



SPECTRUM[®]

Portable Management Application

for the

SEHI100TX-22[™]

User's Guide

CABLETRON
SYSTEMS

The Complete Networking Solution[™]

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Chapter 1 Introduction to SPMA for the SEHI100TX-22

Using the SEHI User's Guide.....	1-2
What's NOT in the SEHI100TX User's Guide . . .	1-2
Conventions.....	1-3
Screen Displays	1-4
Using the Mouse	1-5
Getting Help	1-6
SEHI100TX Firmware.....	1-7
Year 2000 Compliance	1-7

Chapter 2 Using the SEHI100TX Hub View

Using the Hub View	2-1
Navigating Through the Hub View	2-2
Hub View Front Panel.....	2-2
Using the Mouse in the Hub View Ports Display	2-5
Hub View Port Color Codes.....	2-7
Monitoring Hub Performance.....	2-7
Port Display Form.....	2-8
Checking Device Status and Updating Front Panel Info	2-10
Checking Module Status.....	2-12
Checking Repeater Status.....	2-13
Checking Port Status	2-14
Checking Statistics.....	2-16
General/Error Statistics.....	2-17
The SEHI100TX Error Priority Scheme.....	2-19
Frames Statistics.....	2-20
Managing the Hub.....	2-20
Setting the Polling Intervals	2-20
Enabling/Disabling Ports.....	2-22

Chapter 3 Link/Seg Traps

What is a Segmentation Trap?.....	3-1
What is a Link Trap?	3-2
Enabling and Disabling Link/Seg Traps	3-2
Configuring Link/Seg Traps for the Repeater.....	3-4
Viewing and Configuring Link/Seg Traps for Hub Modules.....	3-4
Viewing and Configuring Link/Seg Traps for Ports	3-6

Chapter 4 Repeater Redundancy

Setting Network Circuit Redundancy	4-1
Configuring a Redundant Circuit.....	4-2
Monitoring Redundancy	4-6

Appendix A SEHI100TX MIB Structure

IETF MIB Support	A-1
SEHI100TX MIB Structure.....	A-1
A Brief Word About MIB Components and Community Names	A-2

Index

Introduction to SPMA for the SEHI100TX-22

How to use the SEHI User's Guide; manual conventions; contacting Cabletron Global Call Center; SEHI firmware versions supported by SPMA

The SEHI100TX-22 is an intelligent repeating Fast Ethernet hub, which when combined with the SEH100TX-22 non-intelligent stackable hub, can provide from 22 to as many as 120 100Base-TX Ethernet connections in a single stack. Each SEHI100TX-22 and SEH100 TX-22 provides front panel ports for network connections, and a rear-panel HUBStack Interconnect Bus port for stackable connections.

The SEHI100TX-22 intelligent stackable hub is designed to manage one or more of the SEH100TX-22 non-intelligent stackables. It provides 22 100Base-TX network ports via RJ45 connectors and one optional user-configurable EPIM port (which allows for flexible network connection options, including SMA or ST fiber optic cable, thin coax, or AUI cable). Although the SEHI100TX-22 is the management device, providing full packet and error statistics for the stack, it can be located anywhere in the stack.

Each SEH100TX-22 non-intelligent hub provides 22 100Base-TX network ports via RJ45 connectors and two optional user-configurable EPIM ports. Up to four SEH100TX-22s can be included in the stack. The entire stack is counted as only one repeater hop.

The SEHI100TX-22 fully conforms to the IEEE 802.3 Repeater, AUI, and 10BASE-T specifications. It will transmit re-timed data packets, regenerate preamble, extend fragments, arbitrate collisions, and automatically partition problem segments.

Using the SEHI User's Guide

Your SPECTRUM Portable Management Application (SPMA) for the SEHI100TX-22 consists of a number of different applications, each of which provides a portion of the overall management functionality. Each of these applications can be accessed from the icon menu (if you are using a management platform) and from the command line (if you are running in stand-alone mode); in addition, several applications can also be accessed from within the Hub View, a graphical display of the SEHI and its ports.

The *SEHI User's Guide* describes how to use many of the applications included with the module; note that the instructions provided in this guide apply to the SEHI100TX regardless of the operating system or management platform you are using. Instructions for launching each individual function from the command line (stand-alone mode) are also included in each chapter.

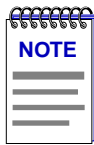
Following is a description of the applications described in this guide; while we provide as much background information as we can, we do assume that you're familiar with Ethernet networks and general network management concepts:

- Chapter 1, **Introduction to SPMA for the SEHI100TX-22**, describes the *SEHI 100 TX-22 User's Guide* and the conventions used in this and other SPMA manuals, explains where to find information about the SEHI100TX, and tells you how to contact Cabletron Systems Global Call Center.
- Chapter 2, **Using the SEHI100TX Hub View**, describes the visual display of the Hub and explains how to use the mouse within the Hub View. The operation of some basic functions available only from within the Hub View (changing the Hub View display, opening menus and windows, enabling and disabling ports, checking device and port status, and so on) are also described.
- Chapter 3, **Link/Seg Traps**, describes how to configure link and segmentation traps to suit your management needs. You can access the Link/Seg Traps application from the icon menu, the Hub View, or the command line.
- Chapter 4, **Redundancy**, describes how to configure redundant circuits to keep your network connections up and running in the event of a single port's failure. You can access the Redundancy application from the icon menu, the Hub View, or the command line.
- Appendix A, **SEHI100TX MIB Components**, lists the IETF MIBs supported by the SEHI100TX, and describes their arrangement in a series of MIB components. A description of the objects controlled by each component is also included.

What's NOT in the SEHI100TX User's Guide . . .

The following standard SPMA tools are available through the SEHI100TX module and are explained in the *SPECTRUM Portable Management Application Tools Guide*:

- Charts, Graphs, and Meters
- Community Names
- MIB I,II
- MIBTree
- TFTP Download
- Trap Table
- Utilities (Global Community Names, Find MAC Address and TFTP)



Graphing capabilities are provided by an application that is included in HP Network Node Manager and IBM NetView; therefore, graphs are only available when SPMA is run in conjunction with one of these network management platforms. If you are running SPMA in a stand-alone mode or in conjunction with SunNet Manager or Solstice Enterprise Manager, no graphing options will be displayed on buttons or menus. Note that the screens displayed in this guide will include the graph-related options where they are available; please disregard these references if they do not apply.

Charts, Graphs, and Meters are accessible from the Hub View and the command line; the Utilities, and MIBTree applications are accessible from the platform console window Tools menu, the Stand-alone Launcher applications menu, or the command line; and the rest of the tool applications (except Telnet) are available from the icon menu, the Hub View, or the command line. (The Telnet application is available only from the icon menu or the command line.)

Instructions on discovering Cabletron devices, creating icons, and accessing the icon menus within your management platform are included in your *Installing and Using SPECTRUM for ...* guide. If you are using SPMA for the SEHI100TX in stand-alone mode — that is, without benefit of a specific network management system — instructions for starting each application from the command line are included in each chapter of this guide and the *SPMA Tools Guide*.

Conventions

The family of SPECTRUM Portable Management Applications can work with a number of different network management systems running on several different operating systems and graphical user interfaces. This versatility presents two documentation problems: first, there is no standard terminology; and second, the appearance of the windows will differ based on the graphical interface in use. For the sake of consistency, the following conventions will be followed throughout this and other SPMA guides.

Screen Displays

SPMA runs under a variety of different operating systems and graphical user interfaces. To maintain a consistent presentation, screen displays in this and other SPMA guides show an OSF/Motif environment. If you're used to a different GUI, don't worry; the differences are minor. Buttons, boxes, borders, and menus displayed on your screen may look a bit different from what you see in the guide, but they're organized and labelled the same, located in the same places, and perform the same functions in all screen environments.

Some windows within SPMA applications can be re-sized; those windows will display the standard window resizing handles employed by your windowing system. Re-sizing a window doesn't re-size the information in the window; it just changes the amount of information that can be displayed (see [Figure 1-1](#)). When you shrink a window, scroll bars will appear as necessary so that you can scroll to view all the information that is available.

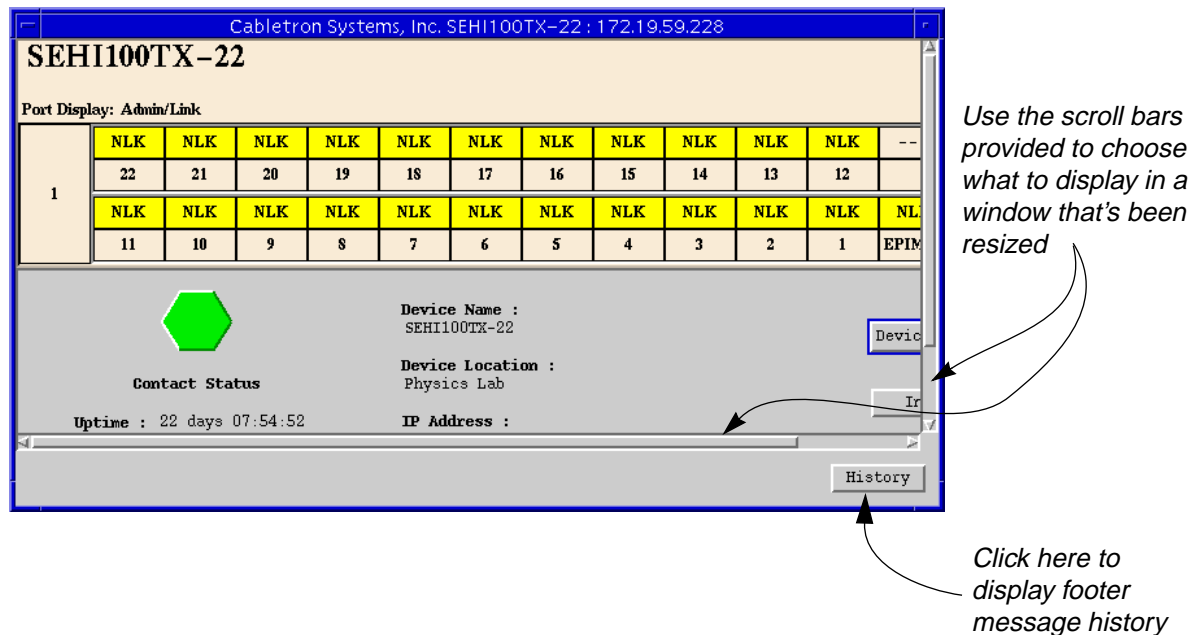


Figure 1-1. Window Conventions

Some windows will also contain a `History` button; selecting this button launches a History window ([Figure 1-2](#)) which lists all footer messages that have been displayed since the window was first invoked. This window can help you keep track of management actions you have taken since launching a management application.

