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GDC UAS 7000®

TEAM 7000 for UNIX, Version 3.0.0

General DataComm

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Revision History

Issue Number	Date	Description of Change
01	November 1998	Applications for user interface

Safety Guidelines

- Always use the following guidelines when unsafe conditions exist or when potentially hazardous voltages are present:
- Always use caution and common sense.
- To reduce the risk of electrical shock, do not operate equipment with the cover removed.
- Repairs must be performed by qualified service personnel only.
- Never install telephone jacks in a wet location unless the jack is designed for that location.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing telephone lines and never install telephone wiring during an electrical storm.

Table of Contents

Chapter 1: System Description

Introduction

The information contained in this manual has been carefully checked and is believed to be entirely reliable. However, as General DataComm improves the reliability, function, and design of their products, it is possible that information may not be up-to-date.

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Safety Information

The DANGERS, WARNINGS and CAUTIONS that appear throughout this manual are not only preventative measures designed to uphold the safety of both the service engineer and operator, but also to enhance equipment reliability.

The definitions and symbols for DANGER, WARNING and CAUTION comply with ANSI Z535.2, American National Standard for Environmental and Facility Safety Signs, and ANSI Z535.4, Product Safety Signs and Labels, issued by the American National Standards Institute.

The following examples show the symbols and definitions of DANGER, WARNING, CAUTION, *Note* and *Important* as they are used in this manual.

Note *Indicates a note. It is something you should be particularly aware of; something not readily apparent. A note is typically used as a suggestion.*

Important *Indicates an emphasized note. It is something you should be particularly aware of; something not readily apparent. Important is typically used to prevent equipment damage.*

CAUTION *Indicates a potentially hazardous situation which, if not avoided, may result in minor to moderate injury. It may also be used to alert against unsafe practices.*

WARNING *Warning indicates an imminently hazardous situation which, if not avoided, could result in death or serious injury.*

DANGER *Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.*

Typographical Conventions

Level 1 Heading paragraph headers introduce major topics.

Level 2 Heading paragraph headers introduce subsections of major topics.

Level 3 Heading paragraph headers introduce subsections of secondary topics.

`Courier font is used to show text that is displayed on the screen.`

Times bold font is used when referring to screen names.

`Courier bold font is used to show specific input that you type at the keyboard.`

Overview

This manual covers the General DataComm TEAM 7000 Unix Application for HP OpenView. You should be familiar with HP OpenView and with T1 and E1 digital transmission products in order to use this manual effectively.

The TEAM 7000 Unix Application is actually a collection of integrated applications for the HP OpenView Network Management Platform. The applications use the Simple Network Management Protocol (SNMP) to manage GDC UAS 7000 cards

TEAM 7000 applications let you:

- **Configure** UAS 7000 cards.
- **Monito**r the operation of the cards through an alarm display and through a Front Panel display that shows LED indicators as they appear on the front panel of the physical unit.
- **Diagnose** suspected problems using local and remote loops (with or without Self Test) and end-to-end Self Test.

System Components

UAS 7000 hardware consists of three types of components:

- Network Interface Unit (NIU)
- Drop Side Interface Unit (DIU)
- SpectraComm Manager (SCM)

Network Interface Unit (NIU)

A NIU 7002 supports a single E1 line, a NIU 7022 supports two E1 lines, and a NIU 7001 supports a single T1 line. Each unit occupies a single slot in the shelf (or enclosure) in either a single or dual shelf arrangement.

The 7001, 7002, and 7022 are used as the network interfaces between SpectraComm/UAS shelf backplanes. Other assets:

- Provides interface to T1/E1 or Fractional T1/E1 services.
- May be mixed or matched with other GDC UAS Network Managed Data Sets.
- Is Network Managed through SCM SNMP interface.
- Contains up to 31 cards in a SCM managed shelf.

Drop Side Interface Unit (DIU)

The DIU (Drop-Side Interface Unit) 7616 and 7626 interface between the 2B1Q network and the shelf backplane, providing up to six metallic loops. The 7616 consists of three two-wire transmission units using 2B1Q (ISDN Basic Rate) for its line coding scheme and supports up to six 64K bps or three 128K bps services. The 7626 is made up of six 64K bps or 128K bps services. Each unit occupies a single slot in the shelf (or enclosure) in either a single or dual shelf arrangement. Specific attributes of this unit are:

- ITU I.430, ISDN Basic Rate, B1, and B2 loopback requirements per ITU I.601
- Controllable software

- Six 64K bps or three 128K bps channels (7616)
- Six 128K loops (7626)
- Front panel LED status of loops
- Independent self-test pattern generators
- SNMP originated diagnostics

SpectraComm Manager (SCM)

SpectraComm Manager (SCM) acts as the SNMP agent through which TEAM management applications communicate with UAS 7000 components. All management communications are directed to the SCM card Internet Protocol (IP) address. The SCM card relays commands and responses between management applications and hardware components, using a slot addressing scheme to communicate over the SpectraComm shelf backplane with the other UAS 7000 components. The SCM is transparent to the applications, which operate as though they were communicating directly with the hardware units. The SCM card is managed by the TEAM CORE application, which is also responsible for the Discovery and Mapping functions by which HP OpenView keeps track of the devices being managed.

Applications

The applications that make up the TEAM 7000 manager are grouped on menus under the headings Performance, Configuration, Fault, and Misc (Miscellaneous). Menus for the applications are available in two ways:

- By way of the menu bar of the HPOV Map window when an UAS 7000 is selected in the window, or
- By way of the Select button on the UAS 7000 Front Panel display.

UAS 7000 Front Panel displays current status information on the card by displaying the states of the LED indicators on the front panel of the unit; and provides Select button menus where you can invoke all other functions of the TEAM 7000 manager. You can launch the Front Panel display from the HPOV Map window by means of the Front Panel selection in the Performance menu or by double- clicking on the shelf icon of the unit that you need to work with.

The following TEAM 7000 applications appear on the Map window and Select button menus:

- Performance:

  Alarms – furnishes detailed information about alarm state changes.

  Front Panel – launches the Front Panel display (selection appears only on Map window menu).

  Reports – displays statistical reports.

- Configuration:

  Configuration – lets you configure UAS 7000 cards.

  Maintenance – allows you to set device specific attributes that are not set as configuration options.

- Fault – enables you to run diagnostic tests on UAS 7000 cards.

  Diagnose - used to perform tests to isolate a data communication problem to the network element or line.

- Misc - Contains information screen.

  The `Misc` menu in the Map window menu bar offers you a selection that does not appear in the front panel `Select` button menu:

  `Front Panel Poll Rate` – lets you set a default polling interval to be in effect each time the front panel display is opened.

- Alarm Severity - This feature lets you set the severity of individual alarms (major, minor, or warning) on the basis of unit type.

Chapter 2: Team 7001

Overview

This chapter covers the HPOV SNMP Network Manager for the Universal Access System (UAS) 7001 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

Communications

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7001 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface

The Graphical User Interface for the UAS 7001 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance
- Information

The following are GUI screens for the UAS 7001 which are integrated into HP OpenView. The application windows presented deal specifically with the 7001 family product. The Graphical Shelf and SCM applications are handled as TEAM CORE functionality across the SpectraComm products and are not presented in this manual.

Front Panel

The front panel status application gives you an image (See Figure 2-1) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by selecting a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product.

Figure 2-1 Front Panel Status Screen, 7001

When you click on the mouse, the GDC logo executes an information screen about the application. Table 2-1 defines illuminated LEDs for the 7001 Front Panel.

Table 2-1 7001 Front Panel LEDs Applications

LED Displayed	LED Function
INS	Indicates unit is in-service.
ON	Indicates power is on.
TMG	Indicates unit is sourcing the system 4-MHz back-plane timing and 8-KHz reference back-plane timing.
RSP	Indicates transmission of the back-plane NMS command response.
LCV	Indicates Line Code Violations.
AIS	Indicates receiving Alarm Indication Sequence
OOF	Indicates loss of selected T1 framing.
LOS	Indicates loss of T1 signal.
TM	Indicates unit is running a diagnostic.
ALM	The alarm LED by its color indicates that it has detected an alarm condition. The color of the alarm LED is the same color as that of the shelf slot icon. For no alarm, the color is always green.

Select Buttons for the 7001 front panel are identified in Table 2-2.

Table 2-2 7001 Front Panel Selections

Button	Button Function
Help	Opens the Team 7000 manual.
Select	Contains a menu with selections for:
• Performance	Alarms, Reports
• Configuration	Configuration, Maintenance
• Fault	Diagnostics
• Misc	Information
• Demand Poll	Polling of status to update the front panel
• Auto Poll	Periodic polling of status to update the front panel at 15, 30, 60-second rates, or Disable. Each time the front panel display is opened, its initial polling rate is determined by the front panel Poll Rate selection of the HPOV map window Misc menu.
• Exit	Closing the front panel application

Status Message Area

The status message area displays messages which describe application activity and unit interaction. Examples are: time, not responding, etc.

Shelf Configuration

Refer to the *7000 T1 Shelf Configuration* Chapter for a description. This application selects time slot allocation and defines circuit names for the 7001, 7616, and 7626 series units. You begin this application from the Shelf Universe submap by first choosing the desired shelf icon, then choosing `Configuration->7000 T1 Shelf Configuration`.

Configuration

The Graphical User Interface for the Configuration Application incorporates features for optioning the 7001 product. With the Configuration Application, you have access to unit level parameters via the SNMP queries when Windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit. The configuration application has templates for copying the same configurations to other units. Configuration templates are stored permanently and are easily accessed.

The 7001 Configuration is launched from the HPOV Shelf Map by first selecting a particular shelf slot, then choosing `Configuration->Configure` from the Menu bar or from the Front Panel application `Select` button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7001 Configuration (main widow), Unit Configuration Options, Alarms Reported, Local Alarms, and All Screens.

Configuration - Main Window

The main window is comprised of four areas. The title bar provides the product name and configuration type. The name field contains the Shelf name, slot number and symbol label. The menu bar provides file operations, navigation through subordinate screens and help. The main body of the window is composed of administrative read-only fields. The status message area at the bottom of the screen provides insight into the state of the application (See Figure 2-2).

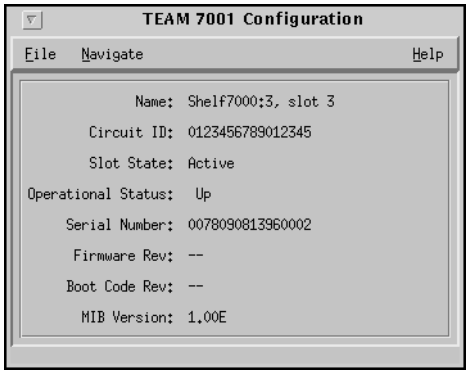

Figure 2-2 Configuration - Main Window Screen (7001)

Table 2-3 File Menu for the 7001

File Menu	
`File -> Refresh`	Causes all options to be read from the unit; outstanding edits are lost.
`File -> Save to Unit`	Causes all outstanding edits to be sent to the unit and saved.
`File -> Load Template`	Allows the selection of an existing 7001 template to be applied as edits to the current application. (A subsequent `File -> Save to Unit` operation implements the template changes.)
`File -> Save to Template`	Causes the configuration data of a unit to be saved as a specific template.
`File -> Compare to Template`	Causes the template file data to be compared to the configuration screen data and differences identified.
`File -> Exit`	Causes the application to terminate; outstanding edits are discarded.

