is set to isolate mode.
ISO	White	Jumper is set to normal mode.
Port LEDs	Red	Port is partitioned.
Port LEDs	Magenta	Port is disconnected by the user.
Port LEDs	Green	Port is inserted.
Port LEDs	White	Port is not inserted.

Table 3-16 LED Color Code (Token Ring)

LED	Color	Meaning
EXT	Green	Jumper for extension port is set to extension mode.
EXT	White	Jumper for extension port is set to lobe mode.
16M LED	Green	Jumper is set to 16 Mb/sec.
16M LED	White	Jumper is set to 4 Mb/sec.
ISOL	Red	Module is isolated because a hardware error occurred.
ISOL	Green	Jumper is set to isolate mode or normal mode, but no ports are inserted.
ISOL	White	Jumper is set to normal mode and at least one port is inserted.
Port LEDs	Yellow	Error in ring speed has been detected.

LED	Color	Meaning
Port LEDs	Magenta	Port is disconnected by the user.
Port LEDs	Green	Port is connected and active.
Port LEDs	White	Port is connected but inactive.

Table 3-17 **Module Name Color Code**

Color	Meaning
Black	Jumper is set to normal mode.
Red	Module is isolated because a hardware error occurred, or no stations are inserted.
Magenta	The module has been isolated by a user action.

Ring Management Operations

This section discusses Ring Manager commands, windows, and dialog boxes.

All Rings

Use the All Rings window to obtain information about all rings in the network, including a ring's name, ID, status, and number of nodes. In addition, the status bar in the lower right corner displays the current date and time.

If the All Rings window is minimized, double-click on the icon to maximize it. If the window is closed, open it by performing the following steps:

Step 1 From the Control menu, select **Ring Manager**.

Step 2 Select **All Rings**.

The All Rings window appears, as shown in Figure 3-9.

Figure 3-9 All Rings Window

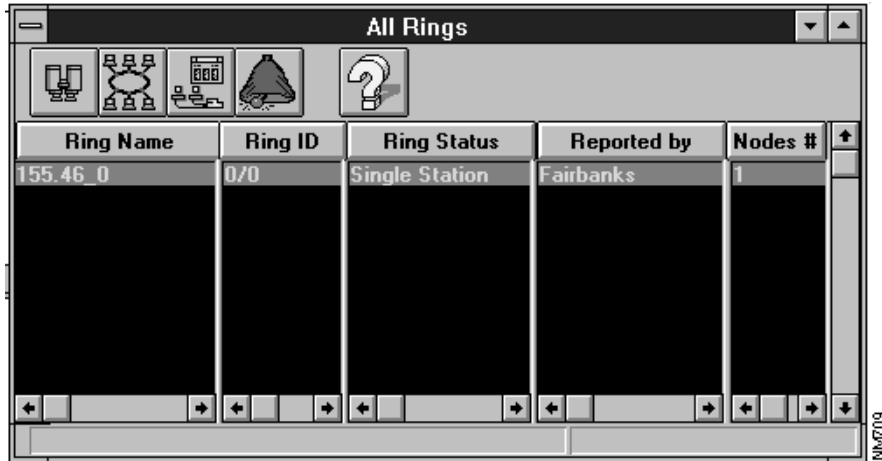


Table 3-18 explains the meaning of each color.

Table 3-18 Ring Status Color Code

Line Color	Status	Meaning
Green	Normal	The ring is operating normally.
Red	Beaconing	<p>There is a serious problem on the ring, such as a failure in the cabling system, ring hubs, or circuitry of a node on the ring.</p> <p>Localize the fault domain by checking the node address of the node that generated the beacon event and the nearest active upstream neighbor (NAUN). The fault lies in the cabling or ring hubs between these two nodes, or within one of the two nodes. Beaconing usually recovers after a fraction of a second.</p>

Line Color	Status	Meaning
Red	Excessive Errors	An isolated error has exceeded the second threshold. This indicates a problem on the ring that is seriously affecting its performance.
Yellow	Increasing Errors	An isolated error has exceeded the first threshold. This indicates a possible problem on the ring.
Cyan	Unknown	There is no communication with SNMP agents on the ring.
White	Unmanaged	All hubs monitoring this ring are unmanaged.

Table 3-19 identifies and describes the fields and components of the All Rings window.

Table 3-19 All Rings Window Fields and Components

Field or Component	Description
Ring Name	Displays the ring name that you assigned. The ring name is the text you entered in the Segment field of the Token Ring Interfaces dialog box reached from the Describe dialog box. If you leave the Segment field blank, Ring Manager uses the Token Ring interface address as the ring name, in the format <i>subnet address_hex ring number</i> (for example, 192.111.3_3F).
Ring ID	Shows the ring number in both hexadecimal and decimal format.
Ring Status	Indicates the overall ring status at a specified date and time.
Reported by	Indicates the hub or entity that supplied the status information.
Nodes #	Displays the number of nodes currently in the ring (Active Monitor + Standby Monitors).
Status Bar	Shows the current date and time in the lower right corner of the dialog box.
Ring Monitor (binoculars icon)	Opens the Ring Monitor window for the current ring. (See the “Ring Monitor” section.)
Ring Configuration (network icon)	Opens the Ring Configuration window for the current ring. (See the “Ring Configuration” section.)

Ring Management Operations

Field or Component	Description
Event Filter (joined stations)	Opens the Event Filter dialog box. (See the “Event Filter” section.)
Ring Events (bell icon)	Opens the Ring Events window for the current ring. (See the “Ring Events” section.)

MAC-to-Port Mapping

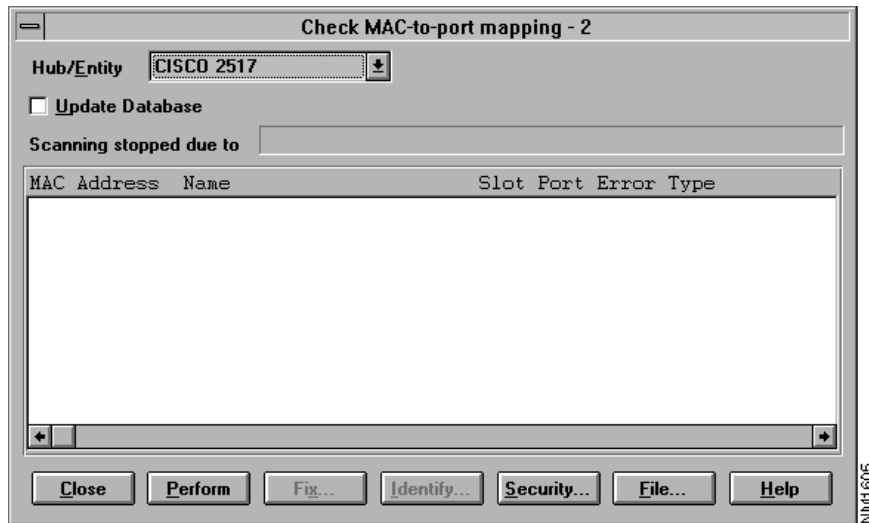
In some cases you may need to verify that information such as a device’s name, MAC address, and location in the hub are consistent. You can view these values in the Check MAC-to-Port Mapping dialog box. You can also use the Check MAC-to-Port Mapping dialog box to correct inconsistencies, such as when the address of a device that was entered in the Describe dialog box does not match the address of the same device as determined by Ring Manager.

Ring Manager’s ability to display information in the Check MAC-to-Port Mapping dialog box can be limited or unsuccessful, depending on the hub’s configuration. You can display MAC-to-port mapping information only on rings where none of the active ports are set to extension mode.

To open the Check MAC-to-Port Mapping dialog box, shown in Figure 3-10, do one of the following:

- In the Ring Monitor window, click **Check**.
- In the Ring Configuration window, click the **Check** icon, or select **Check** from the Options menu.