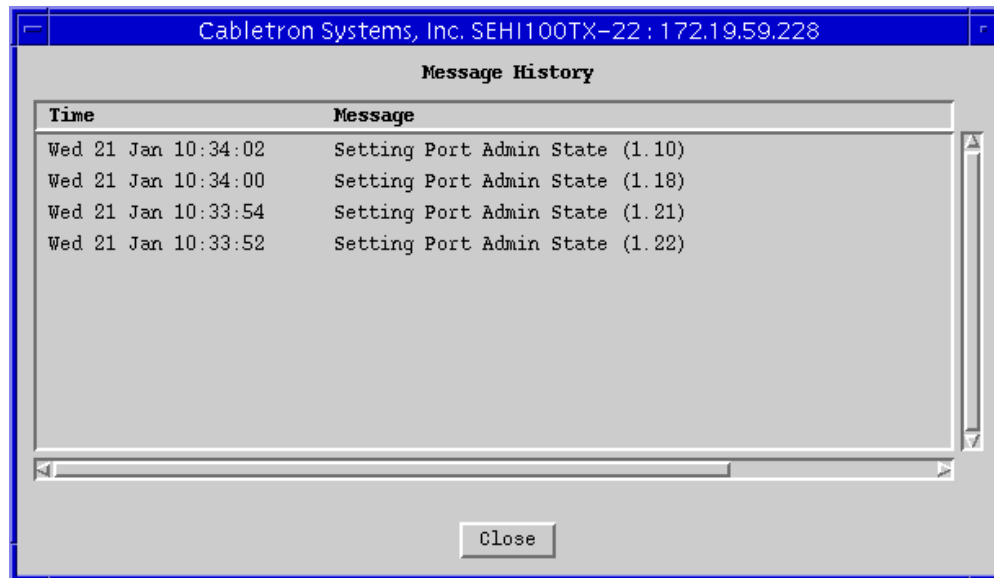


Figure 1-2. The History Window

Using the Mouse

The UNIX mouse has three buttons, as shown in [Figure 1-3](#). Procedures within the SPMA document set refer to these buttons as follows:

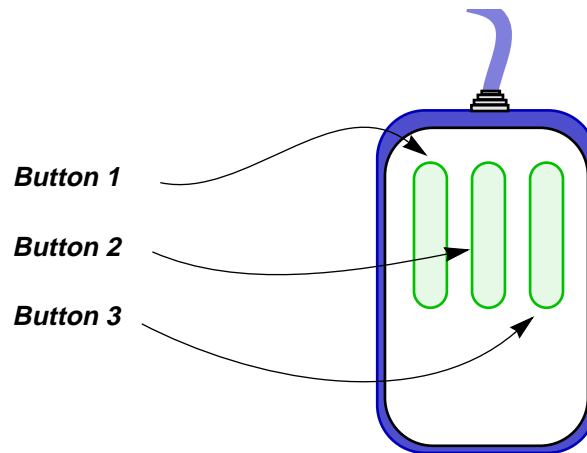


Figure 1-3. Mouse Buttons

If you're using a two-button mouse, don't worry. SPMA doesn't make use of mouse button 2. Just click the left button for button 1 and the right mouse button when instructed to use mouse button 3.

Whenever possible, we will instruct you on which mouse button to employ; however, menu buttons within SPMA applications will operate according to the convention employed by the active windowing system. By convention, menu buttons under the Motif windowing environment are activated by clicking the left mouse button (referred to as mouse button 1 in SPMA documentation), and there is no response to clicking the right button (mouse button 3). Under OpenWindows, menu buttons can be activated by clicking the right button, and convention dictates that the left button activates a default menu option; within SPMA, that default option will also display the entire menu. Because of this difference, references to activating a menu button will not include instructions about which mouse button to use. All other panels from which menus can be accessed, and all buttons which do not provide access to menus, will operate according to SPMA convention, as documented.

Getting Help

If you need technical support related to SPMA, or if you have any questions, comments, or suggestions related to this manual or any of our products, please feel free to contact the Cabletron Systems Global Call Center. Before calling, please have the following information ready:

- The product name and part number.
- The version number of the program that you need help with. SPMA is modular, which means each application will have a specific revision number. Where applicable, an INFO button provides the version number; you can also view the version number for any application by typing the command to start the application followed by a **-v**.

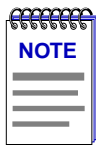
You can contact the Cabletron Systems Global Call Center via any of the following methods:

By phone:	Monday through Friday between 8 AM and 8 PM Eastern Standard Time at (603) 332-9400
By mail:	Cabletron Systems, Inc. PO Box 5005 Rochester, NH 03866-5005
By Internet mail:	support@ctron.com
FTP:	ftp.ctron.com (134.141.197.25)
<i>Login</i>	anonymous
<i>Password</i>	your email address
By BBS:	(603) 335-3358
Modem Setting	8N1: 8 data bits, 1 stop bit, No parity

For additional information about Cabletron Systems products, visit our World Wide Web site: <http://www.cabletron.com/>. For technical support, select **Service and Support**.

SEHI100TX Firmware

SPMA support for the SEHI100TX has been tested against firmware version 1.00.06; if you have an earlier version of firmware and experience problems running SPMA, contact Cabletron Systems Global Support Center for upgrade information.



As a general rule, firmware versions for new products are liable to change rapidly; contact the Cabletron Systems Global Support for upgrade information for the latest customer release of firmware.

Year 2000 Compliance

Previous users of SPMA will note a few display changes related to Year 2000 compliance. All SPMA applications now have the ability to display a four-digit year value where this information is available. For example, the Stand-alone Launcher window – which uses your workstation’s system time value to display the time and date of the last contact change – will now display these date values with eight digits (05/31/1998) instead of six (05/31/98).

Please keep in mind, however, that SPMA’s ability to *display* a four-digit year value in device-specific windows – such as the Device Status window available from the Hub View or the Bridge View – is dependent on the firmware’s ability to *provide* a four-digit value. Not all firmware versions support this ability; contact Cabletron Systems’ Global Call Center for information specific to your device firmware.

Using the SEHI100TX Hub View

Navigating through the Hub View, monitoring hub performance; managing the hub

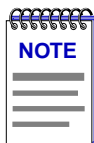
The heart of SPECTRUM Portable Management Applications (SPMA) for the SEHI100TX is the Hub View, a graphical interface that gives you access to many of the functions that provide control over the device.

Using the Hub View

There are two ways to open the Hub View: if you are working within a network management system, you can select the **Hub View** option from the icon menu; specific directions for creating a SEHI100TX icon and accessing the icon menu can be found in the appropriate *Installing and Using SPECTRUM for...* guide. If you are running the SEHI100TX module in a stand-alone mode, type the following at the command line:

```
spmarun hubstack <IP address> <community name>
```

The community name you use to start the module must have at least **Read** access; for full management functionality, you should use a community name that provides **Read/Write** or **Superuser** access. For more information on community names, consult the appropriate *Installing and Using SPECTRUM for...* guide, and /or the **Community Names** chapter in the *SPMA Tools Guide*.



The spmarun script invoked first in the above command temporarily sets the environment variables SPMA needs to operate; be sure to use this command any time you launch an application from the command line. This script is automatically invoked when you launch an application from the icon menu or from within the Hub View.

*If there is a hostname mapped to your SEHI100TX's IP address, you can use <hostname> in place of <IP address> to launch the Hub View. Please note, however, that the hostname is **not** the same as the device name which can be assigned via Local Management and/or SPMA; you cannot use the device name in place of the IP address.*

Navigating Through the Hub View

Within the Hub View (Figure 2-1), you can click mouse buttons in different areas of the window to access various menus and initiate certain management tasks. The following sections describe the information displayed in the Hub View Front Panel and how to use the mouse in the Hub View Ports Display.

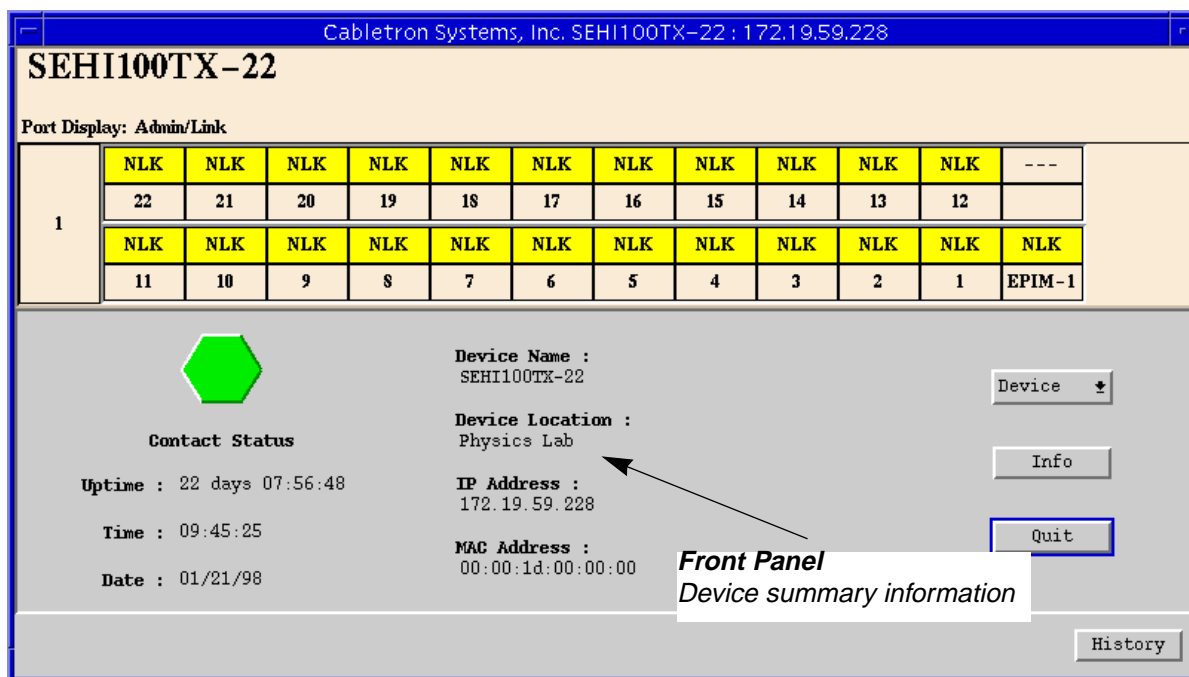


Figure 2-1. The SEHI100TX Hub View

Hub View Front Panel

In addition to the graphical display of the modules, the Hub View gives you device level summary information. The following Front Panel information appears below the port display in the Hub View:



Contact Status is a color code that shows the status of the connection between SPMA and the device:

- Green means a valid connection.
- Blue means that SPMA is trying to reach the device but doesn't yet know if the connection will be successful.
- Red means that SPMA is unable to contact or has lost contact with the device.

Uptime

The time that the device has been running without interruption. The counter resets to 0 days 00:00:00 (HH:MM:SS) when one of the following occurs:

- Power to the device is cycled.
- The device is reset manually.

Date and Time

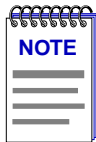
The date and time are taken from the device's internal clock. You can set the device date and time using the Device Status window; refer to [page 2-10](#) for details.

Device Name

A text field that you can use to help identify the device. You can edit the device name using the Device Status window; refer to [page 2-10](#) for details.

Location

A text field that you can use to help identify the device. You can edit the device location using the Device Status window; refer to [page 2-10](#) for details.



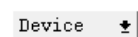
If you have assigned a device name or location that contains more than 18 characters, only the last 18 will be displayed in the Hub View. Check the Device Status window for the complete name and/or location, if necessary.

IP Address

The device's Internet Protocol address. You cannot change the SEHI100TX's IP address from SPMA.

MAC Address

The device's factory-set hardware address. The MAC address cannot be changed.