Table 2-4 Navigate Menu for the 7001

Navigate Menu	
`Navigate -> Unit Configuration Options`	Displays the Options window.
`Navigate -> Alarms Reported`	Displays the `Alarms Reported/Thresholds` window.
`Navigate -> Local Alarms`	Displays the configuration Options for the alarm card window.
`Navigate -> All Screens`	Reads and displays all configuration screens.

Table 2-5 Help for the 7001

`Help`	Causes help to be displayed.

Table 2-6 Display Fields for the 7001

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name, slot, symbol label of the selected slot symbol from the shelf map.
`Circuit ID`	Optional name identifying the T1 circuit this unit is connected to.
`Slot State`	State of the shelf slot: active or inactive.
`Operational Status`	State of the current unit: up or down.
`Serial Number`	Unit serial number.

Table 2-6 Display Fields for the 7001 (Continued)

`Firmware Revision`	Unit firmware version.
`Boot Code Revision`	Boot code version of the unit.
`MIB Version`	Unit Management Information Base (MIB) version.

Status message area of the window displays messages, describing application activity and unit interaction. Possible examples are: writing, saving to template, etc.

Operational Status

The operational status displays a card in a shelf slot as `in or out` of service (up or down). To set the operational status of a card:

1. Start at the `TEAM Universe` submap and select the desired shelf icon by clicking once with the mouse.
2. Then, select `Configuration->7000 T1 Shelf Configuration`.
3. From the `7000 T1 Shelf Configuration` screen, select `Navigate->T1 Slot Service States` to display the T1 slot service states screen.
4. At the `Select Unit:` selection, choose the 7616, 7626, or 7001 card slot to be put into or out of service.

Once the card slot is selected, the controls on the screen show you the slot up or down status.

5. Select the service state of your choice.
6. To save your selected status, select the `Save` button.

Unit Configuration Options

This screen is shown when `Navigate->Unit Configuration Options` is selected on the 7001 Configuration main window. You can configure major options of the unit at this screen (See Figure 2-3).

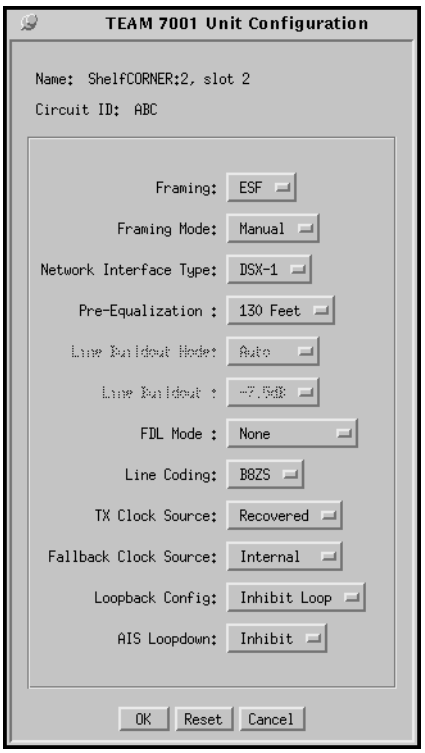

Figure 2-3 Unit Configuration Options Window Screen (7001)

Name and Circuit ID are read-only field.

Table 2-7 Configuration Options (7001)

Unit Options	
Framing	**ESF** SF
Framing Mode	Auto **Manual**
Network Interface Type	**DSX-1** DS-1
Pre-Equalization	None **000 - 130 feet** 130 - 260 feet 260 - 390 feet 390 - 530 feet 530 - 655 feet
Line Buildout Mode	Auto, Manual

Table 2-7 Configuration Options (7001) (Continued)

`Line Buildout`	0 dB -7.5 dB -15 dB -22 dB
`FDL Mode`	**None** ANSI T1-403 TR-54016
`Line Coding`	**B8ZS** AMI
`TX Clock Source`	System - Timing is derived from an element in the shelf **Recovered** - Recovered (slave) timing from the network T1 Internal - Internal clock source
`Fallback Clock Source`	System - Timing is derived from an element in the shelf Recovered - Recovered (slave) timing from the network T1 **Internal** - Internal clock source
`Loopback Configuration`	**Inhibit Loop** Payload Loop Line Loop
`AIS Loopdown`	**Inhibit** 5 - 60 seconds
Action Buttons	
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
Note: Defaults in bold.	

Alarms Reported

The screen is shown when `Navigate->Alarms Reported` is selected on the 7001 Configuration main window (See Figure 2-4). This screen permits you to configure Alarm reporting with thresholds. You can report or not report any individual alarm by selecting the alarm. A selected alarm means that the alarm is reported in an SNMP Trap from the SCM to the Controller. Name and Circuit ID are read-only.

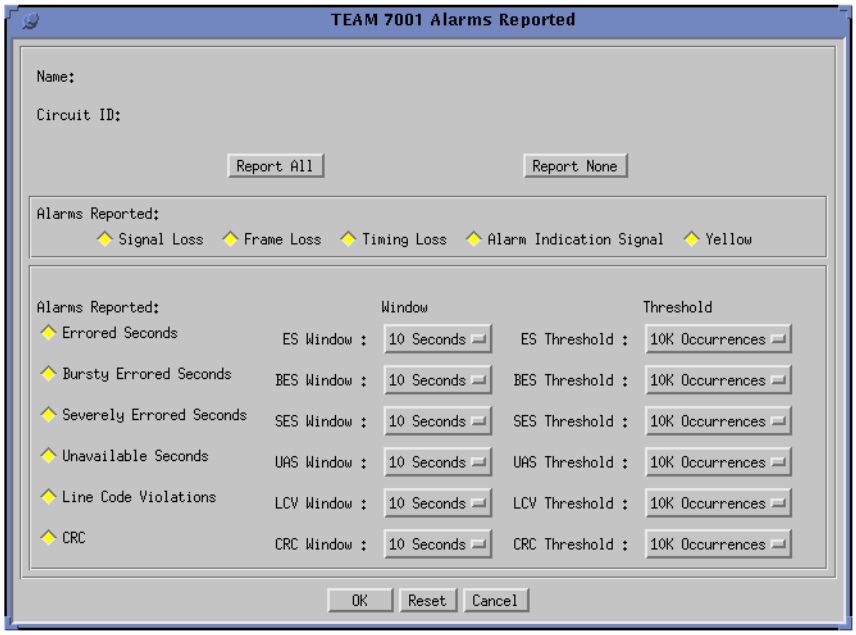

Figure 2-4 Alarms Reported Screen (7001)

Table 2-8 7001 Alarms

Declared Alarms	
`Signal Loss`	Loss of T1 signal.
`Frame Loss`	Loss of selected T1 framing.
`Timing Loss`	Loss of timing source.
`Alarm Indication Signal`	Alarm Indication Sequence received.
`Yellow`	Received Yellow Alarm
Performance Alarms	
`ES`	Errored Seconds
`BES`	Bursty Errored Seconds
`SES`	Severely Errored Seconds
`UAS`	Unavailable Seconds
`LCV`	Line Code Violations
`CRC`	Cyclical Redundancy Check errors
Window	Data collection time period choices are 1 sec., 10 sec., 30 sec., 1 min., 15 min., 1 Hr., 24 Hr., Infinite, or `Disable`.

Table 2-8 7001 Alarms (Continued)

Threshold	Choices are 1 occurrence, 3 occurrences, 10 occurrences, 100 occurrences, 1,000 occurrences, 10,000 occurrences within the window time frame.
Action Buttons	
`Report All`	Selects all alarms for reporting.
`Report None`	Deselects all alarms, no alarms reported.
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.

Local Alarm Configuration

This screen is shown when `Navigate->Local Alarms` is selected. The Local alarm configuration screen is used to mask or set the severity of given alarms that can trigger the Local Alarm Card for alarm display on a light panel. Local alarms do not create SNMP traps. These settings are stored within the 7001. For all alarms, the choices are `Disabled`, `Enable Major`, and `Enable Minor`. The Name and Circuit ID fields are read-only. On this screen, all configurable alarm types as described above are found *(*See Figure 2-5*)*.

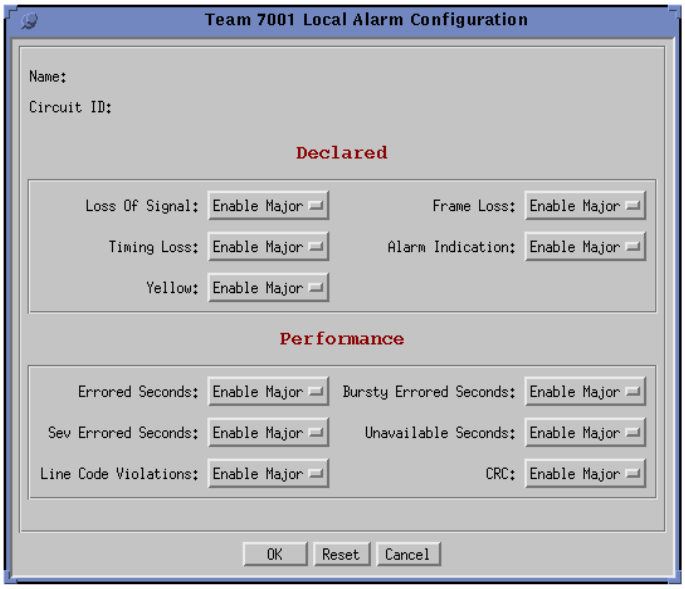

Figure 2-5 Local Alarm Configuration Screen (7001)

All Screens

This reads and displays all configuration screens for the unit.

Template Support

Device configurations are saved in a file and are known as templates, which can be applied similarly to configure other units. You can `Save`, `Load`, or `Compare` templates by accessing the File menu; and when you invoke one of these three operations, you see a dialog window where you are asked to specify the template file name.

Alarm Detail

7001 Alarm Detail is launched from the HPOV Map `Performance->Alarms` or from the Front Panel menu. The alarms are depicted on the screen, as shown in Figure 2-6. When the alarm is off, the color you see is dark green; when on, color designations for the alarms are orange for major, yellow for minor, or blue for warning.

Note *Refer to the TEAM CORE manual for alarm severity applications.*

The alarm detail works with the configuration alarms reported screen. When an alarm is set to be reported and is active, the appropriate alarm is displayed. The following are not affected by the alarm reported screen: NV RAM corrupt and unit failure.

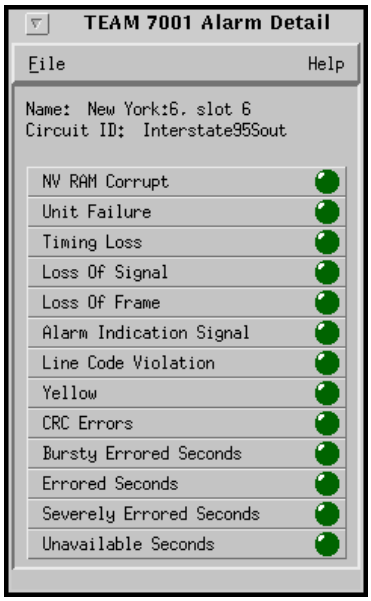

Figure 2-6 7001 Alarm Detail Screen

Error Reports

The error reports application is used to display statistics accumulated by the 7001 unit. Some features of the reporting function are:

- New background color (bisque) for graphs to emphasize graphical data
- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking

- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 24 hours worth of data
- Periodic polling for data

You can launch the 7001 report screens by selecting the HPOV Shelf Map slot icon and then selecting the `Performance->Reports` menu item; or you can click the front panel display `Select` button. The first window you would see is the main window. It introduces you to each error category which has its own graph or statistics report, displayed in a specific screen. Two kinds of reports are included: `TOTALS` and `SUMMARY` with each error category identified as `ES`, `SES`, `BES`, `UAS`, and `LOFC`. The menu cells on the TEAM 7001 Error Reports screen are `File`, `Edit`, `View`, and `Navigate`. `Help` displays help information. See Figure 2-7 below.