Figure 3-10 Check MAC-to-Port Mapping Dialog Box



When you first view the Check MAC-to-Port Mapping dialog box, the list of mappings is empty. To display MAC-to-port mapping information, click **Perform**. If any inconsistencies appear, such as address information in the Describe dialog box not matching what Ring Manager found, a message reports the problem.

To update the database, click the **Update Database** checkbox, then click **Perform**. Whenever you update the database, select the **Sync. Attachment** command from the Control menu to update the Cisco Hub/Ring Manager database with information from the HP OpenView database.

Table 3-20 describes the fields and command buttons in the Check MAC-to-Port Mapping dialog box.

Ring Management Operations

Table 3-20 Check MAC-to-Port Mapping Dialog Box Fields and Command Buttons

Field or Command Button	Description
Hub/Entity	Click on the arrow to choose the device to be checked.
Update Database	When checked, updates the database with information retrieved by the Perform action.
Scanning stopped due to	Explains why the scanning action was terminated.
MAC Address	Displays the MAC address of a device as determined by the Check MAC-to-Port Mapping dialog box.
Name	Displays the device name associated with the specified MAC address.
Slot	Identifies the slot occupied by the inserted device.
Port	Identifies the port to which the device is attached.
Error Type	Specifies the type of error that was detected: objects do not match, ports and slots do not match, hubs do not match, or MAC addresses do not match.
Perform	Scans the database for MAC-to-port mapping information.
Fix	Corrects discrepancies or errors found by the scanning action.
Identify	Opens the Identify Node dialog box. (See the “Identify Node” section.)
Security...	Opens the Security dialog box. (See the “Ring Security” section.)
File...	Prints the contents of the dialog box to a file with the indicated name.

From the Check MAC-to-Port Mapping dialog box, you can open the Mapping Inconsistency dialog box to correct any discrepancies, such as an addressing mismatch, by performing the following steps:

- Step 1** Select the line you want to correct.
- Step 2** Click **Fix**.

The Mapping Inconsistency dialog box appears, as shown in Figure 3-11.

Figure 3-11 Mapping Inconsistency Dialog Box

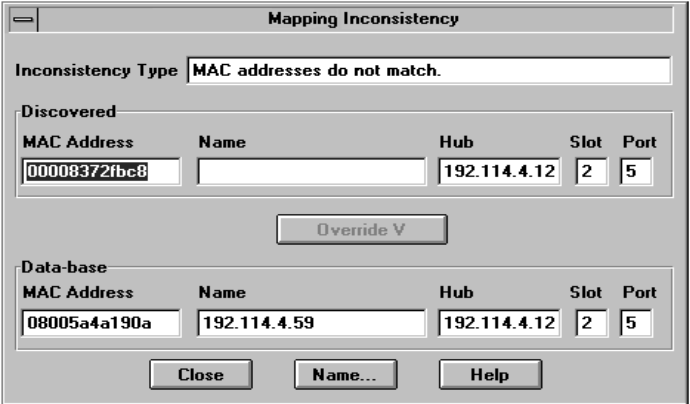


Table 3-21 describes the fields and command buttons in the Mapping Inconsistency dialog box.

Ring Management Operations

Table 3-21 Mapping Inconsistency Dialog Box Fields and Command Buttons

Field or Command Button	Description
Inconsistency Type	Specifies the type of inconsistency found for this device, as determined by the scanning action.
Discovered	Specifies the MAC address, name, hub, port, and slot found for this device, as determined by the scanning action.
Database	Specifies the MAC address, name, hub, port, and slot for this device, as recorded in the database.
Override	Replaces the device's information in the database with the details discovered by the scanning action.
Name	Opens the MAC Name Settings dialog box to correct any inconsistencies in the name given to the device. (See the "Name Settings" section.)

Ring Manager Customization

At times you may want to automate certain Ring Manager functions. For example, you might want Ring Manager to automatically remove nodes if they attempt to enter a locked ring. The Customization dialog box allows you to set up this kind of automated action. The preferences that you set up apply to all Cisco router/hub SNMP agents that manage Token Ring ports in the network.

To display the Customization dialog box, perform the following steps:

Step 1 From the Control menu, select **Ring Manager**.

Step 2 Select **Customization**.

The Ring Manager Customization dialog box appears, as shown in Figure 3-12.

Figure 3-12 Ring Manager Customization Dialog Box



Table 3-22 describes the fields in the Ring Manager Customization dialog box.

Table 3-22 Ring Manager Customization Dialog Box Fields

Field	Description
Security Auto Removal	Removes unauthorized devices from the ring by default. When enabled, Ring Manager automatically removes devices violating security from the ring upon their insertion. A device is considered a security violator when it attempts to insert into a ring whose configuration is locked in the Security dialog box. The default setting is disabled.
Error Auto Removal	Removes devices that exceed the isolating error threshold or congestion threshold from the ring. The Error Auto Removal function can be performed by either Ring Manager or the SNMP agent. The default setting is disabled.

Ring Management Operations

Field	Description
Manager	Designates Ring Manager to perform the Error Auto Removal function. When enabled, Ring Manager automatically removes devices that exceed the isolating error threshold from the ring. For these stations to be removed, the Ring Manager application must be active (for example, Enable Polling). Devices designated as untouchable in the Ring Security dialog box are not removed.
Agent	Designates the SNMP agent to perform the Error Auto Removal function. The SNMP agent continually monitors the ring and issues a command to remove devices that exceed the isolating error threshold or congestion threshold from the ring. The agent continues to remove these stations even when the Ring Manager application is not active (for example, Disable Polling) or when the Hub/Ring Manager PC is powered off. Devices designated as untouchable in the Ring Security dialog box are removed.
Reset Inactive Agents	This function should be enabled in networks with a single station running the Ring Manager application to update the agents with changes in a device's status (for example, Allowed, Not Allowed, Monitored, or Not Monitor). This function should not be enabled in networks with multiple stations running Ring Manager. The default setting is enabled.
Always Poll Events	When enabled, Ring Manager continually polls agents and logs their data in the events buffer, even when the Ring Events window is closed. Cisco recommends that you enable this function in noisy environments to keep the error counters and event logs up to date. When disabled, Ring Manager polls agents and logs their data in the events buffer only when the Ring Events window is open. The default setting is disabled.

Event Filter

Use the Event Filter dialog box to filter events that appear in the Ring Events window.

To open the Event Filter dialog box, perform the following steps:

Step 1 From the Control menu, select **Ring Manager**.

Step 2 Select **Event Filter**.

Another way to open the Event Filter dialog box is to perform the following steps:

Step 1 From the All Rings dialog box, select a ring.

Step 2 Click on the **Event Filter** icon.

The Event Filter dialog box is shown in Figure 3-13.

Figure 3-13 Event Filter Dialog Box



Ring Management Operations

Events that are selected appear in the Ring Events window (the event log). By default, all events are selected. To select or deselect any event, click on the box next to the event. Events can be selected or deselected individually or by groups. To select or deselect an entire group, click on the appropriate group command button: **Node Events**, **Ring Events**, **Critical Events**, or **Soft Error Events**.

Name Settings

Use the Name Settings dialog box to assign a device name to a MAC address. The names listed in the dialog box are taken from the list of all devices in the current map. The MAC addresses listed are taken from the selected ring configuration.

Hubs and bridges are not listed. Use the Describe dialog box, rather than the Name Settings dialog box, to assign a MAC address to hubs and bridges. To open the Name Settings dialog box, perform the following steps:

- Step 1** From the Control menu, select **Ring Manager**.
- Step 2** From the Ring Manager menu, select the **Ring Configuration** command.
The Ring Configuration window appears.
- Step 3** In the Ring Configuration window, select a device and click the **Name** command button (pages with writing).

The Name Settings dialog box appears, as shown in Figure 3-14.