Clicking on the **Device** button displays the Device menu, [Figure 2-2](#).

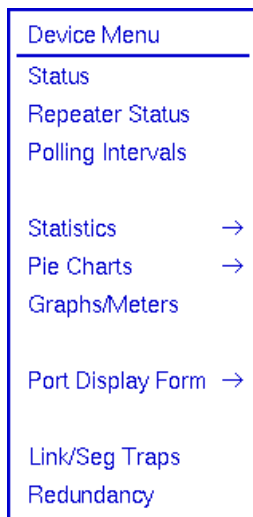
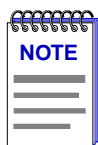


Figure 2-2. SEHI100TX Hub View Device Menu

The Device menu lets you perform the following:

- Open the Device Status window
- Open the Repeater Status window
- Open the Polling Intervals window
- Open the Statistics windows
- Create device-level Pie Charts and Graphs or Meters
- Change the Port Display Form
- Launch the Link/Seg Traps application
- Launch the Redundancy application



Graphing capabilities are provided by an application that is included in HP Network Node Manager and IBM NetView; therefore, graphs are only available when SPMA is run in conjunction with one of these network management platforms. If you are running SPMA in a stand-alone mode or in conjunction with SunNet Manager or Solstice Enterprise Manager, no graphing options will be displayed on buttons or menus. Note that the screens displayed in this guide will include the graph-related options where they are available; please disregard these references if they do not apply.

Note that the Device menu does not provide access to every application which is available to the SEHI100TX; some information is only available from the Module or Port menus, and several applications can only be accessed either from the icon menu (if you are running under a network management platform) or from the command line (if you are running in stand-alone mode). See Chapter 1, **Introduction to SPMA for the SEHI100TX-22**, for a complete list of applications available to the SEHI100TX and how to access each one.

Info
If you need to call Cabletron's Global Support about a problem with the Hub View application, you'll need the information provided in the Info window (Figure 2-3):

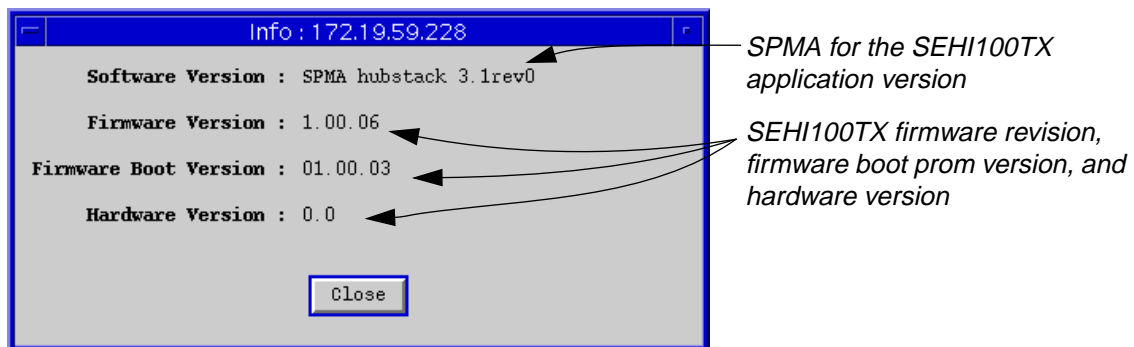


Figure 2-3. The Hub Information Window

Quit
Clicking mouse button 1 on the **Quit** button closes all Hub View application windows; any open applications which can also be accessed from the command line or from the icon menu will remain open.

Using the Mouse in the Hub View Ports Display

Each device in your SEHI100TX-managed HUBStack will have its own ports display in the Hub View; you can access the available ports displays by using the scroll bar located on the right side of the Hub View Ports Display window, as illustrated in Figure 2-4. The illustration below also indicates how to use the mouse to access the Module and Port menus and functions.

Port Display Form

Using the Module or Device menus, you can change the port display form shown in the Port Status boxes to any one of the following:

- Load (% of theoretical maximum)
- Traffic (Pkts/sec)
- Collisions (Colls/sec)
- Errors (Errors/sec, total or by type)
- Frame Sizes (% of total packets)
- Port Type (Admin/Link Status, Admin Status, or Active Ports)

Port Status

The Port Status display changes with the type of port display format selected. Statistical selections display values in a statistic/second format. Load displays traffic as a percentage of theoretical maximum capacity. Port Type displays port status (ON, OFF, NLK, etc.). Click mouse button 1 to toggle the port between enabled and disabled; click mouse button 3 to display the Port menu.

Module Type

Displays the type of module, or device, whose ports are currently being displayed in the Ports Display.

SEHI100TX-22

Port Display: Admin/Link

1	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	---
	22	21	20	19	18	17	16	15	14	13	12	
	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK	NLK
	11	10	9	8	7	6	5	4	3	2	1	EPIM-1

Module Index

Indicates the module's position in the SEHI100TX-managed stack; the SEHI100TX itself is always #1 (regardless of its actual location in the stack). Click mouse button 1 to open the Module Status window; click mouse button 3 to display the Module menu.

Port Index

Click mouse button 3 to display the Port menu.

Scroll Bar

Use the scroll bar to rotate through the Ports Display for each hub in the SEHI100TX-managed stack.

Figure 2-4. Mousing Around The Ports Display

Hub View Port Color Codes

The Port Status boxes in the Hub View are color coded to indicate the port's connection status. The colors are consistent for all Port Display Forms except Admin Status; the exceptions are noted below.

- **Green** indicates that the port is active; that is, the port has been enabled by management, has a valid Link signal (if applicable), and is able to communicate with the station at the other end of the port's cable segment. Note that an AUI or transceiver port will display as active as long as it has been enabled by management, even if no cable is connected.
- **Blue** indicates that the port has been disabled through management.
- **Yellow** indicates that the port is enabled but does not currently have a valid connection. This usually indicates that the device at the other end of the segment is turned off.
- **Red** indicates that the port is enabled, but is not able to pass packets. This generally means that the port has been segmented by management after experiencing an excessive number of collisions; for a BNC (thin coax) port, however, this may only mean that no cable or terminator has been connected.

When the Admin Status port display option is active, only two colors apply: a port will be displayed in green if it is enabled by management, regardless of whether or not there is a cable attached or a valid link signal detected; a port disabled by management will display as blue.

Monitoring Hub Performance

The information displayed in the Hub View can give you a quick summary of device activity, status, and configuration. SPMA can also provide further details about device performance via its three-level menu structure. The Device, Module, and Port menus (Figure 2-5) give you control over the device at these three levels and give you access to the tools, menus, and windows that let you monitor specific aspects of device performance, change hub display options, and set SEHI100TX operating and notification parameters. Remember, though many functions will operate the same at each level, those accessed via the Device menu control or provide information about the SEHI100TX-managed stack as a whole; those accessed via the Module menu control or provide information about a single hub in the stack; and those accessed via the Port menu control or provide information about a single port.

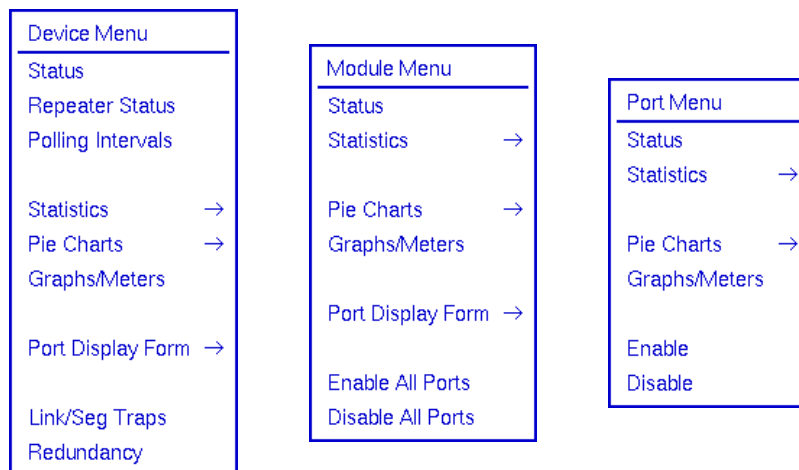


Figure 2-5. The SEHI100TX's Device, Module, and Port Menus

Hub performance data available through these menus includes:

- Device, Module, and Port status descriptions.
- Device, Module, and Port statistics, which provide a complete breakdown of packet activity.
- Device, Module, and Port-level pie charts, graphs, and meters, for a graphical representation of the types and levels of traffic passing through the device. (For more information about pie charts, graphs, and meters, see the **Charts, Graphs, and Meters** chapter in the *SPMA Tools Guide*.)

Port Display Form

You can change the type of information displayed for each port in the device by using the Port Display Form option on the Device and Module menus. Changing the port display form via the Device menu will affect all ports in the SEHI100TX-controlled stack; changing the display form via the Module menu will affect only those ports on the selected device.

To change the port display form:

1. Click on **Device** to display the Device menu, or on the **Module Index** box to display the Module menu.
2. Drag down to **Port Display Form**, then right as necessary to select one of the port display options. The current selection will be displayed in the Port Display Form field on the port display.

Port display form options are:

Load

Shows a percentage for each active port that represents that port's portion of the theoretical maximum traffic level — for Ethernet interfaces, 10 megabits per second; for Fast Ethernet interfaces, 100 megabits per second.

Traffic

Displays port traffic data in a packets/second format.

Collisions

Displays port traffic data in a collisions/second format. The SEHI100TX counts both **receive** collisions — those collisions it detects while receiving a transmission — and **transmit** collisions — those it detects while transmitting (i.e., a port in the SEHI100TX-managed stack transmitted one of the colliding packets); however, those counts are combined and a single total value is displayed.

Errors

Shows port traffic errors in an errors/second format. You can display any one of the following types of errors:

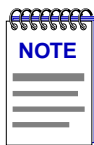
- Total errors
- Alignment errors
- CRC (Cyclic Redundancy Check) errors
- Runts
- Giants
- OOW (Out-of-Window) Collisions

For error type descriptions, see [Checking Statistics, page 2-16](#).

Frame Sizes

Displays a percentage for each active port that represents what portion of that port's traffic is of a specific size, measured in bytes. You can display any one of the following frame sizes:

- Runts (packets with fewer than 64 bytes)
- 64-127
- 128-255
- 256-511
- 512-1023
- 1024-1518
- Giants (packets with more than 1518 bytes)

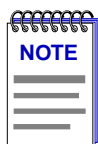


For the statistical port display form options listed above, three dashes (- - -) will display for all inactive ports; any active (green) port will display a numeric value, even if it's 0.0000.

Port Type

Provides the following administrative information about the port:

- **Admin/Link Status** indicates the connection status of the port:
 - ON indicates that the port has a valid link signal or does not support a link signal.
 - OFF indicates that the port has been turned off through management action.
 - NLK (No Link) indicates that the port does not have a link to a device at the other end of the cable, or that there is no cable attached.
 - SEG (Segmented) indicates that the port has been segmented by the repeater due to an excessive collision level.




Because BNC thin coax, AUI, and transceiver ports do not support the link feature, the displayed Admin/Link status for those ports may be misleading: for example, a BNC port will display as segmented when, in fact, there is no cable or terminator attached or the cable has been disconnected; an AUI or transceiver port will display as on (with a valid link signal) even when no cable is attached. Be sure to keep these anomalies in mind when troubleshooting a device so equipped.