Note *No data is collected from the unit until* `File-->Refresh` *is selected or the interface is changed.*

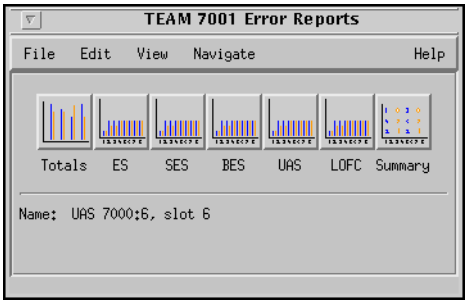

Figure 2-7 Error Reports Window

File

The menu item `File->Refresh` is an on-demand update of the data. `File->Auto Refresh` has menu items to periodically poll the unit for data and update the screens. `File->Auto Refresh->Off` disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item `File->Auto Refresh`. `File->Save Error Data to File...` saves the data to a file from the last poll. The data saved in the file is in text format. The `File->Exit` menu item closes all windows and terminates the application.

Edit

The `Edit->Reset Statistics` menu item sends an SNMP set to clear statistics in the unit and to clear data presented on the screen as well.

View

The `View->Legend` displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms ES, SES, and the other error categories.

Navigate

The `Navigate` menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the network side reports: `24 Hour Error Totals...`, `Errored Seconds...`, `Severely Errored Seconds...`, `Bursty Errored Seconds...`, `Unavailable Seconds...`, `Loss of Frame Count...`, `Errors Summary...`, and `All Screens...`.

Thus, the `Navigate` menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition. Each error report window can also be accessed by clicking on its icon, located on the main window.

Error Totals

Error reports for the 7001 product are given as data collection in intervals. X-axis buttons of the graph represent data from error categories spread over twenty-four hours in 15-minute intervals; this is the same as using the `Navigate` menu for each error category.

Auto Ranging

This feature dynamically changes the y-axis scale, depending on the maximum value of any of the error categories data on the x-axis. If the value for an error category (or interval) is `100`, then the y-axis maximum value is `100`. When the x-axis value for an error category changes to `500`, the y-axis maximum changes to `500`. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Network

The statistics displayed for the TEAM 7001 Network interface (Figure 2-8) in the Error Reports window covers the current 24 hours of operation. The vertical axis shows the number of errored seconds for the Network categories: `ES` (Errored Seconds), `SES` (Severely Errored Seconds), `BES` (Bursty Errored Seconds), and `UAS` (Unavailable Seconds). The graph on the right has a vertical axis which represents the number of counts for `LOFC` (Loss of Frame Count).

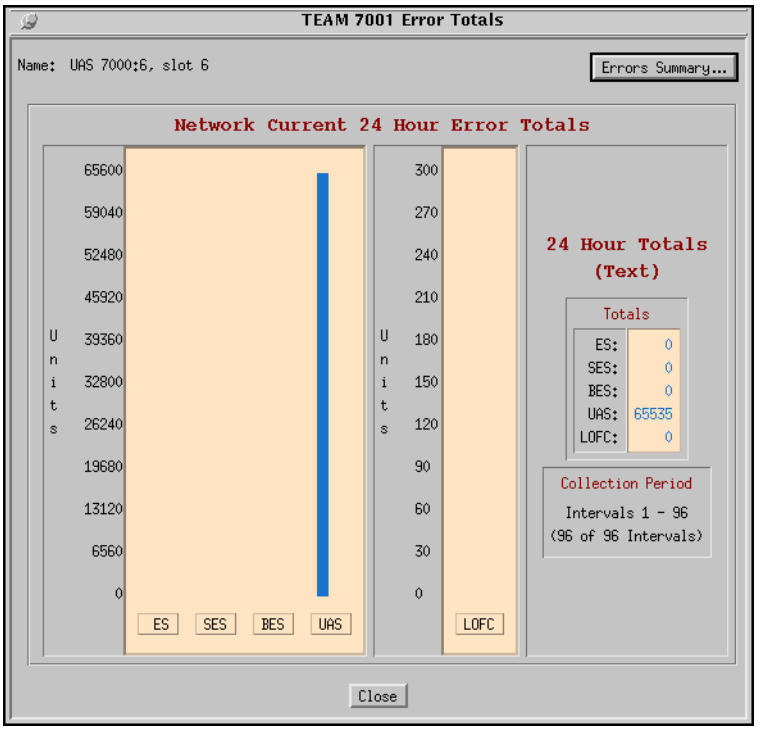

Figure 2-8 Error Totals Screen for Network

The `Totals` box shows the totals of each category collected so far for the current 24-hour period. The `Collection Period` box indicates the portion of the current 24-hour period collected so far. The number of 15-minute intervals accumulated are shown. Also, the `Errors Summary...` button in the upper right hand corner is equivalent to the `Navigator-->Errors Summary` menu item, which gives you a text summary of the valid intervals collected for all categories.

Errored Seconds (ES)

An errored second (ES) is defined as a second with at least one CRC error event. Figure 2-9 shows the errored seconds (ES) screen for network. The figures are the basic screens for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the y-axis scale dynamically changes, depending on the maximum value of a certain interval.

If data has been collected for less than 24 hours, the intervals on the x-axis of the graph are not displayed for the unavailable periods. If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the `Close` button to dismiss the window.

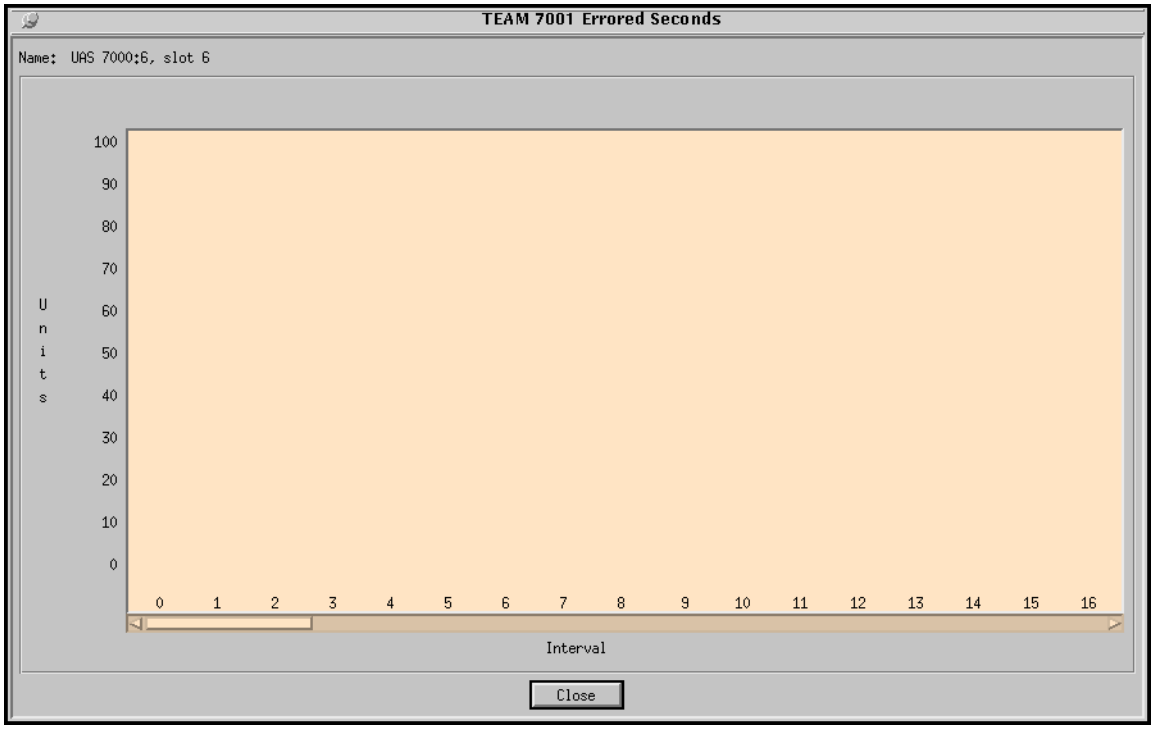

Figure 2-9 Errored Seconds (ES) Window

All Other Network Error Categories

All other error categories for the network interface have similar screens and applications as the `Errored Seconds` does.

Severely Errored Seconds (SES)

A severely errored second is defined as a second with seven or more CRC error events; or as one or more out-of-frames.

Bursty Errored Seconds (BES)

A bursty errored second is defined as a second with more than one, but less than 320 CRC6 error events.

Unavailable Seconds (UAS)

An unavailable second is defined as a count of one-second interval when service is not available. Service not available means ten or more consecutive SESs.

Loss of Frame Count (LOFC)

Loss of frame count is defined as the accumulation of the number of times a loss-of-frame is declared.

Errors Summary

The Errors Summary screen is shown in Figure 2-10. It tabulates data on the error events that have occurred for each error category. The `File-->Save Error Data to File` option takes the data presented on this screen and saves it to the user's file. The `Errors Summary` screen displays an array of error events (y-axis) plotted over time (x-axis).

If the collected network data covers less than twenty-four hours, the unrecorded time-intervals on the X-axis of the graph are not displayed. The current 24-hour totals box at the bottom of the screen shows the total of each of the categories for the current 24-hour period.

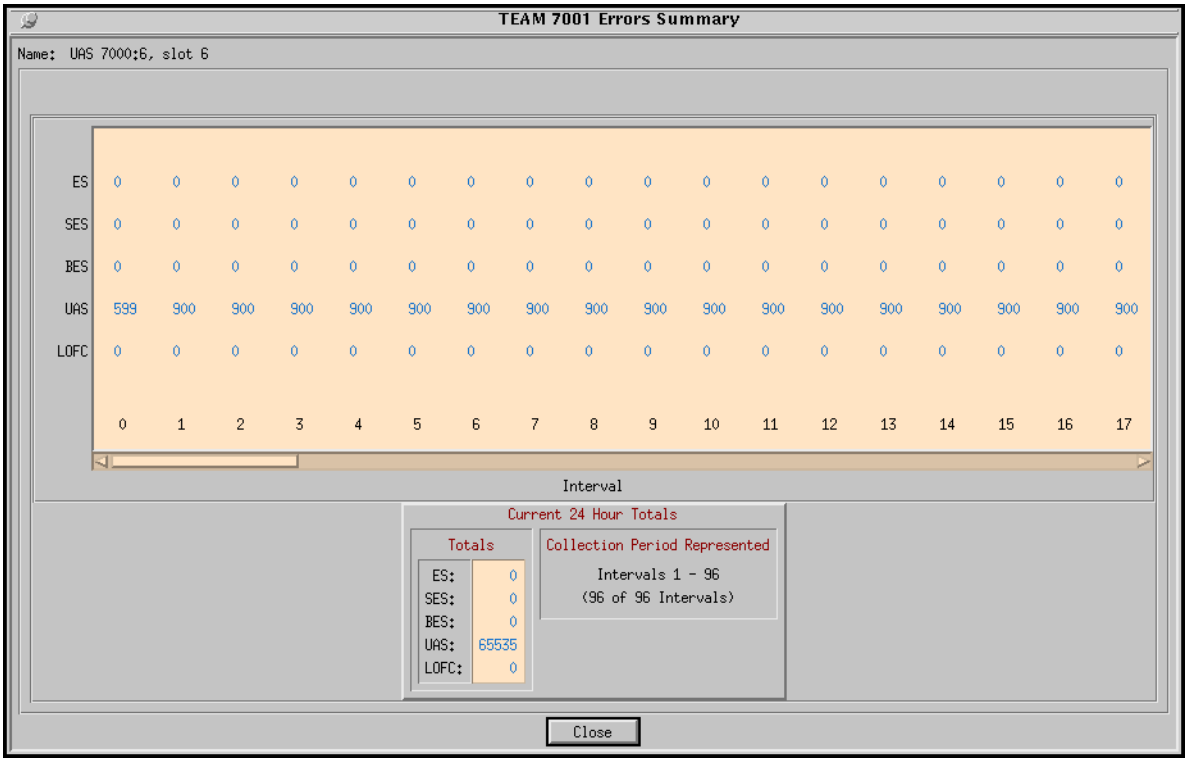

Figure 2-10 Error Summary Window

Diagnostics

The Diagnostic application is used to perform tests to isolate a data communication problem to the Network element or line. 7001 Diagnostic Test is launched from the HPOV Map `Fault Menu` or from the Front Panel menu (See Figure 2-11). The application is comprised of one main window in five sections or parts, which are as follows:

- Section 1 is the menu - `Navigate->Diagnostic History` (This section is described below).
- Section 2 is the name of the unit.
- Section 3 has the test, test duration, and test control buttons.
- Section 4 has the test graphics.
- Section 5 has circuit ID, test status, and time remaining in test.