Figure 3-14 Name Settings Dialog Box

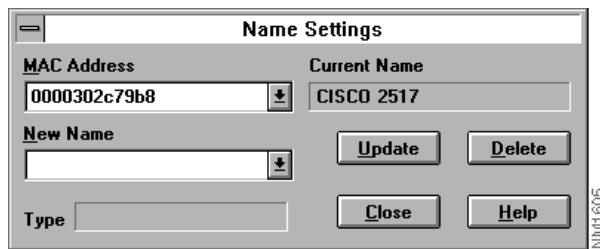


Table 3-23 describes the fields and command buttons in the Name Settings dialog box.

Table 3-23 Name Settings Dialog Box Fields and Command Buttons

Field or Command Button	Description
MAC Address	<p>Displays a list of all MAC addresses in the selected ring configuration. Click the down arrow to select the MAC address that you want to assign to a device name. The selected address appears in the MAC Address box.</p> <p>You cannot change the MAC address from this box. If a device is listed in the Current Name box, the MAC Address box displays the MAC address of that device.</p> <p>Whenever you assign a MAC address to a Token Ring device, select Sync. MAC Database under Ring Manager in the Control menu to update the database with the new address information.</p>
Current Name	<p>Displays the name of the selected device. If a name is not assigned, the box is empty. You cannot change the device name from this box.</p>
New Name	<p>Displays a list of all device names in the database. Click on the arrow, then select from the list the name that you want to assign to the specified MAC address.</p>
Type	<p>Specifies the type of object or device, such as personal computer.</p>
Update	<p>Records the new name-to-address association. If you select a new name from the New Name list to correspond to the specified MAC address, you can record the link in the database by clicking Update.</p>
Delete	<p>Removes a name-to-address association. If you want to remove a specified MAC address and its corresponding name, click Delete first. This command deletes the link between the name and the corresponding MAC address.</p>

Ring Configuration

The Ring Configuration window lists devices configured on a specified ring, including their MAC address and status.

The list is divided into two sections. The upper section contains all active nodes on the selected ring. The lower section includes all devices that were previously active on the ring, but are not active at the time of the display.

To open the Ring Configuration window, perform the following steps:

Step 1 From the All Rings window, select a ring.

Step 2 Click on the **Ring Configuration** icon.

The Ring Configuration window appears, as shown in Figure 3-15.

Note You can drag the horizontal and vertical separator bars in the Ring Configuration window to change the amount of space devoted to each section.

You can also open the Ring Configuration window by doing one of the following:

- From the Control menu, select **Ring Manager**, then select **Ring Configuration**.
- From your network map, select a Token Ring symbol, click the right mouse button, then select **Ring Configuration** from the popup menu.

Table 3-24 describes the commands in the Ring Configuration window menu bar. All commands except **Field Display** can also be performed by command buttons.

Table 3-25 describes the fields and command buttons in the Ring Configuration window.

Figure 3-15 Ring Configuration Window

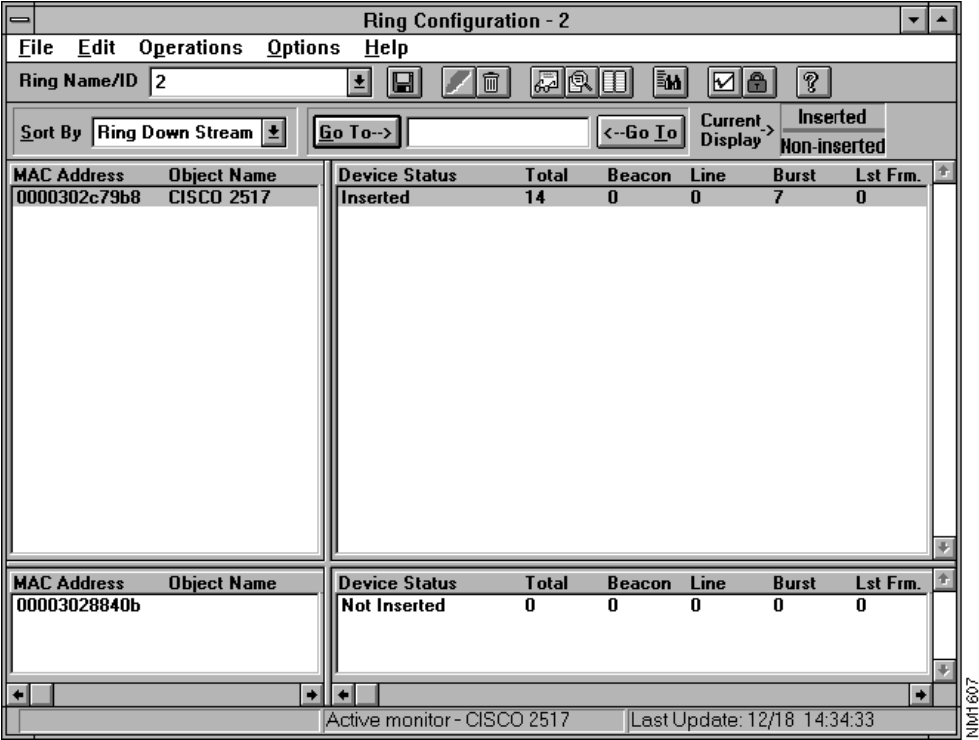


Table 3-24 Ring Configuration Window Menu Bar Commands

Menu	Command	Description
File	Export...	Saves the contents of the window to a file.
Edit	Non Inserted Devices	Deletes the selected node or all non-inserted nodes from the list of non-inserted devices.

Ring Management Operations

Menu	Command	Description
	Field Display...	Opens the Field Display dialog box to set the fields that are displayed in the windows on the right side of the Ring Configuration window. From the Field Display dialog box, you can open the Sequence dialog box to set the sequence of the displayed fields.
Operations	Name...	Opens the Name Settings dialog box for the selected device. (See the “Name Settings” section.)
	Identify...	Opens the Identify Node dialog box for the selected device.
	Monitor	Toggles between monitored and unmonitored status for the selected device. When a device is monitored, status changes are reported in the Ring Events window as Critical Node Joined (or Left) Ring.
Options	Refresh	Updates the Ring Configuration window.
	Check...	Opens the Check MAC-to-Port Mapping dialog box. (See the “MAC-to-Port Mapping” section.)
	Security...	Opens the Security dialog box. (See the “Ring Security” section.)

Table 3-25 Ring Configuration Window Fields and Command Buttons

Field or Command Button	Description
Ring Name/ID	Identifies the ring whose configuration is displayed. Click the down arrow to display a list of available rings. If you entered a name for the ring in the Segment field of the Describe dialog box, a list of ring names appears. Otherwise, a list of ring interface addresses appears.
Sort By	Selects the order in which devices are sorted.
Go To	Enter a full or partial name or MAC address in the text box. To locate a device whose name or address begins with the specified string, click the Go To button on the left; for a device whose name or address ends with the string, click the Go To button on the right. The search is not case-sensitive.

Field or Command Button	Description
Inserted/Non-inserted	In the default display, the upper section of the window lists all active nodes inserted in the selected ring. The lower section lists devices that are non-inserted (previously active but not currently inserted). You can drag the separator bar to show only inserted devices or only non-inserted devices. The Inserted/Non-inserted area indicates whether inserted or non-inserted devices or both are shown.
MAC Address	Displays the MAC addresses of adapters inserted in the ring, accurate up to the time in the Last Update field.
Object Name	Displays the name of the specified device.
Device Status	Describes the state of each device in the ring, accurate up to the time in the Last Update field: <ul style="list-style-type: none"> • Inserted—Inserted in the ring • N.A.—Not allowed • Mon.—Monitored • Viol.—Violated security
Error counters	Lists the number of errors of each type that have been detected while the Ring Events window is open. To update the counters even when the Ring Events window is closed, enable Always Poll Events in the Customization dialog box. You can reset these counters either with the Reset command in the Ring Monitor window or by clicking Reset in the Advanced Identify dialog box.
Status line	The status line at the bottom of the window identifies the active monitor and the time of the last update.
Export (diskette icon)	Saves the contents of the window to a file.
Delete (torn paper icon)	Deletes the selected non-inserted node from the list of non-inserted devices.
Delete All (trash can icon)	Deletes all non-inserted nodes from the list of non-inserted devices.
Identify (eyeglasses icon)	Opens the Identify Node dialog box for the selected device. (See the “Identify Node” section.)