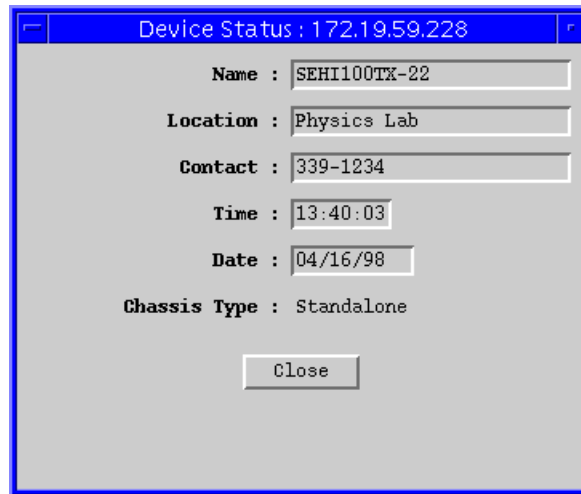
- **Admin Status** displays either ON or OFF, an indication of whether management has the port enabled or disabled. A port can be ON but not operational; for example, under the Admin display, ports that are segmented or not linked are shown as ON.
- **Active Ports** displays either YES or NO for any active (green) port, indicating whether or not that port has seen any traffic at all since the device was last initialized or the counters were last reset; this port display form can tell you whether any port whose statistics are not currently incrementing has seen some activity in the past. Non-green (presumably inactive) ports will display three dashes (---), regardless of their past statistical activity.

Checking Device Status and Updating Front Panel Info

The Device Status window (Figure 2-6) is where you change the information displayed on the Hub View Front Panel and where you can see summary information about the current state of the device.

To open the Device Status window:

1. Click on **Device**  to display the Device menu.
2. Drag down to **Status** and release.



The screenshot shows a window titled "Device Status : 172.19.59.228". Inside the window, there are several text input fields and a "Close" button. The fields are labeled as follows:

- Name :** SEHI100TX-22
- Location :** Physics Lab
- Contact :** 339-1234
- Time :** 13:40:03
- Date :** 04/16/98
- Chassis Type :** Standalone

At the bottom center of the window is a button labeled "Close".

Figure 2-6. The Device Status Window

Name and Location

These text fields help identify this SEHI100TX-controlled HUBStack. The information you enter in the Name and Location boxes is written to the SEHI100TX's MIB and appears on the Hub View front panel.

Contact

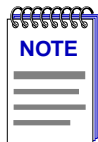
Use the Contact box to record the name and phone number of the person responsible for the device. Note that the information entered here is *not* displayed on the Hub View front panel.

Date and Time

Displays the current date and time from the SEHI100TX's internal clock. Although the fields are static in the window, the front panel display is a real-time presentation.

To change the name, location, contact, date, or time:

1. Highlight the appropriate field and type the new values.
2. Press **Enter** or **Return** on the keyboard to save each change before moving on to another; each change will appear on the front panel as soon as **Enter** or **Return** is pressed.



If your device firmware can accept four-digit year values, the Date field will allow you to enter the year portion in one-, two-, or four-digit format. If you choose to enter one or two digits for the year, any value greater than or equal to 88 will be presumed to be in the 1900s; a value of 87 or less is presumed to be in the 2000s. No matter which entry format you choose, the year will still be displayed and set as a four-digit value.

If your device firmware cannot accept four-digit year values, the Date field will allow you to enter the year portion in one- or two-digit format (with leading zeros supplied automatically for single-digit entries). No presumption is made about the century, and any two-digit year value (from 00 to 99) will be accepted.

Attempts to set the date may result in one of three different error messages. Two of these messages will indicate that the wrong number of digits has been used for the year value, and will indicate the appropriate number of digits to use for the selected device; the third message will indicate that the entered date is invalid because it is not an actual calendar date (such as 02/29 in a non-leap year, any month value greater than 12, or any day value greater than 31).

Chassis Type

Displays the type of chassis used for the device (stand-alone).

Checking Module Status

You can open a Module Status window (Figure 2-7) for any device in the SEHI100TX-controlled stack. To open the Module Status window:

1. Click mouse button 1 in the Module Index box. (Use the scroll bar to the right of the ports display to scroll through the available modules.)

or

1. Click mouse button 3 in the Module Index box to display the Module menu.
2. Drag down to **Status** and release.

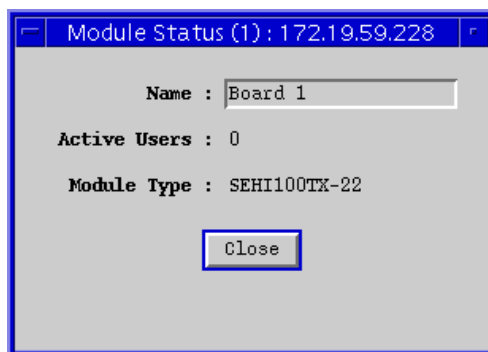


Figure 2-7. The Module Status Window

Name

This text field can help identify the module, or device; the information entered here does not appear anywhere else in the Hub View.

To edit the Module Name:

1. Highlight the text in the **Name** box and type in a new name.
2. Press **Enter** or **Return** on the keyboard to save your changes.

Active Users

This field is not supported by the SEHI100TX-22.

Module Type

The type of module you are viewing.

Checking Repeater Status

The Repeater Status window (Figure 2-8) allows you to assign a name to the SEHI100TX-controlled HUBStack as a whole. To open the Repeater Status window:

1. Click on the **Device** button to display the Device menu.
2. Drag down to **Repeater Status** and release.

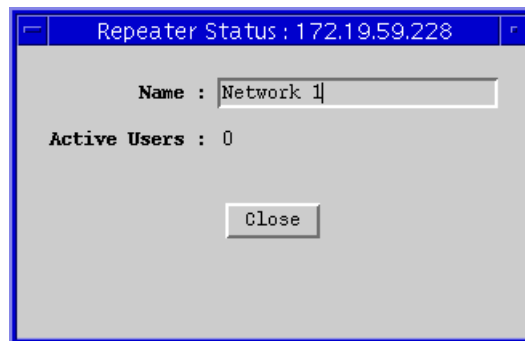


Figure 2-8. The Repeater Status Window

Name

This field can help identify the SEHI100TX-controlled stack as a whole; the information entered here is not displayed anywhere else in the Hub View.

To edit the Repeater Name:

1. Highlight the text in the Name box and type in a new name.
2. Press **Enter** or **Return** on the keyboard to save your changes.

Active Users

This field is not supported by the SEHI100TX-22.

Checking Port Status

You can open a Port Status window (Figure 2-9) for any port in the SEHI100TX-controlled HUBStack. To open the Port Status window:

1. Click mouse button 3 in the **Port Index** or **Port Status** box to display the Port menu.
2. Drag down to **Status** and release.

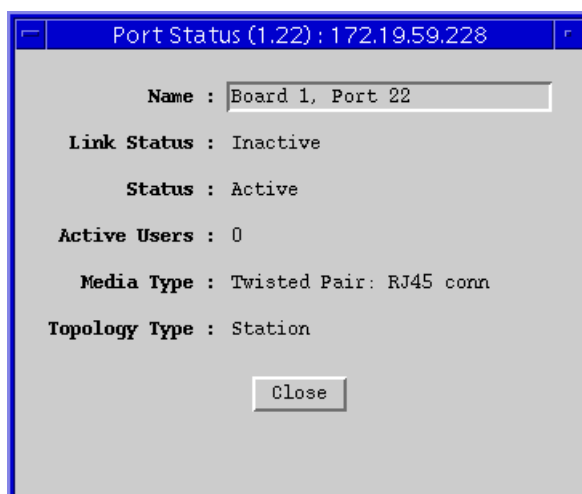


Figure 2-9. The Port Status Window

Note that the window title includes the module and port number in parentheses; the rest of the window contains the following fields:

Name

This text field can help identify the port; the information entered here is not displayed anywhere else in the Hub View.

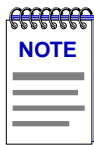
To edit the Name:

1. Highlight the text in the **Name** box and type in a new name.
2. Press **Enter** or **Return** on the keyboard to save your change.

Link Status

The port's Link Status tells you whether or not the port has a valid connection to the node at the other end of the cable segment. The possible Link conditions are:

- **Active** — The port has a valid connection with the device at the other end of the port's cable.
- **Inactive** — The device at the other end of the cable is turned off, there is a break in the cable, or there is no device or cable connected.
- **Not Supported** — The selected port does not support the Link feature, so the SEHI100TX cannot determine link status; this value will show only for thin coax (BNC), AUI, or transceiver ports.



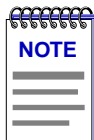
The fact that thin coax (BNC), AUI, and transceiver ports do not support the link feature can cause some misleading port status indicators: for example, a BNC port may show as segmented when, in fact, the cable has been disconnected; or an AUI or transceiver port may appear to have an active link when no cable has been attached. You should keep these anomalies in mind when troubleshooting a device so equipped.

- **Unknown** — The SEHI100TX can't determine a link status.

Status

The port's Status can be one of three states:

- **Segmented** — A port becomes segmented (that is, disabled by the repeater module) when the port experiences 32 consecutive collisions, or when the port's collision detector is on for longer than approximately 2 to 3 milliseconds.



Because they do not support the link feature, thin coax (BNC) ports will display as segmented when there is no cable or terminator attached or the cable or terminator has been disconnected (i.e., a "no link" condition).

- **Active** — The port is operating normally.
- **Unknown** — The SEHI100TX cannot determine port status.

Active Users

This field is not supported by the SEHI100TX.

Media Type

Indicates the type of cable segment connected to the port. The supported media types are:

- Twisted Pair: RJ45 conn(ector)
- BNC EPIM
- AUI EPIM
- Transceiver Port: AUI EPIM
- Twisted Pair: RJ45 EPIM

- Multi-Mode Fiber: SMA EPIM
- Multi-Mode Fiber: ST EPIM
- Single-Mode Fiber: ST EPIM

Topology Type

Indicates how the port is being used. The available types are:

- **Station** — The port is receiving packets from no devices, a single device, or two devices. Note that a port in station status may actually be connected to multiple devices; station status simply indicates that no more than two devices are currently active.
- **Trunk** — The port is receiving packets from three or more devices; it may be connected to a coax cable with multiple taps, or to a repeater or another MIM.
- **Unknown** — The SEH1100TX cannot determine the topology status.

Checking Statistics

The Hub View can provide a summary of Ethernet statistics at the Device, Module, and Port levels, as shown in [Figure 2-10](#). The windows that display the statistics contain the same statistical categories at each level.