Table 2-9 Diagnostics Screen Table for the 7001

	Description
Navigate Menu	Diagnostics History
Name Field	Name of unit
Diagnostic Test	
T1 Line Loopback	Loops the Telco transmit and receive paths back towards the T1 network.
T1 Payload Loopback	Loops the recovered T1 receive and transmit paths back towards the T1 network.
Test Duration	Maximum length of time the test runs. The choices are 10 or 20 minutes, and infinite.
Buttons	
Start/Stop Test	Starts or stops the selected test.
Graphics	Displayed graphics depend on unit configuration: Loops are shown where appropriate.
Results	
Circuit ID	Circuit ID -- read only
Test Status	Displays status of the diagnostic test Idle T1 line loopback T1 payload loopback
Time Remaining	Displays in meter format the time remaining in test.

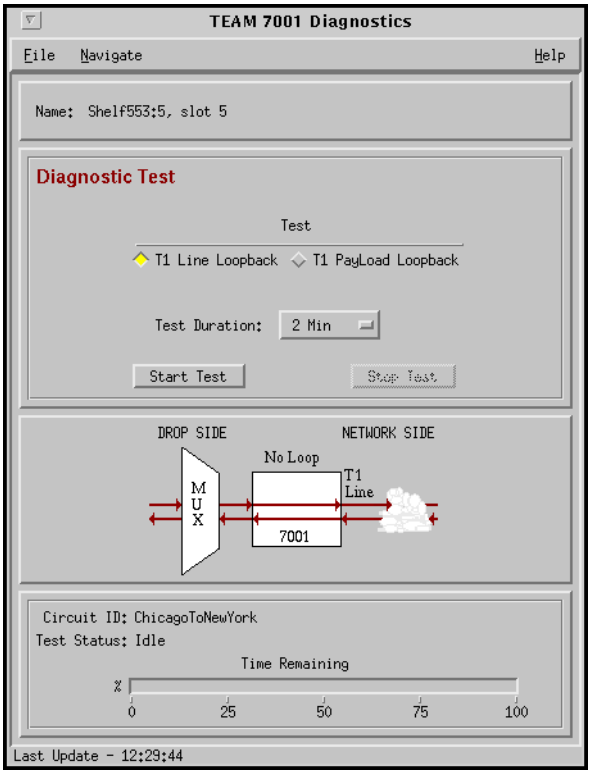

Figure 2-11 Diagnostic Test Screen for 7001

Diagnostics History

The Diagnostics History application is used to log test information after the test is finished. 7001 Diagnostics History is launched from the `Diagnostics->Navigate` menu. This screen is read-only *(*See Figure 2-12*)*. If the diagnostic screen is closed, the diagnostic history is cleared.

Table 2-10 Diagnostics History for 7001

Diagnostics History	
`Start Time`	Date and time when test started.
`Test`	Name of the test.
`Test Time`	Duration of the test in hours:minutes:seconds format
`Test Results`	`OK` for a test that ran successfully.
Button Controls	
`OK`	Dismisses the screen.

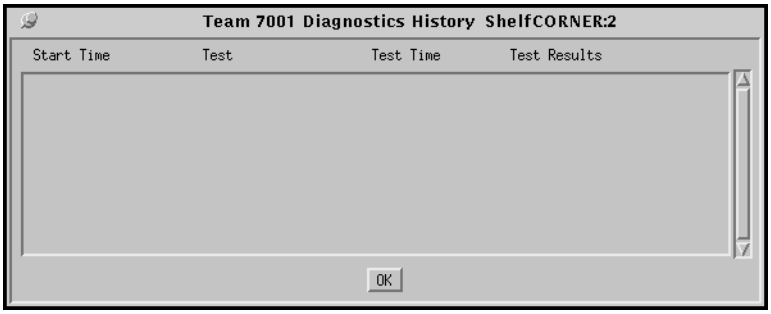

Figure 2-12 7001 Diagnostics History Screen

Maintenance

The Maintenance application displays and modifies 7001 attributes which are device specific and cannot be set as configuration options. 7001 Maintenance is activated from the HPOV Map `Configuration->Maintain Menu` or from the Front Panel menu. There is one main window for this application *(*See Figure 2-13*)*.

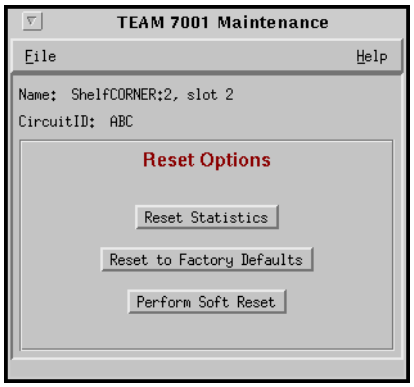

Figure 2-13 Maintenance Screen for the 7001

Window controls and their functions are as follows (Name and Circuit ID are read-only):

Table 2-11 Maintenance Menu for the 7001

Button	Description
`Reset Statistics`	Resets all 7001 loop statistics to zero.
`Reset to Factory Defaults`	Initiates a 7001 reset to default configuration parameters.
`Perform Soft Reset`	Initiates a 7001 board reset. Note: After performing the unit reset, set the correct time on the unit for the starting and ending times by single-clicking on the desired shelf from the Team Universe screen and then, selecting from the menu bar, the `Fault-->Set Time` on Shelf.

Information

The Information screen shows you the current revision level and copyright notice of the current application. 7001 Information is launched from the HPOV Map `Misc->Information` Menu or from the Front Panel menu; or you can double click on the GDC Logo on the front panel. One window makes up the application and it is read-only.

Chapter 3: 7000 T1 Shelf Configuration

Shelf Configuration Overview

This chapter covers the design of the 7000 T1 Shelf Configuration Application for the Universal Access System (UAS) T1 products. Graphical User Interface (GUI) windows are a significant part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework. Information contained here relates to the 7000 T1 shelf configuration support only. The System Shelf configuration application configures the T1 time slots allocation, defines circuit names, and sets administrative status for the 7001, 7616, and 7626 units.

Communications for the 7000 T1 Shelf Configuration

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, status, and other functions on the SCM, 7001, 7616, and 7626 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface for the 7000 T1 Shelf Configuration

The Graphical User Interface for the 7000 T1 Shelf Configuration consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- T1 Shelf Configuration Status
- T1 Shelf Timing
- T1 Highway Assignment
- 7616 Time Slot Assignment
- 7626 Time Slot Assignment
- T1 Slot Service States
- T1 Time Slot Status

The following are GUI screens for the 7000 T1 Shelf Configuration which are integrated into HP OpenView. The application windows presented deal specifically with 7001, 7626, and 7616 products. The Graphical Shelf and SCM applications are handled as core functionality across the SpectraComm products and are not presented in this specification.

7000 T1 System Configuration Status Application

This application is started from the Team Universe submap by selecting the desired shelf icon and then selecting Configuration->7000 T1 Shelf Configuration. Shelf configuration consists of assigning backplane highway(s) to a unit, mapping the time slots of the highways to the T1, and setting Reference Timing and System Timing. The channels of the 7616 can be assigned to time slots of any two of the four highways. The six loops of the 7626 can be assigned to time slots of any of the 8 highways. A 7001 can be assigned to only one highway of highways 1 to 4. The main menu bar has File, Navigate, and Help selections. Each of these are described below (Figure 3-1).

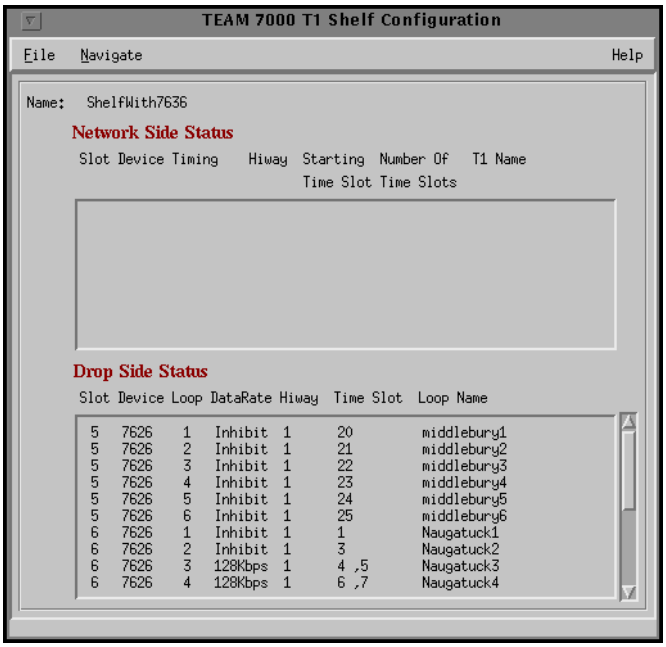

Figure 3-1 TEAM 7000 T1 Shelf Configuration Status Screen

Table 3-1 File Menu, 7000 T1 Shelf Configuration

File Menu	
`File -> Refresh`	Read and update all data on all screens of this application.
`File -> Exit`	Causes the application to terminate, with outstanding edits discarded first.
NOTE: It is critical to this application to perform a `Refresh` if any 7001, 7626, or 7616 Unit Configuration is changed in this shelf. `Refresh` provides current configuration information of the shelf units to the 7000 T1 Shelf Configuration application for proper updating. Otherwise, misleading information could be viewed and misinterpreted.	

Table 3-2 Navigate Menu, 7000 T1 Shelf Configuration

Navigate Menu	
`Navigate -> T1 Shelf Timing`	Displays the primary and secondary units responsible for system timing.
`Navigate -> T1 Highway Assignment`	Displays the T1 highway assignments.
`Navigate -> 7616 Time Slot Assignment`	Displays the 7616 time slot assignments.
`Navigate -> 7626 Time Slot Assignment`	Displays the 7626 time slot assignments.
`Navigate -> T1 Slot Service States`	Displays the operational status of T1 7000 card types in the shelf.
`Navigate -> T1 Time Slot Status`	Displays the T1 time slot status.
`Navigate -> All`	Displays all of the above screens

Table 3-3 Help, 7000 T1 Shelf Configuration

`Help`	Causes help to be displayed.