Ring Management Operations

Field or Command Button	Description
Monitor/Do Not Monitor (magnifying glass icon)	Toggles between monitored and unmonitored status for the selected device. When a device is monitored, status changes are reported in the Ring Events window.
Name Settings (pages icon)	Opens the Name Settings dialog box for the selected device. (See the “Name Settings” section.)
Refresh (binoculars icon)	Updates the Ring Configuration window.
Check (checkmark icon)	Opens the Check MAC-to-Port Mapping dialog box. (See the “MAC-to-Port Mapping” section.)
Security (padlock icon)	Opens the Security dialog box. (See the “Ring Security” section.)

Ring Events

The Ring Events window provides a view of all Token Ring events and MAC frames on the network in chronological order (except for events you have filtered with the Event Filter dialog box).

To open the Ring Events window, perform the following steps:

Step 1 From the Control menu, select **Ring Manager**.

Step 2 Select **All Rings**.

The All Rings window appears.

Step 3 From the All Rings window, select a ring and click on the **Ring Events** icon (the bell).

The Ring Events window appears, as shown in Figure 3-16.

Another way to open the Ring Events window is to click **Events** from the Ring Monitor window.

Figure 3-16 Ring Events Window



Events are displayed in real time, showing the event number, time of occurrence, event name, and MAC address and name of the device. The events are filtered according to your selection in the Event Filter dialog box.

Error counts in the Ring Configuration window are updated only while the Event window is active or when the Always Enable Polling feature is enabled in the Customize dialog box.

Table 3-26 describes the fields and command buttons in the Ring Events window.

Table 3-26 Ring Events Window Fields and Command Buttons

Field or Command Button	Description
Close	Closes the window. Error counts in the Ring Configuration window are not updated when this window is closed.
Redraw	Updates the Ring Events window after you change the event filters.
Filter...	Opens the Events Filter dialog box to filter the events. (See the "Event Filter" section.) Click Redraw to update the window with the new filters.

Ring Management Operations

Field or Command Button	Description
Scroll/Unscroll	Toggles between Scroll and Unscroll . Click Scroll to scroll through the events. The cursor automatically scrolls to the latest events as they are added to the window. Click Unscroll to disable scrolling and enable the screen to be updated with new events. The cursor remains on the selected event even when new events are added to the window.
File...	Copies the contents of the window to the selected file. The file remains open and logs ring events until the Ring Event window is closed. The size of the log file is set in the System Initialization file (OVWIN.INI) under Ring Manager and can be manually edited. The default is 60 KB.

Ring Monitor

The Ring Monitor window provides information about the ring, including ring status, Active Monitor, number of nodes in the ring, last beaconing state, and error counts. Information displayed is accurate as of the time shown below the title bar.

To open the Ring Monitor window, perform the following steps:

Step 1 From the Control menu, select **Ring Manager**.

Step 2 Select **Ring Monitor**.

The Ring Monitor window appears, as shown in Figure 3-17.

Figure 3-17 Ring Monitor Window



Table 3-27 describes the fields and command buttons of the Ring Monitor window.

Ring Management Operations

Table 3-27 Ring Monitor Window Command Buttons

Field or Command Button	Description
Ring Status	<p>Displays the ring status at the specified date and time. Ring status is indicated by the color of the ring icon (colored face) as follows:</p> <ul style="list-style-type: none">• Green—Normal. The ring is operating normally.• Dark green—Single station. The reporting agent is the only station on the ring in the managed state.• Cyan—Unknown. There is no communication with the agents on the ring.• Yellow with a red B—Beaconing. There is a serious problem on the ring. Beaconing can mean a failure in the cabling system or ring hubs, or in the circuitry of a node on the ring. To localize the fault domain, check the node address of the node that generated the beacon event and that of the node's NAUN. The fault lies in the cabling or ring hubs between these two nodes, or within one of the two nodes. Beaconing usually recovers itself after a fraction of a second.• Yellow—Increasing errors. An isolated error has exceeded the first threshold, indicating a potential problem.• Red—Excessive errors. An isolated error has exceeded the second threshold, indicating a problem on the ring that is seriously affecting its performance.• Yellow and white checkerboard—All hubs monitoring this ring are unmanaged. <p>The face shown in the ring icon changes according to the ring color.</p>
Ring Name	<p>Displays the name or ID of the ring. The ring name is set in the Describe dialog box for the ring or discovered by Ring Manager. If Ring Manager discovers a ring, it uses a combination of the subnet address and ring number as the ring name (for example, 192.114.4_3F).</p>
Ring No. (hex/dec)	<p>Displays the ring number, as discovered by Ring Manager, in hexadecimal and decimal format.</p>

Field or Command Button	Description
Active Monitor	Displays the MAC address or name of the Active Monitor at the specified time.
Reported By	Displays the name of the hub or entity that supplied the status information.
No. of Nodes	Displays the number of nodes on the ring (Standby Monitors plus Active Monitor) at the specified time.
Last Beacon	Displays the type of the last detected beacon and the nodes between which beaconing was located. Click on the i command button to identify the node.
Errors	<p>Displays the number of errors detected on this ring since the reporting agent was activated, and since the counters were last reset:</p> <ul style="list-style-type: none"> • Beacon—Beacon errors • Poll Fail—Poll fail errors • Purge—Purge errors • Claim—Claim token errors • Iso.Trsh—Number of times the threshold for isolating errors was crossed • Cong. Trsh—Number of times the congestion threshold was crossed • NoIso Tr.—Number of times the threshold for nonisolating errors was crossed • No Resp.—Number of no response errors detected on this ring since the reporting agent was activated
Security...	Opens the Security window for the specified ring. (See the “Ring Security” section.)
Events...	Opens the Ring Events window for the current ring. (See the “Ring Events” section.)
Check...	Opens the Check MAC-to-Port Mapping window for the current ring. (See the “MAC-to-Port Mapping” section.)

Ring Management Operations

Field or Command Button	Description
More...	<p>Opens the lower portion of the window (as shown in Figure 3-17) to display additional information on the number of soft errors detected on the ring since the reporting agent was activated. These errors are of the following types:</p> <ul style="list-style-type: none">• Token• Line/Burst• Lost Frame• Congestion• ARI/FCI• Abort• Frame Copy• Frequency <p>For information about soft errors, see the “Overview” chapter.</p>
Last Counter Reset	<p>Time at which error counters for the agent reporting on this ring were last reset.</p>
Reset	<p>Resets error counts for the agent reporting on the ring. Does not reset the counters in the reporting agent, only the counts kept by Ring Manager. These include global counters as well as error counters for each device (MAC address) on the ring.</p>

Ring Security

Use the security feature to lock the ring configuration according to the last Check operation or an import file with MAC-address-to-port mapping. The security function provides you with a list of all prohibited devices. Offenders remain on the list until you use the Permission dialog box to give them permission to enter the ring.

Opening the Security Dialog Box

To open the Security dialog box displayed in Figure 3-18, do one of the following:

- From the Ring Monitor window, click **Security**.
- From the Ring Configuration window, click the **Security** command button (padlock icon) or select **Security** from the Options menu.