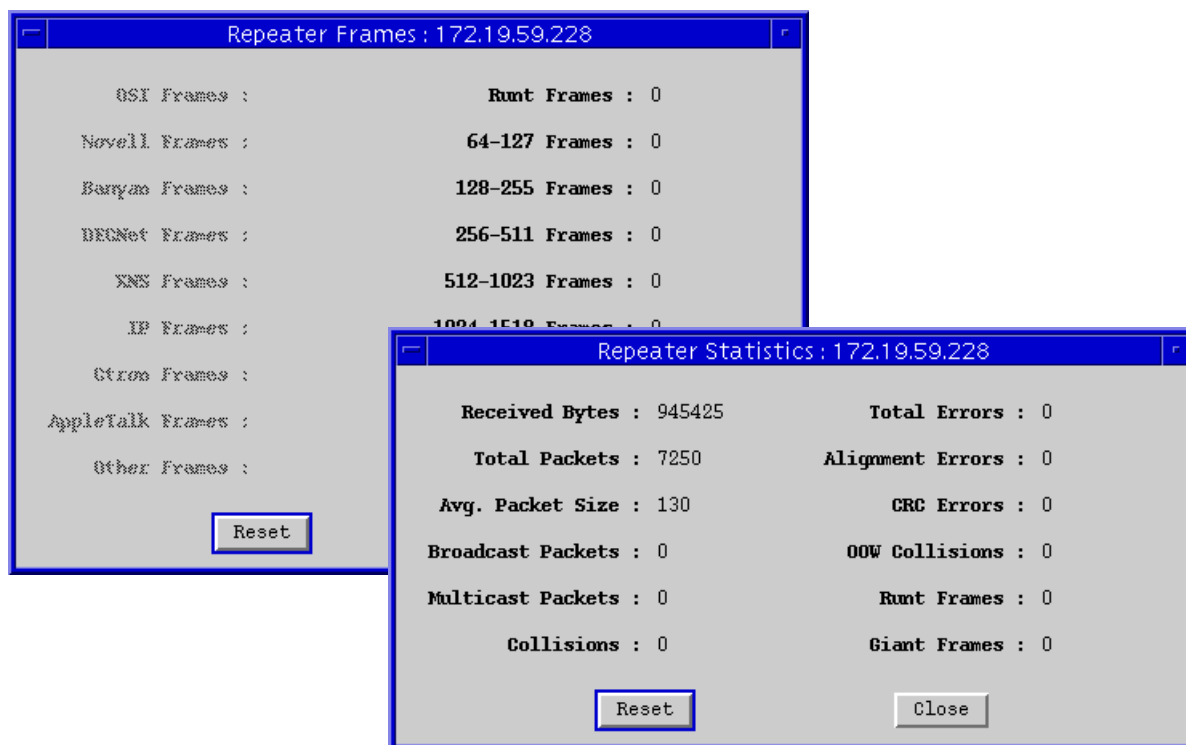
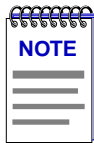


Figure 2-10. The Repeater Statistics Windows (Device Level)

To view device statistics at the Device, Module, or Port levels:

1. Display the Device, Module, or Port menu by clicking mouse button 3 in the appropriate area (refer to [Figure 2-5, page 2-8](#)).
2. Drag down to **Statistics** and then right to either **General/Errors** or **Frames** and release.

The Hub View begins counting the selected statistics when you open the window; counts will be cumulative until you use the **Reset** button or close the window.



When a device is reset, statistics windows and/or statistics displays in the Hub View may display very large numbers for one polling interval. This is due to the resetting of the counters.

Because the SEHI100TX does not currently support Protocol counts, the Protocol fields in the Frames window will be grayed-out.

Note that the module statistics windows include the module number in the window title; the port statistics windows include the module and port numbers in the window title.

General/Error Statistics

The General/Errors statistics windows display the following fields:

Received Bytes

The number of bytes of data received by this device, module, or port since the window was last opened or reset.

Total Packets

The number of packets of all types received by this device, module, or port since the window was last opened or reset.

Avg Packet Size

The number of bytes per packet received by this device, module, or port since the window was last opened or reset. The average packet size is calculated by dividing the number of bytes received by the number of packets received.

Broadcast Packets

The number of broadcast packets received by this device, module, or port since the window was last opened or reset. Broadcast packets have a single address recognized by each station on the net: this address is designated in IP form as 255.255.255.255, or in MAC hexadecimal form as FF-FF-FF-FF-FF-FF. The ARP and RARP requests sent by bridges and routers are broadcast packets.

Multicast Packets

The number of multicast packets received by this device, module, or port since the window was last opened or reset. Multicast packets are simultaneously addressed to more than one address, but fewer than all addresses.

Collisions

The number of collisions recorded by this device, module, or port since the window was last opened or reset. The SEH100TX counts both **receive** collisions — those detected while a port is receiving data — and **transmit** collisions — those detected while a port is transmitting data (i.e., the port has transmitted one of the colliding packets); however, these counts are combined and a single total value is displayed. Collisions of this type (called “legal” collisions, as opposed to the OOW collisions described below) are a natural by-product of a busy network; if you are experiencing high numbers of collisions, it may be time to redirect network traffic by using bridges or routers. Extremely high collision rates can also indicate a data loop (redundant connections) or a hardware problem (some station transmitting without listening first).

Total Errors

The number of errors of all types recorded by this device, module, or port since the window was last opened or reset.

Alignment Errors

The number of misaligned packets recorded since the window was last opened or reset. Misaligned packets are those which contain any unit of bits which is less than a byte — in other words, any group of bits fewer than 8. Misaligned packets can result from a packet formation problem, or from some cabling problem that is corrupting or losing data; they can also result from packets passing through more than two cascaded multi-port transceivers (a network design which does not meet accepted Ethernet spec).

CRC Errors

CRC, or Cyclic Redundancy Check, errors occur when packets are somehow damaged in transit. When each packet is transmitted, the transmitting device computes a frame check sequence (FCS) value based on the contents of the packet, and appends that value to the packet. The receiving station performs the same computation; if the FCS values differ, the packet is assumed to have been corrupted and is counted as a CRC error. CRC errors can result from a hardware problem causing an inaccurate computation of the FCS value, or from some other transmission problem that has garbled the original data. The CRC error counter shows the total number of CRC errors recorded since the window was last opened or reset.

OOW Collisions

The number of out-of-window collisions recorded since the window was last opened or reset. OOW collisions occur when a station receives a collision signal while still transmitting, but more than 51.2 μ sec (the maximum Ethernet propagation delay) after the transmission began. There are two conditions which can cause this type of error: either the network’s physical length exceeds IEEE

802.3 specifications, or a node on the net is transmitting without first listening for carrier sense (and beginning its illegal transmission more than 51.2 μ s after the first station began transmitting). Note that in both cases, the occurrence of the errors can be intermittent: in the case of excessive network length, OOW collisions will only occur when the farthest stations transmit at the same time; in the case of the node which is transmitting without listening, the malfunctioning node may only fail to listen occasionally, and not all of its failures to listen will result in OOW collisions — some may simply result in collisions (if the 51.2 μ s window has not yet closed), and some will get through fine (if no one else happens to be transmitting).

Runt Frames

The number of received packets smaller than the minimum Ethernet frame size of 64 bytes (excluding preamble). This minimum size is tied to the maximum propagation time of an Ethernet network segment — the maximum propagation time is 51.2 μ s, and it takes approximately 51.2 μ s to transmit 64 bytes of data; therefore, every node on the segment should be aware that another node is transmitting before the transmission is complete, providing for more accurate collision detection. Runts can sometimes result from collisions, and, as such, may be the natural by-product of a busy network; however, they can also indicate a hardware (packet formation), transmission (corrupted data), or network design (more than four cascaded repeaters) problem.

Giant Frames

The number of received packets that are longer than the maximum Ethernet size of 1518 bytes (excluding preamble). Giant packets typically occur when you have a jabbering node on your network — one that is continuously transmitting, or transmitting improperly for short bursts — probably due to a bad transmitter on the network interface card. Giant packets can also result from packets being corrupted as they are transmitted, either by the addition of garbage signal, or by the corruption of the bits that indicate frame size.

The SEHI100TX Error Priority Scheme

Each Cabletron device employs an error priority scheme which determines how packets with multiple errors will be counted, and ensures that no error packet is counted more than once. The priority scheme for the SEHI100TX counts errors in the following order:

1. OOW Collisions
2. Runts
3. Giants
4. Alignment Errors
5. CRC Errors

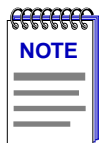
Knowing the priority scheme employed by the SEHI100TX can tell you a lot about the error counts you are seeing. For example, you know that the number of packets counted as CRC errors had *only* CRC errors — they were of legal size (not runts or giants) and had no truncated bytes. You also know that any packet less than 64 bytes long has been counted as a runt, even if it also had alignment and/or CRC problems (which is likely if the runt is the result of a collision or other transmission problem).

Frames Statistics

The Frames statistics windows display the following fields:

Frame Sizes

- Runt Frames (packets smaller than 64 bytes)
- 64-127 (byte) Frames
- 128-255 Frames
- 256-511 Frames
- 512-1023 Frames
- 1024-1518 Frames
- Giant Frames (packets larger than 1518 bytes)



Because the SEHI100TX does not currently support Protocol counts, the Protocol fields in the Frames window will be grayed-out.

Managing the Hub

In addition to the performance information described in the preceding sections, the Hub View also provides you with the tools you need to configure your HUBStack and keep it operating properly. Hub management functions include setting polling intervals, enabling ports at the module and port level, and disabling ports at the port level.

Setting the Polling Intervals

To set the polling intervals used by SPMA and the SEHI100TX:

1. Click on the **Device** button to display the Device menu.
2. Drag down to **Polling Intervals**, and release. The SEHI100TX Polling Intervals window, [Figure 2-11](#), will appear.

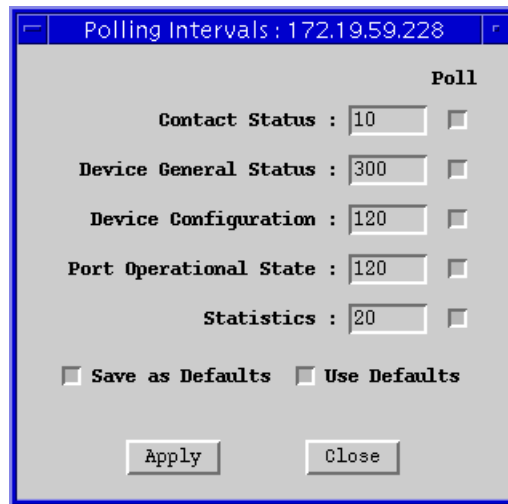


Figure 2-11. The Polling Intervals Window

3. To activate the desired polling, click mouse button 1 on the selection box to the right of each polling type field.
4. To change a polling interval, highlight the value you would like to change, and enter a new value in seconds. Note that the **Use Defaults** option must *not* be selected, or values will revert back to default levels when you click on **Apply**, and your changes will be ignored.
5. If you wish to use your new polling interval settings as the default values that SPMA will use for each SEHI100TX-controlled stack you are managing, use mouse button 1 to select the **Save As Defaults** option.
6. If you wish to replace existing values with the current set of default values, use mouse button 1 to select the **Use Defaults** option.
7. Click mouse button 1 on the **Apply** button once your changes are complete. Changes take effect after the current polling cycle is complete.

You can set the update intervals for the following:

Contact Status

This polling interval controls how often the SEHI100TX is “pinged” to check SPMA’s ability to maintain a connection with the device.

Device General Status

This polling interval controls how often the Hub View Front Panel Information — such as Uptime, Device Name, and so forth — and some port status information is updated.

Device Configuration

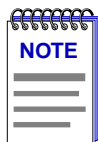
This polling interval controls how often a survey is conducted of the devices installed in your SEH100TX-controlled HUBStack.