Table 3-4 Display Fields, 7000 T1 Shelf Configuration

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name
`Network Side Status`	Displays the system configuration of the network side of the 7001s in the shelf.
• `Slot`	Unit Shelf slot number - `1` to `32`
• `Device`	Device type 7001
• `Timing`	System or reference timing - primary, secondary, or none
• `Hiway`	Backplane data highway - 1 to 4, or not assigned
• `Starting Time Slot`	Starting time slot assigned on the highway. Value must be `1` to allocate the entire T1 bandwidth.
• `Number of Time Slots`	Number of time slots assigned on the highway. Value must be `24` to allocate the complete T1 bandwidth.
• `T1 Name`	T1 line name
`Drop Side Status`	Displays the system configuration of the 7616 and/or 7626 in the shelf.
• `Slot`	Unit Shelf slot number - `1` to `32`

Table 3-4 Display Fields, 7000 T1 Shelf Configuration (Continued)

• `Device`	Device type 7616 or 7626
• `Loop`	7616 - Loop and channel - Loops `1` to 3, each with Channels `A` or `B` 7626 - Loops `1` to 6
• `Data Rate`	Data rate assigned to this loop: `64 Kbps`, `128 Kbps` or `Inhibit`
• `Hiway`	7616 - Backplane data highway - 1 to 4, or not assigned 7626 - Backplane data highway - 1 to 8, or not assigned
• `Time Slot`	`1` to `24`
• `Loop Name`	Name of loop

Status message area of the window displays messages, describing application activity and unit interaction. Possible examples are: reading, writing, saving, etc.

Shelf Timing, 7000 T1 Shelf Configuration

This screen is shown when Navigate->T1 Shelf Timing is selected on the 7000 T1 Shelf Configuration main window. You can configure major options of the unit at this screen. (See Figure 3-2).

Figure 3-2 7000 T1 Shelf Timing Screen

This screen designates the unit and slot number in the shelf providing the user with System Timing and Reference Timing. The primary and secondary boxes list all the 7001s in the shelf, or says None if there are no 7001s in the shelf. The selected unit has its System Timing Generator (STG) and Reference Timing Generator enabled. You can select a unit as a primary or secondary timing source. All other units have their timing generators disabled. Note, however, that the unit you select as secondary STG activates automatically when the primary STG unit has failed. Selecting option None from the list for primary or secondary results in disabling the primary or secondary timing source.

Table 3-5 Fields for the TEAM 7000 T1 Shelf Timing Menu

Fields	
Name	Shelf Name (read-only)
Selections • Primary • Secondary	 Primary System Timing Generator Secondary System Timing Generator
Controls	
• OK • Save • Cancel	Retains the changes and closes the window. Saves changes to 7000 T1 unit types in the shelf. Cancels any changes made and restores options to previous selections.

7000 T1 Highway Assignment

This screen is shown when Navigate->T1 Highway Assignment is selected. Use the screen to select which highway a 7001 is assigned to, and then assign an arbitrary name to the T1 (See Figure 3-3).

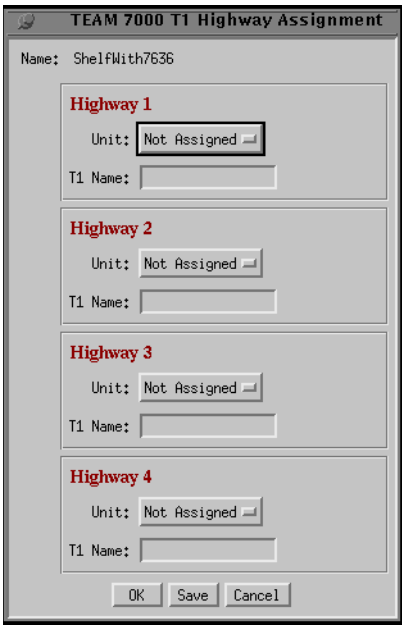

Figure 3-3 7000 T1 Highway Assignment Screen

Table 3-6 7000 T1 Highway Assignment Menu

Name	Shelf Name (read-only)
Selections	For Highways 1 to 4 for 7001
• Unit	Displays listing of all 7001 units in the shelf. Choose the 7001 you want assigned to a particular highway. The entire bandwidth of T1 is allocated. Not Assigned leaves the highway unassigned. Note: Drop-side devices (7626, 7616) should be placed Out of Service if their associated aggregate card (7001) is placed in Not Assigned highway condition. This prevents erroneous transmission of data into the network.
• T1 Name	User given name assigned to the T1 line.
Controls	
• OK	Retains changes and closes the window.
• Save	Saves changes to 7001 units in shelf.
• Cancel	Cancels your last changes and restores options to previous selections.

7616 Time Slot Assignment

This screen is shown when Navigate->7616 Time Slot Assignment is selected. The 7616 Time Slot Assignment screen assigns 7616 loops to time slots within highways. You can assign 7616 loops to two of the four highways. You can use the highway selection boxes to choose which highway to use. Highway choices are N/A (not assigned) and 1 - 4. For each loop, boxes select which time slot is used for the selected highway. Choices are N/A (not assigned) and 1 - 24 (See Figure 3-4).

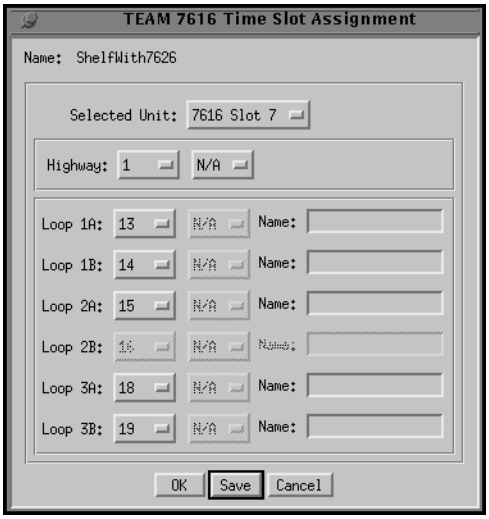

Figure 3-4 7616 Time Slot Assignment Screen

Table 3-7 7616 Time Slot Assignment Menu

Name	Shelf Name (read only)
Selections	For Highways 1 through 4
Selected Unit	Lists 7616s previously configured as drop side. If you choose a unit, it loads its current assignments to the screen.
Highway	Two of the four highways
1st Highway	Left column of controls. You select 1 through 4, or unassigned.
2nd Highway	Right column of controls. You select 1 through 4, or unassigned.
Loops 1A through 3B	Select time slot assigned to the loop on one highway, under left or right columns.
Note: If Channel A of a loop is configured for 128 kbps, then Channel B controls are grayed-out. Moreover, the range for time slot selection is limited to 24 for each channel and the same name is used for both Channels A and B. It is a mandatory rule that Channel B of a 128-kbps channel is a one-time slot greater than that of Channel A so that the channels are in a consecutive sequence. If both Channels A and B were previously operating at 64 kbps and not assigned to consecutive time slots, and if Channel A has been changed to 128 kbps (Channel B is grayed-out), then to allocate the required consecutive time slots, click on the Save button. Even though no changes were made on the screen, the application automatically assigns consecutive time slots to a 128-kbps Channel A.	
Name	An optional 16-character name can be assigned to each channel.
Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to the selected 7616 unit in the shelf. Note: If another 7616 unit in the shelf is selected before current edits are saved for the previous 7616, then all edits for the previous 7616 are lost.
Cancel	Cancels any changes made and restores options to previous selections.

7626 Time Slot Assignment

This screen is presented when Navigate->7626 Time Slot Assignment is selected. The screen assigns 7626 loops to time slots within highways. You can assign 7626 loops to any of the eight highways. You can use the highway selection box to choose your highway. Highway choices are N/A (not assigned), or 1 - 8. For each loop, a time slot selection box selects a time slot for a specific highway. Options are N/A (not assigned), or 1 - 24. If a loop is configured for 128Kbps, then consecutive pairs of time slots are shown as options (See *Figure 3-5*).

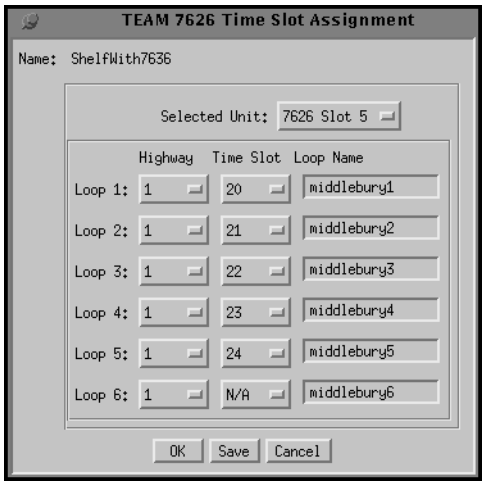

Figure 3-5 7626 Time Slot Assignment Screen

Table 3-8 7626 Time Slot Assignment Menu

Name	Shelf Name (read-only)
Selections Selected Unit Highway Time Slot Loop (six loops) and Loop Name	For Highways 1 through 8 Lists 7626 cards in the shelf. If you choose a unit, it loads its current assignments to the screen. One of the eight highways, 1- 8, N/A for Not Assigned **Note: Highway Selections 5 to 8 for the 7626 are provided for future enhancements.** Time Slots 1 - 24 and N/A for Not Assigned. Selects time slot assigned to the loop on one highway. If a loop is 64Kbps, then one time slot is allocated; for a 128Kbps loop, two consecutive time slots are allocated. An optional 16-character name can be assigned to each loop.
Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to the selected 7626 unit in the shelf. Note: If another 7626 unit in the shelf is selected before current edits are saved for the previous 7626, then all edits for the previous 7626 are lost.
Cancel	Cancels any changes made and restores options to previous selections.

T1 Slot Service States

This screen is presented when `Navigate->T1 Slot Service States` is selected. The screen sets the 7001, 7626, or 7616 into or out of service. You can use the `Select Unit` selection box to choose the device in a particular slot and select `Up` for in service or `Down` for out of service (See Figure 3-6).

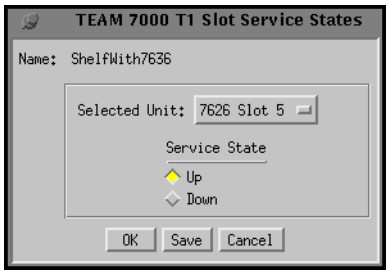

Figure 3-6 Slot Service States Screen

Table 3-9 Slot Service States Description

`Name`	Shelf Name (read-only)

`Selections`
`Selected Unit`
 	
`Service Status`
	
	Lists 7001, 7616, and 7626 cards in the shelf. If you choose a unit, it loads its current assignments to the screen.
	Up - in service, Down - out of service

Controls	
`OK`	Retains the changes and closes the window.
`Save`	Saves changes to the selected unit in the shelf. Note: If another unit in the shelf is selected before current edits are saved for the previous unit, then all edits for the previous unit are lost.
`Cancel`	Cancels any changes made and restores options to previous selections.

7000 T1 Time Slot Status

This is a read-only screen that shows the source of each T1 Time slot of the assigned highway. This screen is selected when you choose `Navigate->T1 Time Slot Status` (See Figure 3-7).