Figure 3-18 Security Dialog Box

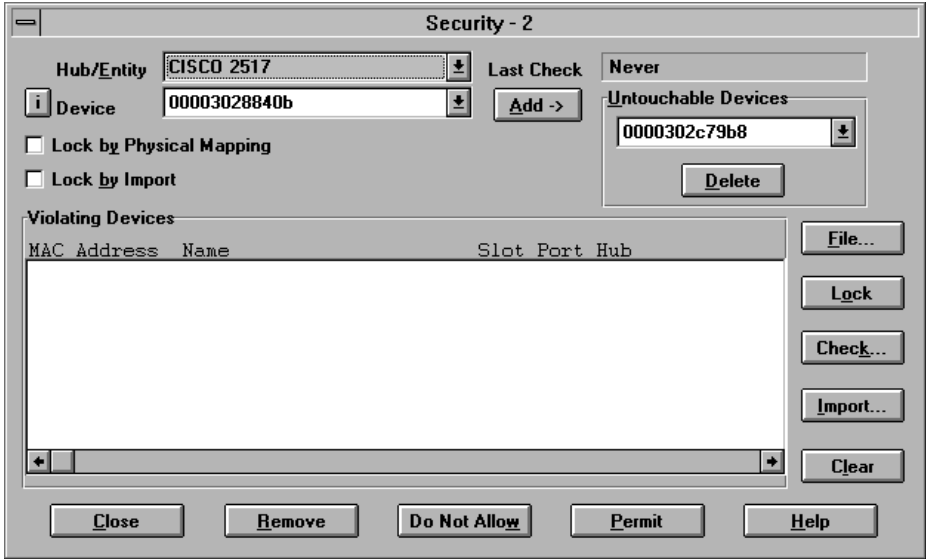


Table 3-28 describes the fields and command buttons in the Security dialog box.

Ring Management Operations

Table 3-28 Security Dialog Box Fields and Command Buttons

Field or Command Button	Description
Hub/Entity	Specifies a router/hub for security. The Violating Devices window displays the names of devices that can be configured for security. If you do not select a device, Hub/Ring Manager interprets the first device in the list as the specified violating device. Click the selection arrow to specify the router/hub to be configured for security.
Last Check	Displays the time you last checked MAC-address-to-port mapping.
Device	Click the selection arrow to specify the address of the connected device that you want to configure for security. To learn the address of the device, click on the i box to display the Identify Node window. (See the “Identify Node” section.)
Add	Adds the selected device to the list of untouchable devices.
Untouchable Devices	Lists devices that cannot be removed or not allowed. Error Auto Removal must be set to Manager in the Ring Manager Customization dialog box. The default is for all network management (NMS) modules to be listed as untouchable devices.
Delete	Removes an untouchable device from the list.
Lock by Physical Mapping	Locks the ring configuration according to the physical mapping information saved in the database during the last Check operation.
Lock by Import	Locks the ring configuration according to an import file. Only devices appearing in the import file are allowed to enter the ring. To load an import file, click Import (described later in this table).
Violating Devices	This section contains a list of all offending devices, including MAC address, name, and the slot, port, and hub through which they are connected.
File...	Saves the contents of the dialog box to a file.

Field or Command Button	Description
Lock/Unlock	<p>Toggles between Lock and Unlock. When Unlock is displayed, you are in lock mode, and users cannot change the MAC-to-port configuration. Click Unlock to change to unlocked mode.</p> <p>When the Security Auto Removal feature is enabled in the Ring Manager Customization dialog box, a user who attempts to change a locked configuration is automatically removed from the ring. A list of removed users appears in the Security dialog box with violation status. When the Security Auto Removal feature is disabled, users violating the locked configuration are able to enter the ring, but are still listed as violators.</p> <p>When Lock is displayed, you are in unlocked mode, and users can change the ring configuration without restriction, including hub port and MAC address of their computing device. To lock the configuration, click Lock.</p>
Check...	<p>Opens the Check MAC-to-Port Mapping dialog box. See the “MAC-to-Port Mapping” section for more information.</p>
Import...	<p>Loads an import file. Click Import and enter the import file name. To have the ring configuration locked according to this file, check the Lock by Import box. The import process automatically adds new objects to the map. Attachment information (hub name, hub type, slot, and port) is updated and overrides the existing information. Any errors that occur during the import process are logged in the System Log file (OVWIN.LOG or OVI2.LOG).</p>
Clear	<p>Clears the MAC-to-port mapping database created by an import file.</p>
Remove	<p>Removes the selected device from the ring. The removal is valid until the device attempts to reinsert into the ring.</p>
Allow/Do Not Allow	<p>Toggles between Allow and Do Not Allow. When Do Not Allow is displayed, the selected device is allowed to enter the ring. Click Do Not Allow to prevent it from entering the ring. When a device is not allowed, a Remove command is sent each time it enters the ring. When Allow is displayed, the selected device is currently not allowed to enter the ring. Click on Allow to allow it to enter the ring.</p>

Ring Management Operations

Field or Command Button	Description
Permit	Gives a device permission to enter the ring. When you select the device and click Permit , the Permission dialog box appears, as shown in Figure 3-19. After a device is permitted to enter the ring with this command, its status is updated in the Ring Configuration window.

The Permit button both updates the locked ring configuration in order to allow a device to enter the ring, and performs the Allow operation on the device. The Permission dialog box is shown in Figure 3-19.

Figure 3-19 Permission Dialog Box

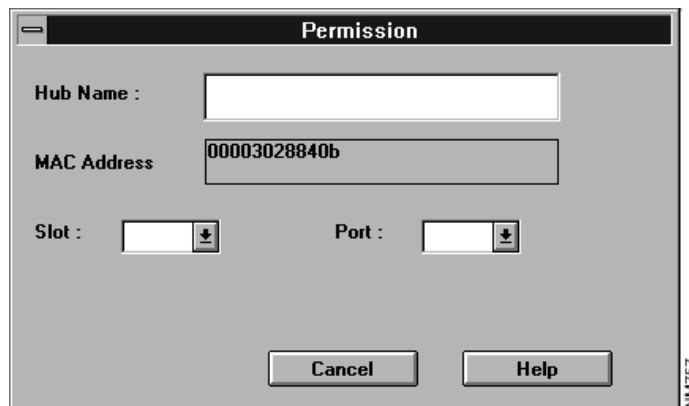


Table 3-29 describes the fields in the Permission dialog box.

Table 3-29 Permission Dialog Box Fields

Field	Description
Hub Name	Name of the hub connected to the violating device selected in the Security dialog box.
MAC Address	MAC address of the selected user.
Slot	Slot to which access permission is granted.
Port	Port to which access permission is granted.

Ethernet Management Operations

Ethernet Manager provides a graphical display of network activity.

Ethernet Statistics

The Ethernet Statistics window displays real-time, port-level statistical information. To open this window, select the router/hub in the network map and open its Control panel, as explained earlier in the “Control Panel” section. Click on a port and select **Eth Statistics** from the popup menu.

The Ethernet Statistics window appears, as shown in Figure 3-20. Table 3-30 explains the displays and command buttons in this window.

Figure 3-20 Ethernet Statistics Window

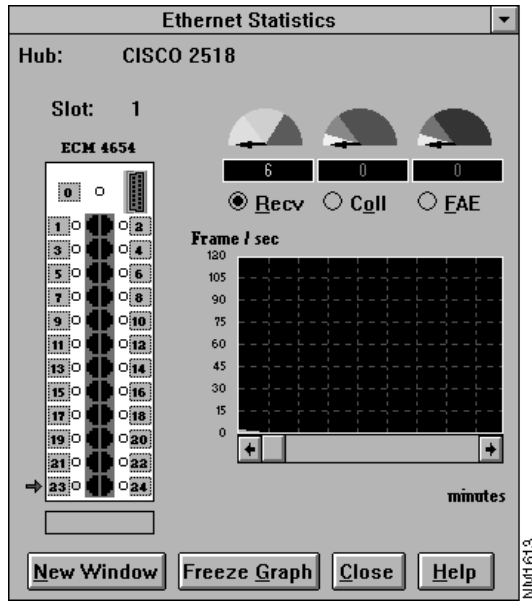


Table 3-30 Ethernet Statistics Window Displays and Command Buttons

Display or Command Button	Description
Hub	The router/hub that this module belongs to.
Slot	The slot that the module is installed in.
Module	A graphical display of the module indicates real-time LED status for all ports. The Ethernet module is shown as ECM (Ethernet connectivity module). An arrow indicates the port currently being monitored. To monitor a different port on the same module, double-click on the dotted box next to the port number in the Ethernet Statistics window.