Port Operational State

This polling interval controls the update of the information displayed in the Port Status boxes for each port in the device. Port state information includes link state (the color code) and admin state (on or off).

Statistics

This polling interval controls how often the information displayed in the Port Status boxes is updated when the Port Display Form is set to a rate or percentage, and how often the Device, Module, and Port statistics counts are updated.



SPMA generates network traffic when it retrieves the above-described information; keep in mind that shorter intervals mean increased network traffic. Range limits for these polling times are 0-999,999 seconds; however, an entry of 0 will be treated as a 1.

Enabling/Disabling Ports

You can enable and disable ports both from the Module menu, which affects all ports on a single module, or device; or from the Port menu, which affects individual ports.

To enable or disable an individual port:

1. Click mouse button 1 on the Port Status box to toggle the port On or Off.

or

1. Click mouse button 3 on the Port Index or Port Status box to display the Port menu.
2. Drag down to **Enable** or **Disable**, as appropriate, and release. The selected port changes color when its state changes. A disabled port is blue.

To enable or disable all ports in a module:

1. Click mouse button 3 on the Module Index box to open the Module menu.
2. Drag down to **Enable All Ports** or **Disable All Ports**, as appropriate, and release.

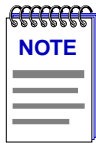


When disabling all ports on a module, make sure you don't disable the port through which your management station is communicating with the HUBStack, or you will lose contact with the stack.

Link/Seg Traps

About Link and Segmentation traps; enabling and disabling these traps at the device, module, and port levels

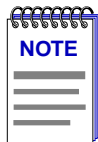
Among the traps which Cabletron devices are designed to generate are traps which indicate when a repeater port gains or loses a link signal, when the repeater segments (disconnects) a port due to collision activity, and when a segmented port becomes active again. In some networks, these Link and Segmentation traps may be more information than a network manager wants to see. So SPMA provides you with a means to selectively enable and disable Link and Segmentation traps. You can turn traps on and off for all ports on the SEHI100TX, all ports on a selected module or modules, or for individual ports.



*SPMA does not accept the trap messages; that task is left to your network management system. (See the appropriate network management system documentation for details about viewing trap messages.) When this utility is used in stand-alone mode, traps will either be ignored when they return to the workstation from which you are running SPMA for the SEHI100TX, or they will turn up at another management workstation which has been configured to accept traps. Note also that, regardless of the configuration performed using this utility, NO traps will be sent by the device unless its trap table has been properly configured; see the SEHI100TX hardware manual and/or the **Trap Table** chapter in the **SPMA Tools Guide** for more information.*

What is a Segmentation Trap?

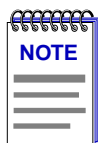
Cabletron's Ethernet repeaters count collisions at each port. If a port experiences 32 consecutive collisions, the repeater segments the port to isolate the source of the collisions from the rest of the network. When the repeater segments a port, it generates a **portSegmenting** trap. As soon as a segmented port receives a good packet, the repeater reconnects the port to the network and generates a **portUnsegmenting** trap.



Unterminated BNC (thin coax) ports appear in the Hub View as segmented ports. When you attach a thin coax cable or a 50 Ω terminator to a port, the repeater generates a **portUnsegmenting** trap; when you remove the cable or terminator, the repeater generates a **portSegmenting** trap. Note also that devices at both ends of the cable will generate the **portUnsegmenting** and **portSegmenting** traps, even if only one end of the cable has been disconnected.

What is a Link Trap?

Some Cabletron Ethernet repeater ports — including RJ45 twisted pair and fiber optic ports — generate a link signal to monitor the status of their connection with the device at the other end of the cable segment. If the cable is removed or broken, the port's link status goes to "No Link" and the repeater generates a **portLinkDown** trap. When a port in a "No Link" condition receives a link signal, the port goes to a "Link" condition and the repeater generates a **portLinkUp** trap. Note that devices at both ends of the disconnected or broken cable will generate the **portLinkDown** and **portLinkUp** traps, even when only one end of the cable has been removed.



BNC (thin coax), AUI, and transceiver ports do not support a link signal. As described above, BNC ports respond to changes in link status by generating **portSegmenting** and **portUnsegmenting** traps; AUI and transceiver ports do not respond at all to changes in link status (unless the port has been segmented due to excessive collisions), and will always display as on, even if no cable is connected.

Enabling and Disabling Link/Seg Traps

Although each Cabletron device comes with a number of traps built into the firmware, no device will generate these traps unless it is configured to do so. This can be accomplished via Local Management (by enabling traps and entering your workstation's IP address in the Community Names screen), or via the SPMA Trap Table utility, accessible from the icon menu or from the command line. Once traps as a whole have been enabled, you can use the Link/Seg Traps feature to selectively enable and disable link and segmentation traps as required by your network management needs.

To open the Repeater Link/Seg Traps window:

from the icon:

1. Click on the appropriate SEHI100TX icon to display the icon menu.
2. Drag down to **Link/Seg Traps** and release.

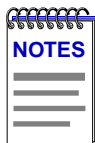
from the Hub View:

1. Click on `Device` to display the Device menu.
2. Drag down to **Link/Seg Traps** and release.

from the command line (stand-alone mode):

1. From the appropriate directory, type


```
spmarun r4hwtr <IP address> <community name>
```



The *spmarun* script invoked first in the above command temporarily sets the environment variables SPMA needs to operate; be sure to use this command any time you launch an application from the command line. This script is automatically invoked when you launch an application from the icon menu or from within the Hub View.

If you wish to change any Link/Seg Trap settings, be sure to use a **community name** with at least Read/Write access. If you only wish to view current settings, a community name with Read access will be sufficient.

If there is a hostname mapped to your SEHI100TX's IP address, you can use **<hostname>** in place of **<IP address>** to launch this application. Please note, however, that the hostname is **not** the same as the device name which can be assigned via Local Management and/or SPMA; you cannot use the device name in place of the IP address.

The main Repeater Link/Seg Traps window, [Figure 3-1](#), will appear.

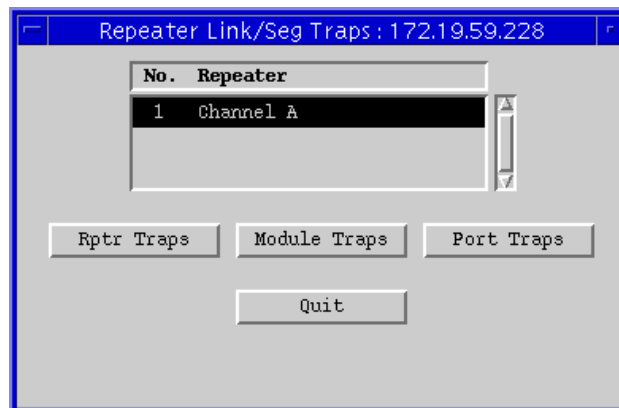


Figure 3-1. The Repeater Link/Seg Traps Window

Configuring Link/Seg Traps for the Repeater

To enable or disable Link and Segmentation traps for all ports on a repeater:

1. In the Repeater Link/Seg Traps window, click mouse button 1 on the repeater interface for which you would like to configure link and segmentation traps.
2. Click mouse button 1 on ; the Channel X Link/Seg Traps window, [Figure 3-2](#), will appear.

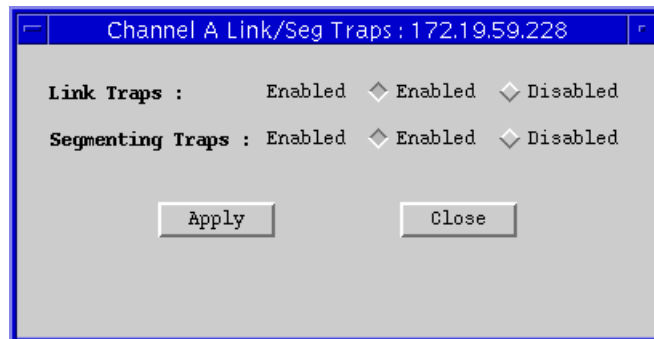


Figure 3-2. The Channel X Link/Seg Traps Window

3. In the **Link Traps** field, click mouse button 1 on the appropriate selection to **Enable** or **Disable** link traps for the repeater.
4. In the **Segmenting Traps** field, click mouse button 1 on the appropriate selection to **Enable** or **Disable** segmenting traps for the repeater.
5. Click mouse button 1 on to save your changes; the current status will be displayed in each field to the right of the field name. Click on to exit the window.

Viewing and Configuring Link/Seg Traps for Hub Modules

To enable or disable Link and Segmentation traps for all ports on the selected hub module or modules:

1. In the Repeater Link/Seg Traps window, select a repeater interface in the scroll list.
2. Click mouse button 1 on ; the Module Traps window, [Figure 3-3](#), will appear.

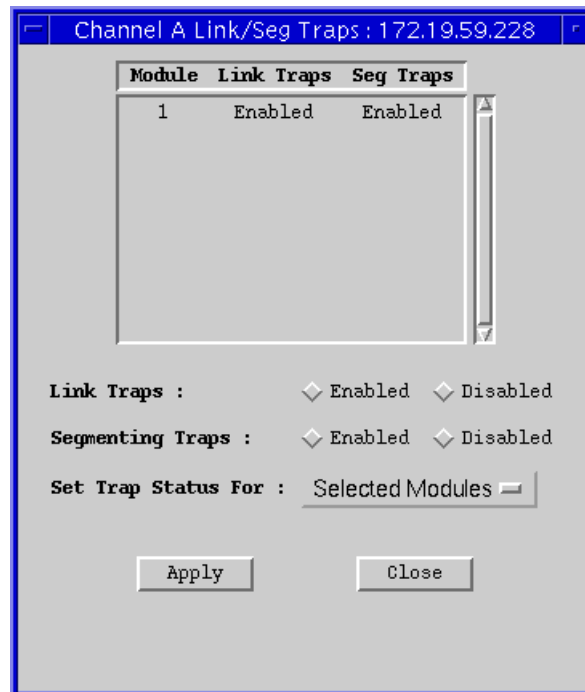


Figure 3-3. The Module Traps Window

3. In the Module Traps window, click mouse button 1 to select the module for which you wish to configure link and segmentation traps.
 - If the **Set Trap Status For** field displays *Selected Modules* (the default setting), you can click to select any modules; to de-select any highlighted module, click on it again.
 - If the selection *All Modules* is displayed in the **Set Trap Status For** field, all available modules will be automatically selected; if you de-select any module, the **Set Trap Status For** field will automatically revert to the *Selected Modules* setting.

To change the setting in the **Set Trap Status For** field, click on the currently displayed setting, and drag down to select a new setting.

4. Click on the appropriate selection in the **Link Traps** field to **Enable** or **Disable** link traps for the selected modules, as desired.
5. Click on the appropriate selection in the **Segmenting Traps** field to **Enable** or **Disable** segmenting traps, as desired.
6. Click on to save your changes; click on to exit the window.

Viewing and Configuring Link/Seg Traps for Ports

To enable or disable Link and Segmentation traps for individual ports:

1. In the Repeater Link/Seg Traps window, select a repeater in the scroll list.
2. Click mouse button 1 on ; the Port Traps window, [Figure 3-4](#), will appear.