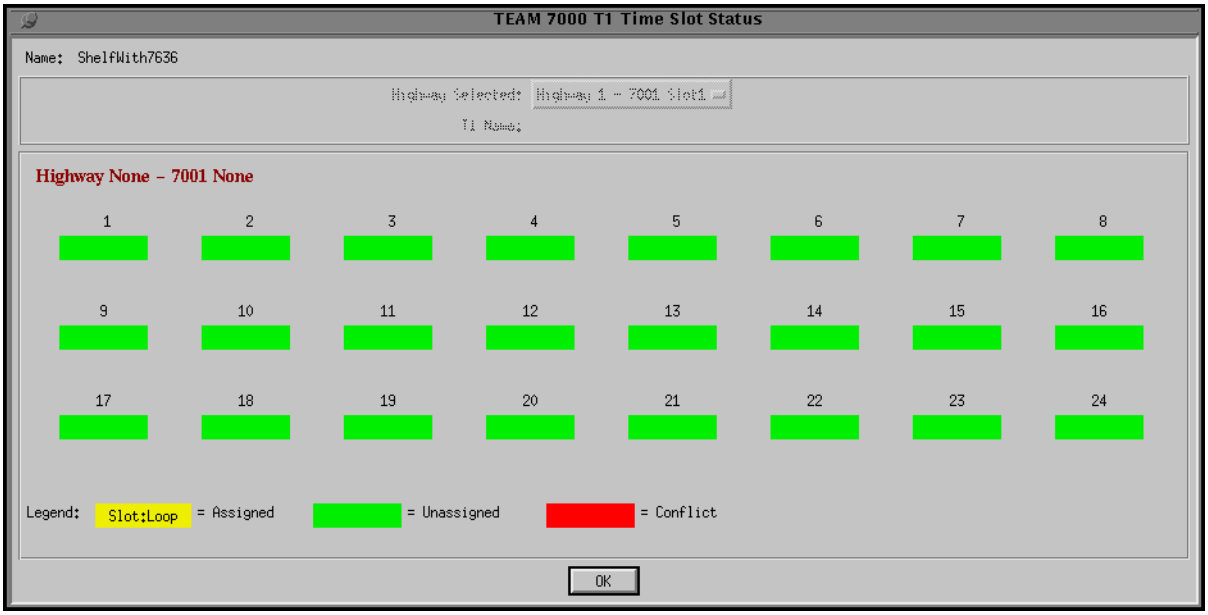

Figure 3-7 7000 T1 Time Slot Status Screen

When 7616 or 7626 is your source, the shelf slot number for the unit and its loop number are shown in the designated time slot with the optional loop name displayed, highlighted in yellow. For a time slot assignment overlap, where the last unit in the shelf conflicts with a specific time slot, it is highlighted in red. Green color means unassigned time slot.

Table 3-10 7000 T1 Time Slot Status Information

`Name`	Shelf Name

`Selections`
 	
`Highway Selected`
	Selects the list of 7001 units in the shelf assigned to Highways 1 to 4. The choices include highway numbers in addition to the 7001 slot number.

`T1 Name`	Name assigned by the user to the T1 line
`Color Codes`	`Green` - unassigned time slot `Yellow` - Time slot assigned to a 7626 or 7616 `Red` - Time slot conflict or overlap
Controls	
`OK`	Closes the window.

Chapter 4: Team 7002

7002 Overview

This chapter covers the HPOV SNMP Network Manager for the Universal Access System (UAS) 7002 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

Communications for the 7002

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7002 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface for the 7002

The Graphical User Interface for the UAS 7002 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance
- Information

The following are GUI screens for the UAS 7002 which are integrated into HP OpenView. The application windows presented deal specifically with the 7002 family product. The Graphical Shelf and SCM applications are handled as TEAM CORE functionality across the SpectraComm products and are not presented in this manual.

Front Panel Application for the 7002

The front panel status application gives you an image (See Figure 4-1) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by selecting a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product.

Figure 4-1 7002 Front Panel Status Screen

The GDC icon executes an information screen about the application. Table 4-1 defines illuminated LEDs for the 7002 Front Panel.

Table 4-1 7002 Front Panel LEDs

LED Displayed	LED Function
INS	Indicates unit is in-service.
ON	Indicates power is on.
TMG	Indicates unit is sourcing the system 4-MHz back-plane timing and 8-KHz reference back-plane timing.
RSP	Indicates transmission of the back-plane NMS command response.
LCV	Indicates Line Code Violation.

Table 4-1 7002 Front Panel LEDs (Continued)

AIS	Indicates receiving Alarm Indication Sequence.
OOF	Indicates loss of selected E1 framing.
LOS	Indicates loss of E1 signal.
TM	Indicates unit is running a diagnostic.
ALM	The alarm LED by its color indicates that it has detected an alarm condition. The color of the alarm LED is the same color as that of the shelf slot icon. For no alarm the color is always green.

Select buttons for the 7002 front panel are identified in Table 4-2.

Table 4-2 7002 Front Panel Selections

Button	Button Function
Help	Opens Team 7000 manual.
Select	Contains a menu with selections for:
• Performance	Alarms, Reports
• Configuration	Configuration, Maintenance
• Fault	Diagnostics
• Misc	Information
• Demand Poll	Polling of status to update the front panel
• Auto Poll	Periodic polling of status to update the front panel at 15, 30, 60-second rates, or Disable. Each time the front panel display is opened, its initial polling rate is determined by the front panel Poll Rate selection of the HPOV map window Misc menu.
• Exit	Closing the front panel application

Status Message Area for the 7002

The status message area displays messages which describe application activity and unit interaction. Examples are: time, not responding, etc.

Shelf Configuration for the 7002

Refer to the *7000 E1 Shelf Configuration* Chapter for a description. This application selects time slot allocation and defines circuit names for the 7002, 7022, 7616, and 7626 series units. You begin this application from the Shelf Universe submap by first choosing the desired shelf icon, then choosing Configuration->7000 E1 Shelf Configuration.

Configuration for the 7002

The Graphical User Interface for the Configuration Application incorporates features for optioning the 7002 product. With the Configuration Application, you have access to unit level parameters via the SNMP queries when Windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit. The configuration application has templates for copying the same configurations to other units. Configuration templates are stored permanently and are easily accessed.

The 7002 Configuration is launched from the HPOV Shelf Map by first selecting a particular shelf slot, then choosing `Configuration->Configure` from the Menu bar or from the Front Panel application `Select` button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7002 Configuration (main widow), Unit Configuration Options, Alarms Reported, Local Alarms, and All Screens.

Configuration - Main Window for the 7002

The main window is comprised of four areas. The title bar provides the product name and configuration type. The name field contains the shelf name, slot number and symbol label. The menu bar provides file operations, navigation through subordinate screens and help. The main body of the window is composed of administrative read-only fields. The status message area at the bottom of the screen provides insight into the state of the application (See Figure 4-2).

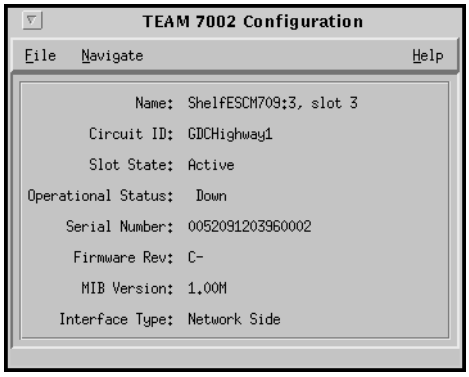

Figure 4-2 Configuration - Main Window Screen (7002)

Table 4-3 File Menu for the 7002

File Menu	
`File -> Refresh`	Causes all options to be read from the unit; outstanding edits are lost.
`File -> Save to Unit`	Causes all outstanding edits to be sent to the unit and saved.
`File -> Load Template`	Allows the selection of an existing 7002 template to be applied as edits to the current application. (A subsequent `File ->Save to Unit` operation implements the template changes.)

Table 4-3 File Menu for the 7002 (Continued)

`File -> Save to Template`	Causes the configuration data of a unit to be saved as a specific template.
`File -> Compare to Template`	Causes the template file data to be compared to the configuration screen data and differences identified.
`File -> Exit`	Causes the application to terminate; outstanding edits are discarded.

Table 4-4 Navigate Menu for the 7002

Navigate Menu	
`Navigate -> Unit Configuration Options`	Displays the Options window.
`Navigate -> Alarms Reported`	Displays the `Alarms Reported/Thresholds` window.
`Navigate -> Local Alarms`	Displays the configuration Options for the alarm card window.
`Navigate -> All Screens`	Reads and displays all configuration screens.

Table 4-5 Help for the 7002

`Help`	Opens Team 7000 manual.

Table 4-6 Display Fields for the 7002

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name, slot, symbol label of the selected slot symbol from the shelf map.
`Circuit ID`	Optional name identifying the E1 circuit this unit is connected to.
`Slot State`	State of the shelf slot: active or inactive.
`Operational Status`	State of the current unit: up or down.
`Serial Number`	Unit serial number
`Firmware Revision`	Unit firmware version
`MIB Version`	Unit Management Information Base (MIB) version
`Interface Type`	Network

Status message area of the window displays messages, describing application activity and unit interaction. Possible examples are: writing, saving to template, etc.

Operational Status of the 7002

The operational status displays a card in a shelf slot as `in or out` of service (up or down). To set the operational status of a card:

1. Start at the `TEAM Universe` submap and select the desired shelf icon by clicking once with the mouse.
2. Then, select `Configuration->7000 E1 Shelf Configuration`.
3. From the `7000 E1 Shelf Configuration` screen, select `Navigate->E1 Slot Service States` to display the `E1 Slot Service States` screen.
4. At the `Select Unit` selection, choose your 7002, 7022, 7626, or 7616 card slot to be put into or out of service.

Once your card slot is selected, the controls on the screen display the slot up or down status.

5. Select the service state of your choice.
6. To save your selected status, select the `Save` button.

Unit Configuration Options for the 7002

This screen is shown when `Navigate->Unit Configuration Options` is selected on the 7002 Configuration main window. You can configure major options of the unit at this screen (See Figure 4-3).

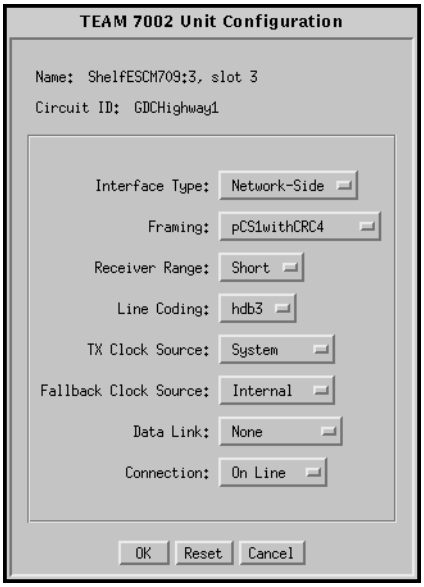

Figure 4-3 Unit Configuration Options Window Screen (7002)

Name and Circuit ID are read-only field.

Table 4-7 Configuration Options (7002)

Unit Options	
`Interface Type`	Network-side: Unit is connected to the E1. **Not Assigned**.

Table 4-7 Configuration Options (7002) (Continued)

`Framing`	**PCS1 with CRC4 - per Channel Signalling Phase 1 with CRC4** PCS0 with CRC4 - per Channel Signalling Phase 0 with CRC4 CCS with CRC4 - Common Channel Signalling with CRC4 PCS1 without CRC4 - per Channel Signalling Phase 1 without CRC4 PCS0 without CRC4 - per Channel Signalling Phase 0. without CRC4 CCS without CRC4 - Common Channel Signalling without CRC4
`Receiver Range`	Short
`Line Coding`	HDB3
`TX Clock Source`	**System** - timing is derived from an element in the shelf. Recovered (slave) - recovered (slave) timing from the Network E1 Internal clock source
`Fallback Clock Src`	System - timing is derived from an element in the shelf Recovered (slave) - recovered (slave) timing from the Network E1 **Internal** clock source
`Data Link`	None
`Connection` (network)	On-Line
Action Buttons	
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
Note: Defaults are in bold.	

Alarms Reported for the 7002

The screen is shown when `Navigate->Alarms Reported` is selected on the 7002 Configuration main window (See Figure 4-4). This screen permits you to configure Alarm reporting with thresholds. You can report or not report any individual alarm by selecting the alarm. A selected alarm means that the alarm is reported in an SNMP Trap from the SCM to the Controller. Name and Circuit ID are read-only.