Display or Command Button	Description
Gauges	Three gauges display the current value, in events per second, of three types of events: receive events (shown in shades of green), collisions (shown in yellow through red), and frequency alignment errors or FAE (shown in shades of blue). Each gauge is divided into a low, normal, and high range according to a low threshold and a high threshold, set by Set Threshold Parameters in Ethernet Manager. The upper end of the gauge is 150 percent of the high threshold value.
Counters	The boxes below the gauges are counters that indicate the total number of events that have occurred since the Ethernet statistics window was opened.
Graph	Displays the rate at which events have occurred over a period of time. To select the type of event shown, click one of the option buttons above the graph. The scale for the vertical axis is set by Set Statistics Graph Scale in Ethernet Manager. The horizontal axis shows the time in minutes since the Ethernet Statistics window was opened.
New Window	To open another Ethernet Statistics window, click on this button and double-click the desired port. You can also open another window by returning to the Control Panel, clicking on the port, and selecting Eth Statistics from the popup menu. You can have up to four windows open at once.
Freeze Graph	This button freezes the graph so that you can scroll through it, retrieving information from the statistical files. When the graph is frozen, the button toggles to Continue . Click Continue to resume graphing and to update the graph with information collected while it was frozen.

Ethernet Manager Parameters

Use Ethernet Manager to set parameters for the graphical displays of network activity shown in the Ethernet Statistics window.

Ethernet Manager provides three functions: **Set Threshold Parameters**, **Set Statistics Graph Scale**, and **Ethernet Statistics File Management**. To modify parameters for one of these functions, from the Control menu, select **Ethernet Manager**, then select the function. Each function has its own dialog box.

Set Threshold Parameters

The Set Threshold Parameters dialog box, shown in Figure 3-21, defines alert thresholds at the network level for three types of events: receive events, collisions, and frequency alignment errors (FAE). You can set low and high thresholds in frames/sec. The fields in this dialog box are described in Table 3-31.

Figure 3-21 Set Threshold Parameters Dialog Box

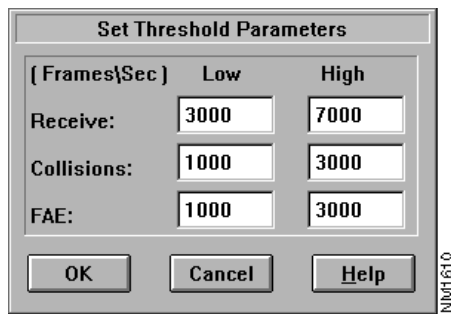


Table 3-31 Set Threshold Parameters Dialog Box Fields

Field	Description
Receive	Includes all receive events. The default low threshold is 3000 frames/sec and the default high threshold is 7000 frames/sec.
Collisions	Includes all collisions. The default low threshold is 1000 frames/sec and the default high threshold is 3000 frames/sec.
FAE	Includes all errors except collisions. The default low threshold is 1000 frames/sec and the default high threshold is 3000 frames/sec.

Set Statistics Graph Scale

The Set Statistics Graph Scale dialog box, shown in Figure 3-22, sets the vertical scale for the Ethernet Statistics window in frames/sec. The option buttons in this dialog box are described in Table 3-32.

Figure 3-22 Set Statistics Graph Scale Dialog Box

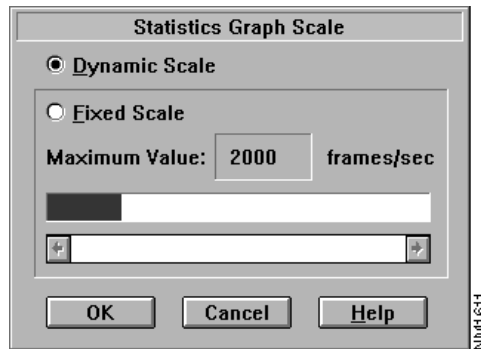


Table 3-32 Set Statistics Graph Scale Dialog Box Option Buttons

Option Button	Description
Dynamic Scale	Sets the scale automatically depending on the magnitude of the data.
Fixed Scale	Enables you to set the maximum value in the scale yourself, using the horizontal scroll bar. If the number of frames/sec exceeds this value, the graph line in the Ethernet Statistics window is clipped. The largest value permitted is 10,000 frames/sec.

Ethernet Statistics File Management

Graphical information displayed in the Ethernet Statistics window is saved in files for future retrieval. Three files are created, one for each event type, for each port for which a window is open. A file is full after the window has been running for approximately 10 to

Ethernet Management Operations

15 minutes, and contains approximately 630 bytes of data. Statistical files are in binary format and can be retrieved by selecting a port and an event type in the Ethernet Statistics window, clicking the **Freeze Graph** command button, and scrolling through the display.

The Ethernet Statistics File Management dialog box, shown in Figure 3-23, is designed for advanced management of statistical files. You do not normally need to change any of the settings in this dialog box, which are described in Table 3-33. Ethernet Manager automatically manages the files and deletes the oldest ones as required.



Caution Do not use Windows or DOS to delete statistical files from the hard disk. Instead, use the **Delete** command in this dialog box.

Figure 3-23 Ethernet Statistics File Management Dialog Box

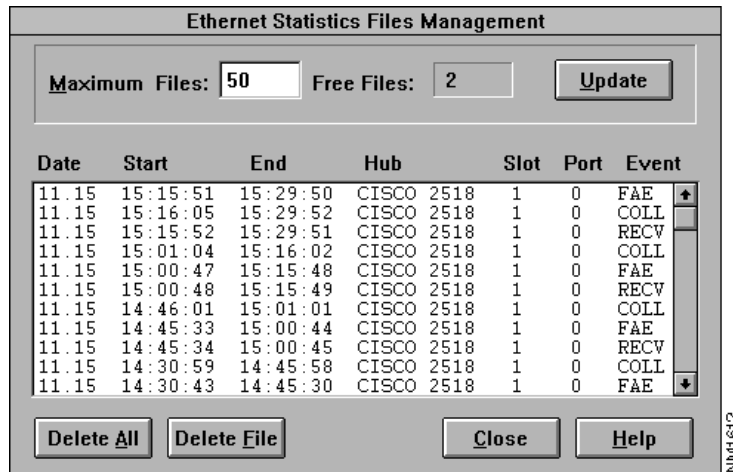


Table 3-33 Ethernet Statistics File Management Dialog Box Fields and Command Buttons

Field or Command Button	Description
Max Files	Allows you to specify the maximum number of statistical files that can be stored on the disk. Ethernet Manager automatically deletes the oldest files, so that there are never more than this maximum number on the disk. The default is 50.
Free Files	Specifies the number of files that can still be created. Obtained by subtracting the number of existing files from the maximum number permissible.
Update	Updates the contents of the dialog box.
Date	Specifies the date when the file was created.
Start	Specifies the time when the file was opened.
End	Specifies the time when the file was closed.
Hub	Specifies the hub for which the file was created.
Slot	Specifies the slot for which the file was created.
Port	Specifies the port for which the file was created.
Event	Specifies the type of event statistics stored in the file: receive events, collisions, or FAE.
Delete All	Deletes all statistical files from the disk.
Delete File	Deletes the selected file from the disk.

Describe Operations

This section explains Describe operations.

Describe

Use the **Describe** command to view and modify configuration information about a node or device. For a hub symbol, you can view its name, notepad, physical location, LAN adapter address, network administrator telephone number, segment number, and TCP/IP address.

There are two types of Describe dialog boxes. The Describe dialog box described in this section applies to router/hub objects.