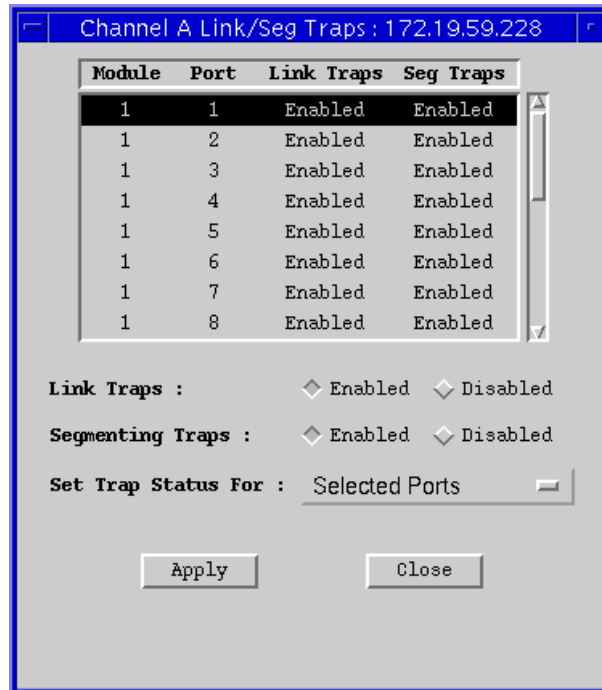


Figure 3-4. The Port Traps Window

3. In the Port Traps window, click mouse button 1 to select the port or ports for which you wish to configure traps.
 - If the **Set Trap Status For** field displays *Selected Ports* (the default setting), you can click to select any ports; to de-select any highlighted port, click on it again.
 - If the selection *All Ports on Module* is displayed in the **Set Trap Status For** field, you can select only one port at a time; trap status will be set for all ports on the same module as the selected port.
 - If the selection *All Ports on Repeater* is displayed in the **Set Trap Status For** field, all available ports will be automatically selected; if you de-select any port, the **Set Trap Status For** field will automatically revert to the *Selected Ports* setting.

To change the setting in the **Set Trap Status For** field, click on the currently displayed setting, and drag down to select a new setting.

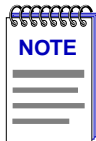
4. Click on the appropriate selection in the **Link Traps** field to **Enable** or **Disable** link traps for the selected ports, as desired.
5. Click on the appropriate selection in the **Segmenting Traps** field to **Enable** or **Disable** segmenting traps, as desired.
6. Click on to save your changes; click on to exit the window.

Repeater Redundancy

Configuring and enabling redundant circuits; monitoring redundant circuits

Setting Network Circuit Redundancy

The redundancy application gives you the ability to define redundant circuits for your SEHI100TX to ensure that critical network connections remain operational. Each circuit has a designated primary port and one or more backup ports. The SEHI100TX monitors the link status of the primary port's connection to one or more network IP addresses; if the link fails, the SEHI100TX automatically switches traffic to a backup port.



Before you configure redundancy, make sure that only the primary physical link is connected to the network. If a backup port is connected before you configure and enable redundancy, you create a data loop.

To open the main Repeater Redundancy window:

from the icon:

1. Click on the appropriate device icon to display the icon menu.
2. Drag down to **Redundancy** and release.

from the Hub View:

1. Click on to display the **Device** menu.
2. Drag down to **Redundancy** and release.

from the command line (stand-alone mode):

1. From the appropriate directory, type:

spmarun r4red <IP address> <community name>



The spmarun script invoked first in the above command temporarily sets the environment variables SPMA needs to operate; be sure to use this command any time you launch an application from the command line. The script is automatically invoked when you launch the application from the icon menu or from within the Hub View.

If you wish to change any redundancy settings, be sure to use a community name with at least Read/Write access. If you only wish to *view* current settings, a community name with Read access will be sufficient.

If there is a hostname mapped to your SEHI100TX's IP address, you can use <hostname> in place of <IP address> to launch this application. Please note, however, that the hostname is **not** the same as the device name which can be assigned via Local Management and/or SPMA; you cannot use the device name in place of the IP address.

The main Repeater Redundancy window, [Figure 4-1](#), will appear.

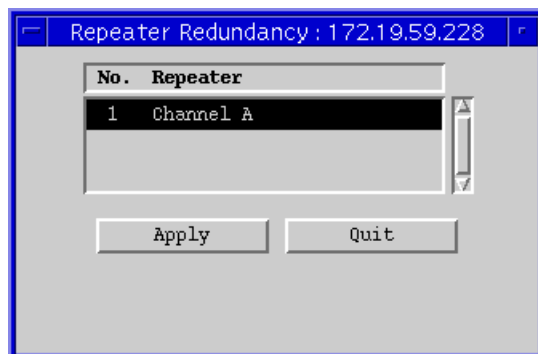


Figure 4-1. The Repeater Redundancy Window

Configuring a Redundant Circuit

To establish or edit a redundant circuit:

1. In the Repeater Redundancy window, click mouse button 1 on the repeater interface for which you would like to edit or establish a redundant circuit, then click . The Channel X Redundancy window, [Figure 4-2](#), will appear.

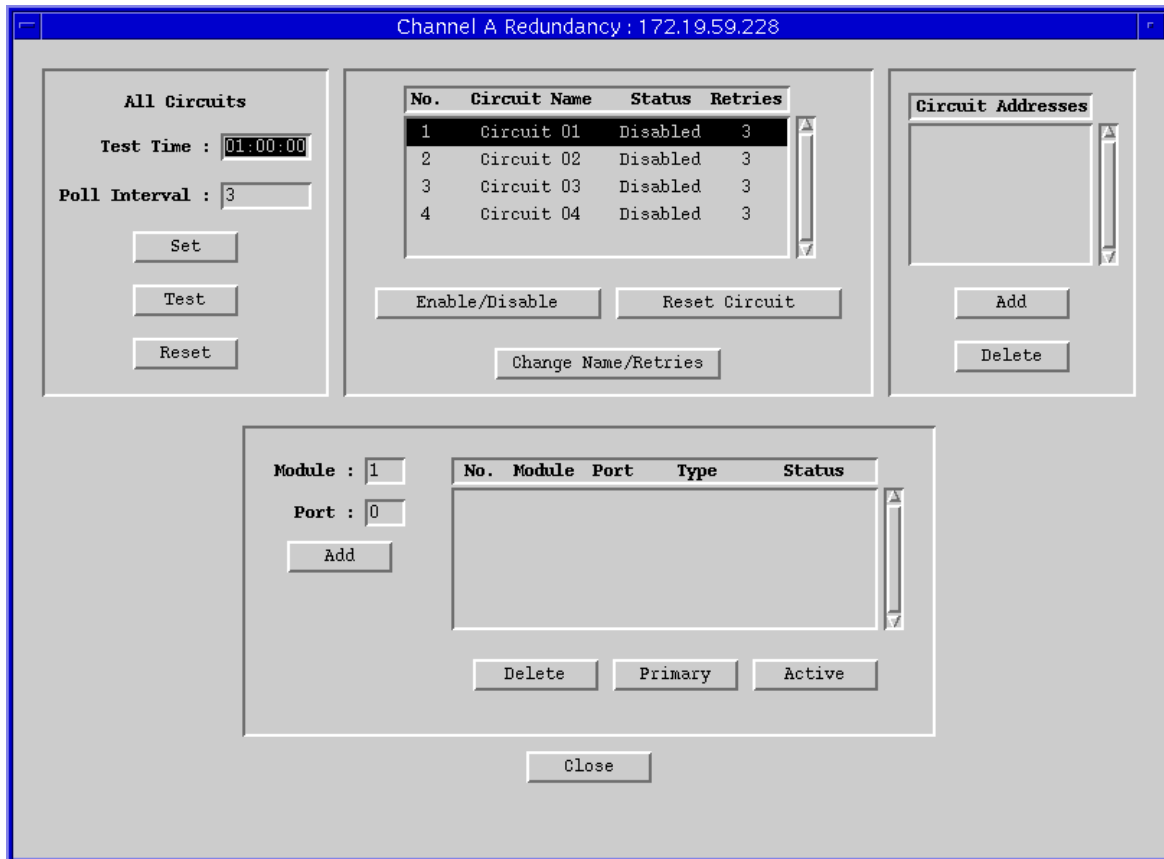


Figure 4-2. The Channel X Redundancy Window

2. If you want to change a circuit's name or the number of retries, highlight the appropriate circuit and click **Change Name/Retries**. The Change Circuit window, [Figure 4-3](#), will appear.

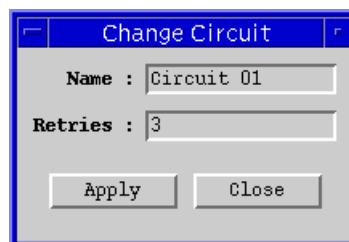


Figure 4-3. The Change Circuit Window

- a. In the **Name** box, enter a new circuit name (up to 16 alphanumeric characters).
 - b. In the **Retries** box, enter the number of retries — that is, the number of times the SEHI100TX tests the connection to the first IP address listed in the Circuit Addresses list box before it gives up and moves on to the next address. The valid range of retries you can enter into this field is 0-16.
 - c. Be sure to click on before exiting the window to save your changes.
3. With the appropriate Circuit Name highlighted, click to access the Add Circuit Address window, [Figure 4-4](#).

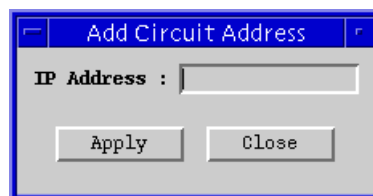
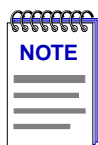


Figure 4-4. The Add Circuit Address Window

You can use this window to define IP addresses of up to 8 devices on the network. These addresses identify the destination nodes that the SEHI100TX looks for to determine the status of the active link. If the device determines that it has lost the link with the first address in the Circuit Addresses list, it checks the link status with the next address. If it can't establish a link with any address in the list, the device switches traffic to a backup port.

- a. To add a circuit address, enter a valid network IP address and then click . Repeat as necessary to add additional addresses. Click to exit the window.



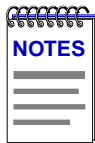
The SEHI100TX will poll the circuit addresses in the order they were entered.

- b. To delete a circuit address, highlight the address in the Circuit Addresses list in the Channel X Redundancy window, and click .
4. Use the bottom half of the Channel X Redundancy window to define the primary/active and backup ports for a Circuit:
- a. In the Circuit list, highlight the Circuit Name of interest, and click to ensure that the **Status** of the circuit is set to **Disabled** before configuring the port list.

- b. Specify up to 8 ports that will act as the redundant connections by using the **Module** and **Port** boxes to indicate each port, and then clicking on to enter each port into the circuit.
- c. By default, all ports are created as **Inactive Backup** ports. You should designate both a Primary port and an Active port. Typically, you would configure the same port to be both Primary and Active, but this is not required.

To select a primary port, click button 1 on a port to highlight it, then click . Usually, the Primary port will also be your active port. Should your Primary port not be designated as the active port, it will switch to Backup/Inactive status when the circuit is initially enabled, but it will become the active port on the execution of the next test sequence (assuming it has a valid link at the time of testing).