Figure 4-4 Alarms Reported Screen (7002)

Note: Default is `Report None`.

Table 4-8 7002 Alarms

Declared Alarms	
`Signal Loss`	Loss of E1 signal
`Frame Loss`	Loss of selected E1 framing
`Timing Loss`	Loss of timing source
`Alarm Indication Signal`	Alarm Indication Sequence received
`Remote Alarm Indication`	Remote Alarm Indication Sequence received
Performance Alarms - Near End (NE) and Far End (FE)	
ES	Errored Seconds
BBE	Background Block Error
SES	Severely Errored Seconds
UAS	Unavailable Seconds

Table 4-8 7002 Alarms (Continued)

LCV	Line Code Violation (for Near End only)
Window	Data collection time period choices are 1 sec., 10 sec., 30 sec., 1 min., 15 min., 1 Hr., and 24 Hr., Infinite, or Disable.
Threshold	Choices are 1 occurrence, 3 occurrences, 10 occurrences, 100 occurrences, 1,000 occurrences, 10,000 occurrences within the window time frame.
Action Buttons	
Report All	Selects all alarms for reporting.
Report None	Deselects all alarms, no alarms reported.
OK	Holds edits and dismisses the screen.
Reset	Undoes pending edits since last File->Save to Unit operation.
Cancel	Same as Reset and dismisses the screen.

7002 Local Alarm Configuration

This screen is shown when Navigate->Local Alarms is selected. The Local alarm configuration screen is used to Mask or set the severity of given alarms that can trigger the Local Alarm Card for alarm display on a light panel. Local alarms do not create SNMP traps. These settings are stored within the 7002. For all alarms, the choices are Disabled, Enable Major, and Enable Minor. The Name and Circuit ID fields are read-only. On this screen, all configurable alarm types as described above are found (See Figure 4-5).

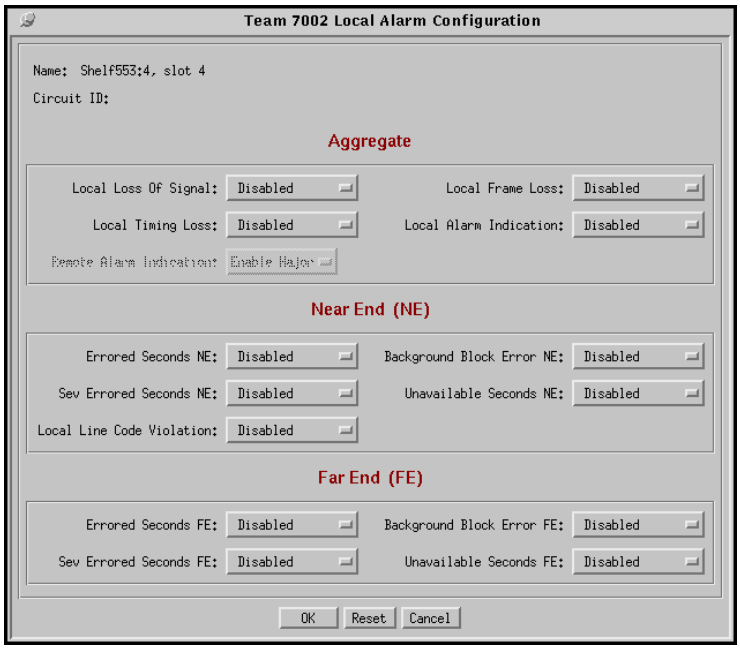

Figure 4-5 Local Alarm Configuration Screen (7002)

Note: Default is All Disabled.

Template Support for the 7002

Device configurations are saved in a file and are known as templates, which can be applied similarly to configure other units. You can `Save`, `Load`, or `Compare` templates by accessing the File menu; and when you invoke one of these three operations, you see a dialog window where you are asked to specify the template file name.

Alarm Detail for the 7002

7002 Alarm Detail is launched from the HPOV Shelf Map `Performance->Alarms` or from the Front Panel menu. The alarms are depicted on the screen, as shown in Figure 4-6. When the alarm is off, the color you see is dark green; when on, color designations are orange for major, yellow for minor, or blue for warning alarm.

Note *Refer to the TEAMCORE manual for alarm severity applications.*

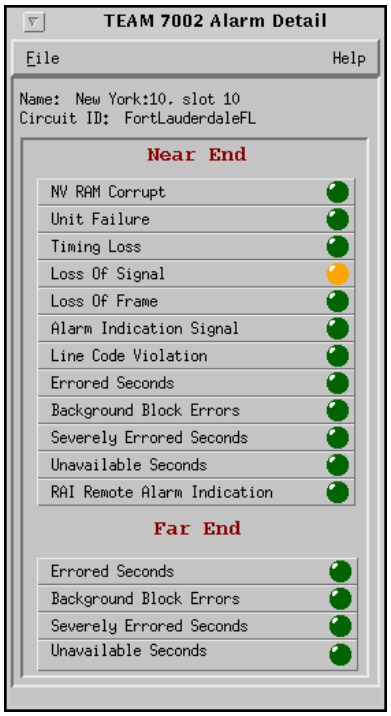

Figure 4-6 7002 Alarm Detail Screen

Error Reports for the 7002

The error reports application is used to display statistics accumulated by the 7002 unit. Some features of the reporting function are:

- Background color (bisque) for graphs to emphasize graphical data
- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking

- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 4 hours worth of data
- Periodic polling for data

You can launch the 7002 reports function from the HPOV Shelf Map with `Performance->Reports` or from the Front Panel display `Select` button menu. When you launch the reports application, it initially displays an error reports summary window or main reports screen (See Figure 4-7) giving you the statistics for all error conditions tracked by this application.

Note *No data is collected from the unit until* `File-->Refresh` *is selected or the interface is changed.*

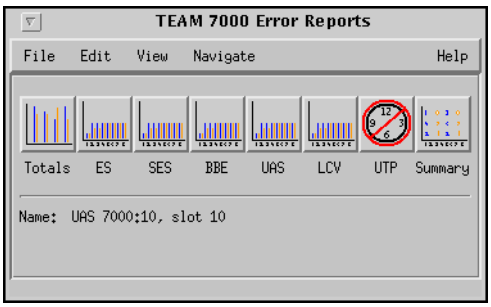

Figure 4-7 Error Reports Window

Two kinds of reports are included: `TOTALS` and `SUMMARY`. Each category is identified:

Error Reports (Current and recent 24-hour totals)

(`ES`) Errored Seconds (Graph)...

(`SES`) Severely Errored Seconds (Graph)...

(`BBE`) Background Block Errors (Graph)...

(`UAS`) Unavailable Seconds (Graph)...

(`LCV`) Line Code Violation (Graph)...

(`UTP`) Unavailable Time Periods (Text)...

Errors Summary (All the above statistical data in text format)...

The menu cells on the `TEAM 7002 Error Reports` screen are `File`, `Edit`, `View`, and `Navigate`. `Help` displays help information.

Note *No data is collected from the unit until* `File->Refresh` *is selected or the interface is changed.*

File

The menu item `File->Refresh` is an on-demand update of the data. `File->Auto Refresh` has menu items to periodically poll the unit for data and update the screens. `File->Auto Refresh->Off` disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item `File->Auto Refresh`. `File->Save Error Data to File...` saves the data to a file from the last poll. The data saved in the file is in text format. The `File->Exit` menu item closes all windows and terminates the application.

Edit

The `Edit->Reset Statistics` menu item sends an SNMP set to clear Near End and Far End statistics in the unit and to clear data presented on the screen as well.

View

The `View->Legend` displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms ES, SES, and the other error categories.

Navigate

The `Navigate` menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the network side reports: `24 Hour Error Totals...`,`Errored Seconds...`,`Severely Errored Seconds...`,`Background Block Errors...`,`Unavailable Seconds...`,`Line Code Violations`, `Unavailable Time Periods`, `Errors Summary...`, and `All Screens...`.

Thus, the `Navigate` menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition. Each error report window can also be accessed by clicking on its icon on the main window.

Help

Displays the on-line manual.

Error Totals

Error reports for the 7002 product are given as data collection in periods of real time. X-axis buttons of the graph represent data from error categories spread over four hours in 15-minute intervals; this is the same as using the `Navigate` menu for each error category. Time data presented in the `Collection Period` area uses a mechanism, statistics-last-initialized, to extract relative time and to convert it to real time.

Auto Ranging

This feature dynamically changes the Y-Axis scale, depending on the maximum value of any of the error categories data on the X-Axis. If the value for an error category (or interval) is `100`, then the Y-Axis maximum value is `100`. When the X-Axis value for an error category changes to `500` the Y-Axis maximum changes to `500`. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Network

The statistics displayed for the TEAM 7002 Network interface (See Figure 4-8) in the Error Reports window covers the current 24 hours of operation. The vertical axis shows the number of errored seconds for the Network categories ES (Errored Seconds), SES (Severely Errored Seconds), BBE (Background Block Errors), and UAS (Unavailable Seconds). The graph on the right has a vertical axis which is the number of counts for LCV (Line Code Violations). The Totals box shows the totals of each category collected so far for the current 24 hour period. The Collection Period box indicates the portion of the current 24 hour period collected so far. The real time range collected is shown. For the `Recent` 24 hours, the time range is always 24 hours.

Also the Errors Summary button in the upper right hand corner is equivalent to launching the `Navigate->Errors Summary` menu item which shows a textual summary of the valid intervals collected for all categories.

Figure 4-8 Error Totals

Errored Seconds (ES)

An errored second (ES) is defined as a second with at least one CRC error event. The Near End or Far End Errored Seconds occurs when the LTU detects at least one LCV or CRC error event in the signal it is receiving.

Figure 4-9 shows the basic screen for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the Y-Axis scale dynamically changes, depending on the maximum value of the valid intervals displayed. The X-Axis option button on the upper right hand corner allows the user to view the X-Axis as a time scale or interval scale, or both. If data has been collected for less than 4 hours, the time/intervals on the X-Axis of the graph are not displayed for the unavailable periods. You have 17 vertical pairs (near end, far end) of bar graphs of intervals (current, plus up to 16 accumulated). This screen graphically shows the number of errored seconds that have taken place in the last four hours. Near End and Far End graph bars are displayed in separate colors.

The vertical axis of the bar graph displays error seconds for 15-minute time periods. By accessing the `Time` button (upper right-had corner), you have a choice of time intervals for the X-axis. If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the `Close` button to dismiss the window.

All Other Network Error Categories

All other error categories with the exception of Unavailable Time Periods, have similar screens and explanations as the `Errored Seconds`.