The Router/Hub Describe dialog box, shown in Figure 3-24, appears whenever you do one of the following:

- Add router/hub objects to the map.
- Select a router/hub object in the network map, then click the right mouse button and select **Describe**.
- Select a router/hub object and choose **Describe** from either the Edit or Monitor menu.

Note If you open the Describe dialog box for the hub object in a router/hub's submap, it shows information only for the hub (NMS entity), and you cannot change any of its fields.

Figure 3-24 Router/Hub Describe Dialog Box

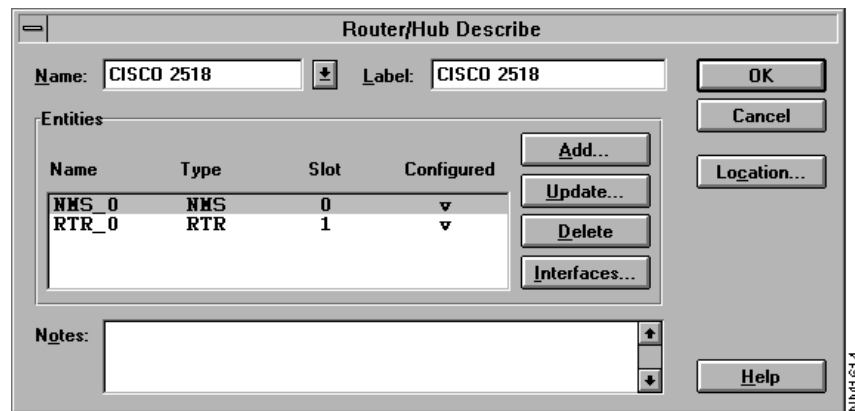


Table 3-34 describes the fields and command buttons in the Router/Hub Describe dialog box.

Table 3-34 Router/Hub Describe Dialog Box Fields and Command Buttons

Field or Command Button	Description
Name	Specifies the name of the hub for which the information is displayed. This name may contain up to 15 alphanumeric characters, including spaces, and is always displayed in uppercase.
Label	Specifies an abbreviated name of up to eight characters that is displayed on the submap, computer, or component symbol in your map. The label is automatically taken from the Name field; it cannot be edited and is always displayed in uppercase letters.

Describe Operations

Field or Command Button	Description
Entities	Lists the entities in the specified device. Double-clicking on a name opens its Interfaces dialog box. Entities are independent CPUs that contain SNMP agents to collect and relay information on the object. The entities listed are supported by the selected hub. The default is an NMS entity in slot zero (0).
Name	Lists the names of the entities for this object. The names are listed in the format <i>type_number</i> . Type refers to the type of device, such as NMS or RTR. Numbers are sequential, starting with zero. Names are assigned automatically and cannot be altered. The entity with number zero (for example, NMS_0) performs all hub management functions.
Type	Specifies the two types of entities: <ul style="list-style-type: none">• Network management modules (NMS)• Router (RTR)
Slot	Identifies the slot in the hub in which the entity is installed. Options are 0 and 1. Slot 0 is the lower slot and physically contains the NMS module; this slot is assigned by default to the NMS entity. Slot 1 contains the Token Ring (LBM) or Ethernet (ECM) module; this slot is assigned by default to the RTR entity.
Configured	Indicates whether the entity has been configured (triangle) or not configured (dash). This symbol changes only after you exit and reenter the Describe dialog box.
Notes	Allows you to enter text. For example, you might want to record line speed, room location, or when preventive maintenance was last performed.
Add...	Displays the Add New Entity dialog box, which allows you to add a new entity to the list of entities supported by the selected hub.
Update...	Modifies entity information for the specified device. In the Entities box, select an entity, then click Update to change its type or slot while retaining all other parameters. Click OK to confirm your changes and return to the Describe dialog box.

Field or Command Button	Description
Delete	Deletes the selected entity from the list of entities supported.
Interfaces...	Displays the Interfaces dialog box. From the entities box, select an entity, then click Interfaces . The Router/Hub Interfaces dialog box appears, as shown in Figure 3-25 and described in Table 3-35.
Location...	<p>Displays a dialog box in which you can enter the object's building number, wiring closet, rack number, and remote or local location. This information is optional.</p> <ul style="list-style-type: none">• Local—Click on this command button to designate the selected hub object as local. This is the default.• Remote—Click on this command button to designate the selected hub object as remote. Hubs located at remote locations (for example, connected over a WAN link or noisy connection) should be designated as remote. In large networks, setting some hubs to remote reduces the network load.

Figure 3-25 Router/Hub Interfaces Dialog Box

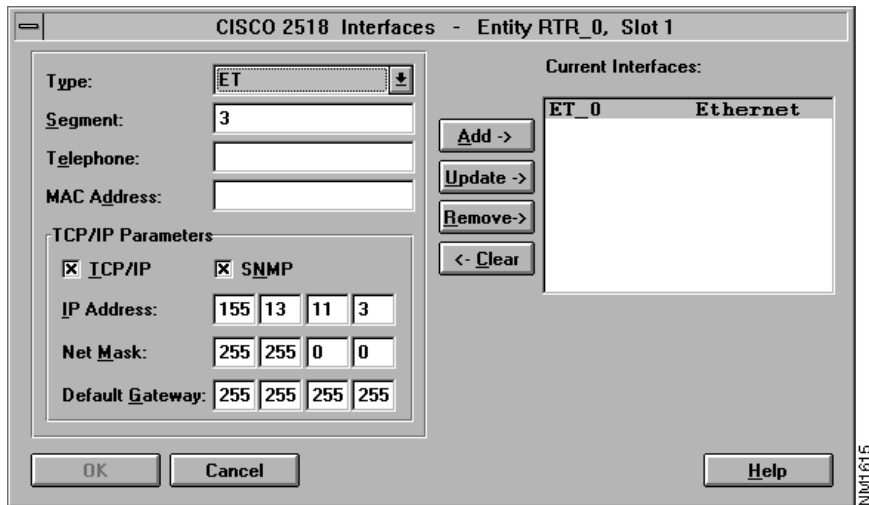


Table 3-35 describes the fields and command buttons in the Router/Hub Interfaces dialog box.

Table 3-35 Router/Hub Interfaces Dialog Box Fields and Command Buttons

Field or Command Button	Description
Type	Specifies the interface type of the selected entity: ET (Ethernet), PC (PCbus), SL (SLIP), or TR (Token Ring),
Segment	Specifies a ring number or segment name. This is an alias composed of letters and numbers for the ring or segment on which the interface (for example, the NMS module) is connected. You must use the same name in the Segment text box for all hubs whose NMS modules are on the same segment. When Ring Manager is running, it automatically inserts this parameter in an empty field.

Field or Command Button	Description
Telephone	Specifies an optional telephone number of the contact person for the specified hub. Remember to include all prefixes and area codes.
MAC Address	Specifies the MAC address of the interface. For example, you can specify the address of the LAN adapter installed on the NMS interface module in the hub. If left blank, this field is filled in automatically. Whenever you assign a MAC address to a Token Ring device, select Sync. MAC Database under Ring Manager in the Control menu to update the database with the new address information.
TCP/IP Parameters	Presents a series of fields into which you can enter communications data for the selected interfaces. Check the boxes for each protocol supported by the interface: TCP/IP or SNMP. Then complete the following communications fields: <ul style="list-style-type: none">• IP Address—Enter the IP address of the interface. This entry is mandatory.• Net Mask—Enter the net mask for the interface's address. The default net mask for the given IP class address is automatically inserted when the field is blank (for example, Class C default is 255.255.255.0).• Default Gateway—Enter the address of the interface's default gateway (optional).
Current Interfaces	Displays the interfaces currently supported by the selected entity.
Add	Adds another interface to the list currently supported by the entity. A maximum of three interfaces is supported per entity.
Update	Updates the interface selected in the list of Current Interfaces.
Remove	Removes the selected interface from the entity and from the list of Current Interfaces.
Clear	Retains the selected interface but erases its interface-specific information.