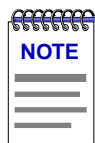
To select the initially active port, click on a port (whether or not it has already been selected as Primary), and click . The port designated as Active will be the initial port through which the link is checked. Should the active port fail, redundancy will start at the top of the port list and activate the next backup port, then work through the remaining ports in sequence should the first backup fail.



All backup ports will be disabled as soon as you enable the redundant circuit. The ports remain disabled until they become active due to primary port failure. If you disable the redundant circuit, you must manually enable each backup port in that circuit.


Note also that if an active port fails, and then is repaired, it is not returned to active status until the circuit has been Tested (unless all other backup ports on the circuit have failed in the interim).

5. Once you have configured all the ports that compose the redundant circuit, enable the circuit by clicking .



Be sure to make all physical connections to the backup ports once the redundant circuit has been configured and enabled.

To clear the settings in one circuit, highlight the Circuit Name that you want to clear, and click on .

To clear all redundancy configurations, click on  in the All Circuits portion of the window. **Reset** does the following:

- Deletes all entries in the Circuit Addresses box
- Changes the status of every Circuit to Disabled
- Reverts to previous Circuit Name(s)
- Clears all module and port entries



After clearing redundancy settings by either method, backup ports remain disabled until you manually reenable them so that data loops do not occur. Before you enable the ports, disconnect their physical connections.

Monitoring Redundancy

Once you have configured your redundant circuits, you can use the fields in the All Circuits box to set the parameters that the SEHI100TX uses to periodically test each of the circuits.

The circuit test checks the current status of every port link, both primary and backup, by polling the IP addresses in each circuit's Polling Addresses list through each port configured as part of the circuit. This test can be performed at a pre-determined time, or manually at any time. If the test detects any problems with the ports on a circuit, whether active or backup, it will issue traps identifying the circuit and its problem ports.



*SPMA does not accept the trap messages; that task is left to your network management system. (See the appropriate network management system documentation for details about viewing trap messages.) Note also that NO traps will be sent by the device unless its trap table has been properly configured; see the SEHI100TX hardware manual and/or the **Trap Table** chapter in the **SPMA Tools Guide** for more information.*

The testing begins at each circuit's currently active port; all ports are tested in sequence. Once testing is finished, the circuits will be reset so that the port designated as Primary will become the active port; if the primary port is not operational, the next operational backup port will be activated.

The SEHI100TX automatically polls all enabled circuits through the Primary port and all Backup ports at the time specified in the **Test Time** box. If the first poll fails (results in a no link condition with all of the circuit IP addresses), the SEHI100TX checks the circuit's **Retries** field. If **Retries** is greater than 0, the SEHI100TX waits the number of seconds specified in the **Poll Interval** field, and then polls the circuit again.

To set the **Poll Interval**:

1. In the All Circuits box, type in a new value in the **Poll Interval** field and click . Poll Interval is the time in seconds between retries (if the first attempt is unsuccessful).

To set the **Test Time**:

1. In the All Circuits box, type a new test time in the **Test Time** field in a 24-hour HH:MM:SS format and click . The Test Time is the time of day when the SEHI100TX polls the addresses listed in each of the enabled circuits.

To immediately test all enabled circuits:

1. Click in the All Circuits box.

SEHI100TX MIB Structure

SEHI100TX management information base configuration

IETF MIB Support

In addition to its proprietary features, the SEHI100TX currently supports the following IETF MIB:

- RFC 1213 MIB for Network Management of TCP/IP-based Internets: MIB-II

SEHI100TX MIB Structure

Cabletron's newer intelligent devices — like the SEHI100TX — organize MIB data into a series of "components." A MIB component is a logical grouping of MIB data, and each group controls a defined set of objects. For example, SEHI100TX repeater information resides in its Repeater component; more generic device and port information resides in the SEHI100TX Chassis MGR component.

The SEHI100TX MIB consists of five components, each of which is described below. To see the names of the MIB components in your SEHI100TX, bring up the Community Names application, or use any SNMP Get operation that will allow you to view the contents of the chCompTable.

The SEHI100TX MIB consists of the following components:

SEHI100TX Chassis MGR

The Chassis MGR MIB component contains most of the basic information about the SEHI100TX, including: the SEHI100TX's MIB component information (in the chCompTable), device names, hardware revision numbers, MAC and IP addresses, the current time and date, and information related to redundancy, alarms, and TFTP download. The system, interfaces, at, ip, icmp, udp, and snmp groups from MIB-II are also included. The community names assigned to this MIB component provide the gateway that all SPMA applications use to access all

information in the other components, even if those components have different community names; the Chassis MGR community names are the same as those assigned via Local Management.

SEHI100TX LIM

The SEHI100TX LIM, or Local Management, component contains the objects that provide out-of-band management via the Console port on the SEHI100TX's front panel. No objects from this component are used for remote management.

Repeater One

The Repeater MIB component controls all repeater functionality on the SEHI100TX. These functions include port count, port enable/disable, port status, board number, repeater statistics (packets, bytes, collisions, errors, etc.), protocol counts, and frame sizes; also included are the alarm, redundancy, source addressing, and trap functions. Note that the default community names for the Repeater MIB component will always be different from the default names assigned to all the other components.

SEHI100TX Host Services

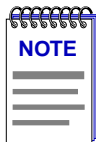
The Host Services MIB component contains the objects that provide the SEHI100TX with its IP functionality — essentially, those functions which allow the SEHI100TX to operate over a network — including functions such as ping, Telnet, and TFTP.

SEHI100TX IP Services

The IP Services MIB component is not currently used by the SEHI100-TX, but is reserved for future use.

A Brief Word About MIB Components and Community Names

In the *original* version of the component MIB architecture, each MIB component is protected by its own set of user-configurable Read-Only, Read/Write, and Super-User community names. These names determine the level of access that will be granted to the information controlled by each individual component. For these devices, the central point of access for remote management is provided by the Chassis MGR MIB component — that is, if you define your device icon or launch a management application using the read-only, read/write, or super-user community name assigned to the Chassis MGR MIB component, your SPMA application is granted the appropriate level of access (read-only, read/write, or super-user) to all of that device's MIB information — even if the other MIB components have different community names (as will occur of necessity if the SEHI100TX has multiple Repeater MIB components, each of which must have a unique set of community names).



The set of community names you assign via Local Management are those which apply to the **SEHI100TX Chassis MGR** MIB component.

Newer versions of devices with this component-based MIB architecture have been simplified somewhat; these devices support a single, *global* set of community names, with small modifications added automatically to accommodate multiple instances of the same MIB component (such as network components). Again, defining your device icon or launching a management application with one of these global community names gives SPMA access to all MIB information.

Where community names may become an issue, however, is when you are using the MIBTree or any similar MIB-based tool (such as those provided by SunNet Manager or HP Network Node Manager) to access MIB information. For these kinds of tools, you must supply the *precise* community name assigned to the component that contains the information you want. For devices which support the original component-based MIB architecture — such as the SEHI100TX, this means you must use the exact community name you have assigned to a specific component to access that component's MIB information. (Again, note that the SEHI100TX's Repeater components always have *unique* community names.) For devices which support the new global community names, you must make note of the automatic modifications that are made for network components, and use those specific community names when trying to access information stored in those components.

The MIB component descriptions provided above will serve as a roadmap for determining where the information you're interested in is located; you can use the SPMA Community Names tool (described in **Chapter 3** of the *SPMA Tools Guide*) to determine whether your version of firmware supports the original component-based MIB architecture, or the new global community names. The Community Names tool also allows you to both view and set the community names which apply to your device.

A

- active port 4-5
- Active Users 2-13, 2-14, 2-15
- Add Circuit Address 4-4
- Admin Status 2-10
- Admin/Link Status 2-10
- Alignment Errors 2-18
- Avg Packet Size 2-17

B

- Broadcast Packets 2-17

C

- Change Name/Retries 4-3
- Charts, Graphs, and Meters 1-3
- Chassis MGR A-1
- Circuit Name 4-4
- Collisions 2-9, 2-18
- color codes 2-2, 2-7
- community name 2-1
- community names A-2
- Community Names tool 1-3
- component-based MIB architecture A-2
- connection status 2-7
- Contact 2-11
- Contact Status 2-2, 2-21
- conventions 1-3
- CRC Errors 2-18
- creating icons 2-1
- Cyclic Redundancy Check (CRC) Errors 2-18

D

- Date 2-11
- default community names A-2
- Device button 2-4
- Device Configuration 2-22
- Device General Status 2-21
- Device menu 2-4, 2-7
- Device Name 2-3
- Device Status 2-10
- disable ports 2-22

E

- enable ports 2-22
- Error Priority Scheme 2-19
- Errors 2-9

F

- FCS value 2-18
- firmware version 1-7, 2-5
- Frame Sizes 2-9, 2-20
- Front Panel 2-21
- front panel 2-2

G

- General/Errors 2-17
- general/errors 2-17
- Giant Frames 2-19
- Global Community Names 1-3
- global community names A-3
- Global Find MAC Address 1-3
- Global TFTP 1-3

H

- Host Services A-2
- hostname 2-1
- Hub View 2-1
- Hub View Front Panel 2-21
- hubstack 2-1

I

- IETF MIBs, supported by SEHI A-1
- inactive backup ports 4-5
- Info window 2-5
- IP Address 2-3
- IP Services A-2

L

- LIM A-2
- Link signal 2-7, 2-10
- Link Status 2-14
- link traps 3-1

Link/Seg Traps 2-4
Load 2-9
Local Management A-2
Location 2-3, 2-11

M

MAC Address 2-3
Media Type 2-15
MIB component A-1
MIB component descriptions A-3
MIB I, II 1-3
MIBTree 1-3
misaligned packets 2-18
Module menu 2-7
Motif 1-4
Multicast Packets 2-18

N

Name 2-11, 2-14

O

OOW Collisions 2-18
OSF/Motif 1-4

P

Poll Interval 4-6
Polling Intervals 2-4
polling intervals 2-20
port color codes 2-7
Port Display Form 2-4, 2-8, 2-22
port display form
 options 2-9
Port menu 2-7
Port Operational State 2-22
Port Status 2-14
Port Type 2-10
portLinkDown 3-2
portLinkUp 3-2
portSegmenting 3-1
portUnsegmenting 3-1
primary port 4-5

R

r4hwtr 3-3
r4red 4-2
receive collisions 2-18
Received Bytes 2-17

Redundancy 2-4
redundant circuits 4-1
Repeater One A-2
Reset Circuit 4-5
Runt Frames 2-19

S

Save As Defaults 2-21
segmentation traps 3-1
segmented 2-7, 2-10, 2-15
SEHI100TX firmware 2-5
SEHI100TX MIB components A-1
Set Trap Status For 3-5, 3-6
Setting Network Circuit Redundancy 4-1
spmarun 3-3
stand-alone mode 2-5
Station 2-16
Statistics 2-22
statistics 2-16
 frames 2-17, 2-20
 general/errors 2-17
Status 2-15

T

technical support 1-6
Test Time 4-6
testing redundant circuits 4-6
TFTP Download 1-3
Time 2-11
Topology Type 2-16
Total Errors 2-18
Total Packets 2-17
Traffic 2-9
transmit collisions 2-18
Trap Table 1-3
Trunk 2-16

U

unique community names A-2
Uptime 2-3
Use Defaults 2-21
Utilities 1-3

V

viewing trap messages 3-1, 4-6
 stand-alone mode 3-1, 4-6