Miscellaneous Operations

This section discusses other operations of Cisco Hub/Ring Manager for Windows.

Using SNMP Manager

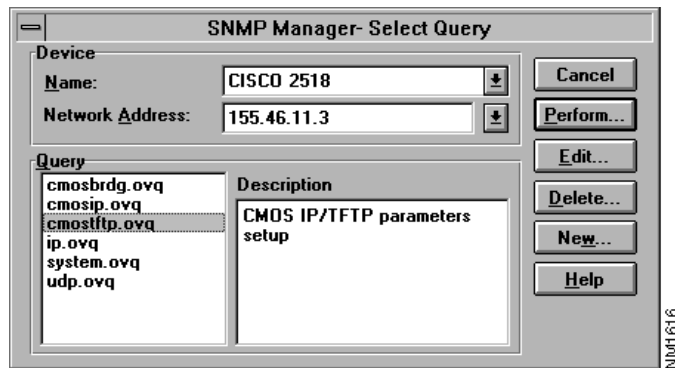
HP OpenView for Windows provides a special dialog box, called SNMP Manager, that you can use to get and set MIB variables in the SNMP agent.

To open the HP OpenView SNMP Query dialog box, perform the following steps:

- Step 1** From your network map, click on a router/hub object.
- Step 2** From the Control menu, click **SNMP Manager**.
- Step 3** Click **Select Query**.
- Step 4** From the Query list, select **cmosip.ovq**.

The cmosip.ovq file contains a query for an SNMP action. The HP OpenView SNMP Query dialog box appears with the relevant variables, as shown in Figure 3-26. After making any changes to the MIB variables, reset the agent through the control panel or the appropriate SNMP variable.

Figure 3-26 SNMP Manager Dialog Box



For more information on this dialog box, refer to the *HP OpenView Windows User's Guide*. For more information on these MIB variables, refer to the appendix "MIB Group and Trap Descriptions."

Identify Node

The Identify Node dialog box provides information on an occupied port of the router/hub. From the Identify Node dialog box, you can only view information; you cannot alter any of the text fields.

To open the Identify Node dialog box, perform the following steps:

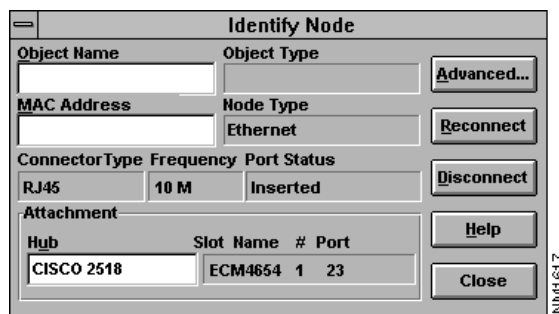
- Step 1** From your network map, select a router/hub.
- Step 2** From the Control menu, select **Control Panel**. The graphical representation of the router/hub appears.

Another way to open the Control Panel is to click the right mouse button on the router/hub object and select **Control Panel** from the popup menu.

- Step 3** Point to an occupied port (one showing a green light) on the router/hub, then click the left mouse button and select **Identify**.

The Identify Node dialog box appears, as shown in Figure 3-27.

Figure 3-27 Identify Node Dialog Box



Miscellaneous Operations

You can also open the Identify Node dialog box by performing one of the following operations:

- Click on an **i** command button, which is found next to fields in certain windows. For example, in the Ring Monitor window, the **i** button appears next to the Node1 and Node2 fields.
- Select a device in the Ring Configuration window and click **Identify**.

Table 3-36 describes the fields and command buttons in the Identify Node dialog box.

Table 3-36 Identify Node Dialog Box Fields and Command Buttons

Field or Command Button	Description
Object Name	Specifies the name of the device.
Object Type	Specifies the type of device, such as router/hub.
MAC Address	Specifies the MAC address of the node.
Node Type	Specifies the type of node, such as Token Ring or Ethernet.
Connector Type	Specifies the connector of the node, such as RJ-45.
Frequency	Specifies the data rate of the network. For Token Ring devices, the frequency is typically 4 or 16 Mbps. For Ethernet, it is typically 10 Mbps.
Port Status	Specifies the condition of the port, for example, whether it is inserted in the ring.
Hub	Specifies the name or address of the selected hub.
Slot Name	Specifies the name of the module.
Slot #	Specifies the slot number of the attached device.
Port	Specifies the numbered port of the router/hub that is being used by the attached device.
Advanced...	This button is enabled when you select the port connected to the router. It displays the Advanced Identify Node dialog box, which contains related address information and error counters.

Field or Command Button	Description
Reconnect	Reconnects the selected device to its attachment. You can do this only on devices that were previously disconnected. This function is equivalent to Reconnect in the Control Panel.
Disconnect	Disconnects the selected device. This function is equivalent to Disconnect in the Control Panel.

The Advanced Identify Node dialog box is different for Ethernet and Token Ring. Figure 3-28 shows the Advanced Identify Node (Ethernet) dialog box.

Figure 3-28 Advanced Identify Node (Ethernet) Dialog Box

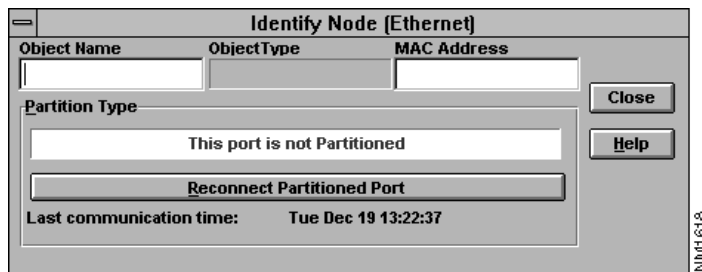


Table 3-37 describes the fields and command buttons in the Advanced Identify Node (Ethernet) dialog box.

Miscellaneous Operations

Table 3-37 Advanced Identify Node (Ethernet) Dialog Box Fields and Command Buttons

Field or Command Button	Description
Object Name	Name of the device.
Object Type	Type of device, such as router/hub.
MAC Address	MAC address of the node.
Partition Type	The reason the port is partitioned.
Reconnect Partitioned Port	When you select this button, an attempt is made to reconnect a partitioned port.
Last Communication Time	The last time communication was established with this device.

Figure 3-29 shows the Advanced Identify Node (Token Ring) dialog box.

Figure 3-29 Advanced Identify Node (Token Ring) Dialog Box

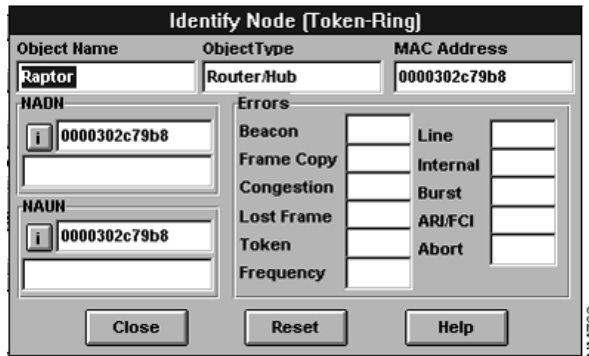


Table 3-38 describes the fields in the Advanced Identify Node (Token Ring) dialog box.

Table 3-38 **Advanced Identify Node (Token Ring) Dialog Box Fields**

Field	Description
NADN	MAC address of the NADN. Click the i command button to the left of this field to identify the device.
NAUN	MAC address of the NAUN. Click the i command button to the left of this field to identify the device.
Errors	Error counters for the selected device or port: <ul style="list-style-type: none">• Beacon• Frame Copy• Congestion• Lost Frame• Token• Frequency• Line• Internal• Burst• ARI/FCI• Abort
Reset	Resets all error counters to zero.

Miscellaneous Operations