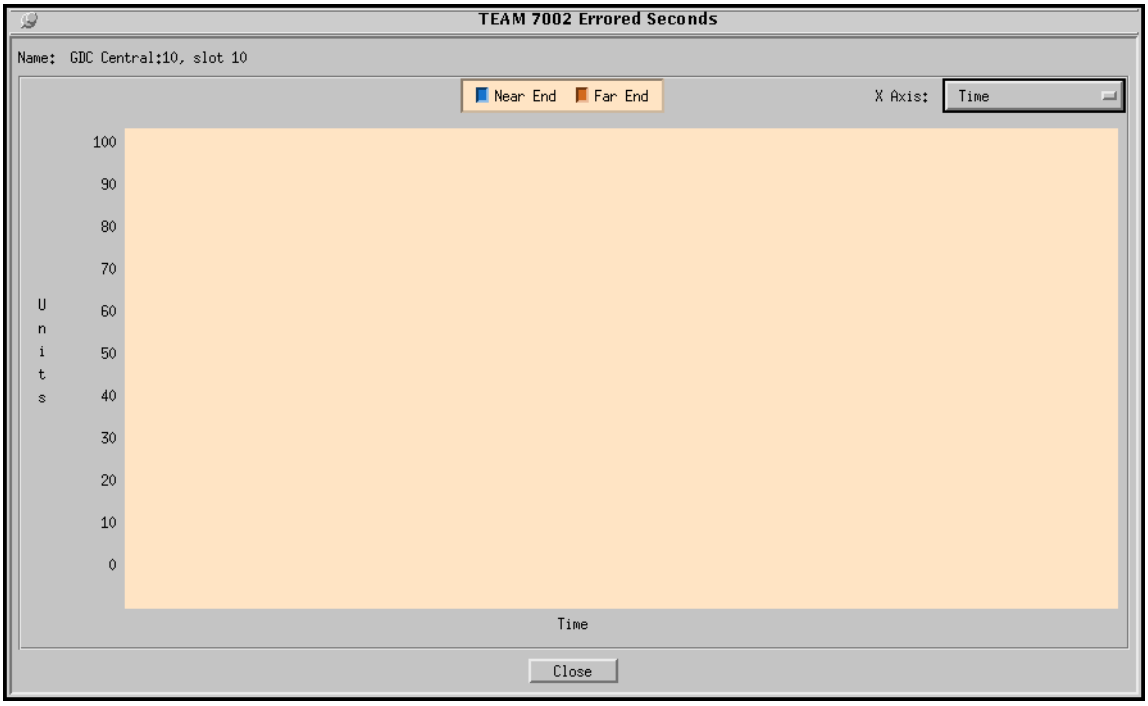

Figure 4-9 Errored Seconds (ES) Window

Severely Errored Seconds (SES)

A `Severely Errored Second` (SES) is defined as a one-second period having greater than or equal to 30% of errored blocks.

The Near End Severely Errored Seconds occurs (for greater than or equal to 300 errored blocks) when the local LTU detects 300 or more CRC error events in the signal it is receiving. For the Far End severely errored seconds take place when the remote unit detects the same threshold of errors.

Background Block Errors (BBE)

Since an errored block is a block having one or more bits which are in error, we define a `Background Block Error` (BBE) as an errored block not occurring as part of an SES (Severely Errored Second) event.

The Near End or Far End Background Block Errors occur when there is an errored block not occurring as part of an SES (Severely Errored Second) event in the near end or far end. The vertical axis of this graph is in units.

Unavailable Seconds (UAS)

`Unavailable Seconds` is the period of the Unavailable Seconds Signal (UAS) State. UAS state is declared after the detection of 10 consecutive `Severely Errored Seconds` (SES), and is cleared after a 10-second period with no SES. Severely errored seconds are CRC errors greater than or equal to 300 errors per second.

Line Code Violation (LCV)

`Line Code Violation` (LCV) event for a HDB3 coded signal is the occurrence of a received bipolar violation that is not part of a zero-substitution code. This pertains to the Near End only. The vertical axis of this graph is in units.

Unavailable Time Periods (UTP)

The Unavailable Time Periods (UTP) display screen (Figure 4-10) lists the last six periods or occurrences of unavailable time during which UAS have occurred for the Near End and the Far End of the TEAM 7022. Each time period is specified by its `Start` time, `End` time, and `Duration`.

To set the correct time on the unit for the starting and ending times, single-click on the desired shelf from the Team Universe screen, then select from the menu bar `Fault-->Set Time` on Shelf.

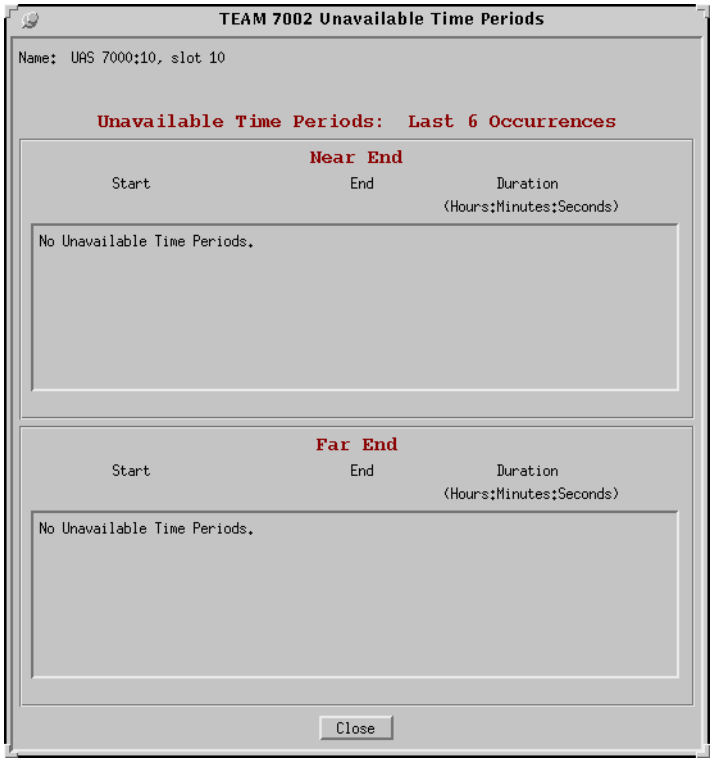

Figure 4-10 Unavailable Time Periods (UTP) Window

Errors Summary

This screen tabulates data on the error events that have occurred for each error category. The `File-->Save Error Data to File` option takes the data presented on this screen and saves it to the user's file. The Errors Summary (Figure 4-11) screen displays an array of error events (Y-axis) plotted over time (X-axis).

- Network Data

  If the collected network data covers less than four hours, the unrecorded time-intervals on the X-axis of the graph are not displayed. The current 24-hour totals at the bottom of the screen shows the total of each of the categories for the current 24 hour period. The Collection Period Represented box shows the time-range and length of time of the current 24 hours.

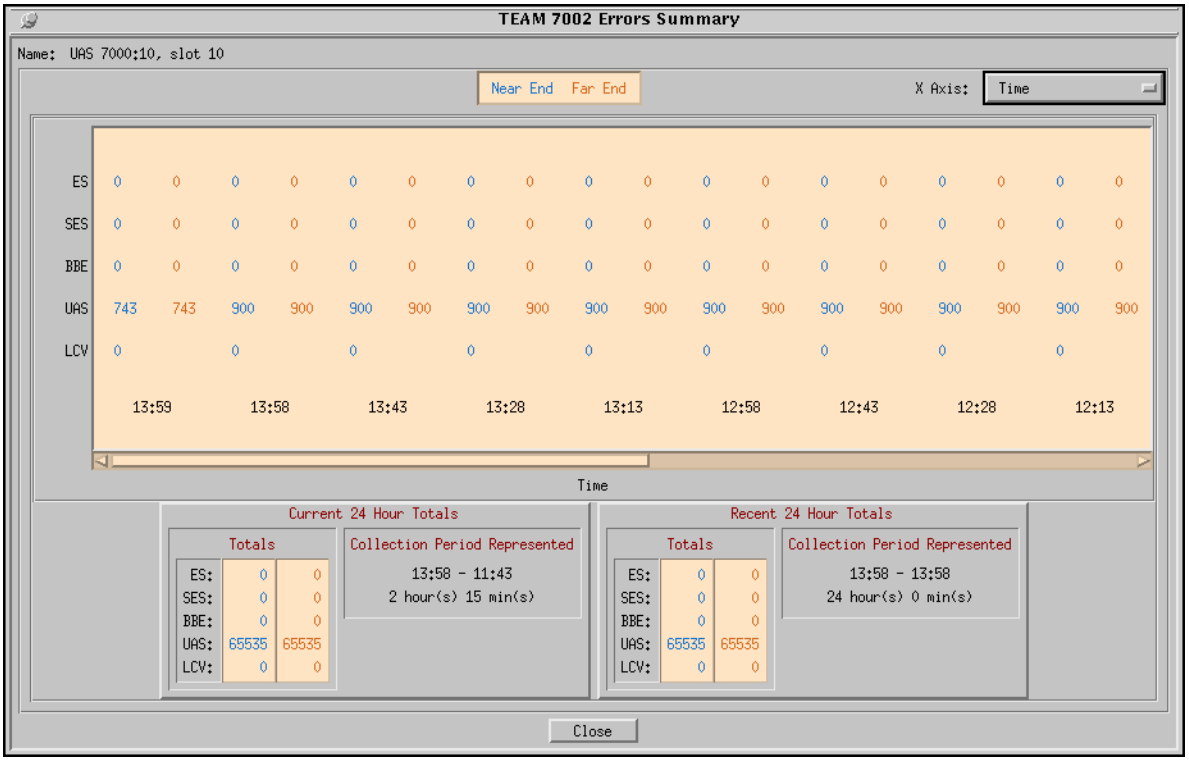

Figure 4-11 Error Summary Window

Diagnostics

The Diagnostic application is used to perform tests to isolate a data communication problem to the Network element or line. 7002 Diagnostic Test is launched from the HPOV Shelf Map `Fault Menu` or from the Front Panel menu (See *Figure 4-12*). The application is comprised of one main window in five sections or parts, which are as follows:

- Section 1 is the name of the unit.
- Section 2 has the tests, test timeout periods and test control buttons.
- Section 3 has the test graphics.
- Section 4 has circuit ID, test status, and time remaining in test.

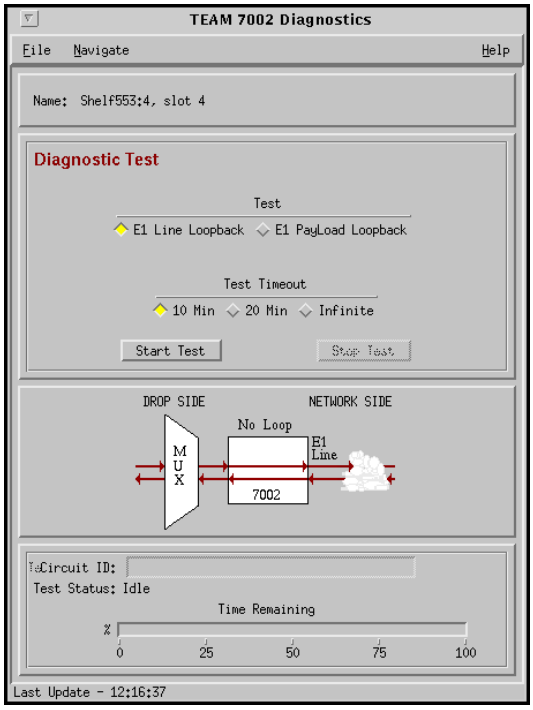

Figure 4-12 Diagnostic Test Screen for 7002

Table 4-9 Diagnostics Screen Table for the 7002

	Description
Navigate	Diagnostics History
Name	Name of unit
Diagnostic Test	
E1 Line Loopback	Loops the Telco transmit and receive paths back towards the E1 network.
E1 Payload Loopback	Loops the recovered E1 receive and transmit paths back towards the E1 network.
Test Timeout Periods	Maximum length of time the test runs. The choices are 10 minutes or 20 minutes, or infinite.
Buttons	
Start/Stop Test	Starts or stops the selected test.
Graphics	Displayed graphics depend on unit configuration. Loops are shown where appropriate.
Results	

Table 4-9 Diagnostics Screen Table for the 7002 (Continued)

Circuit ID	Circuit ID -- read only
Test Status	Displays status of the diagnostic test: Idle E1 line loopback E1 payload loopback
Time Remaining	Displays in meter format the time remaining in test.

Diagnostics History

The Diagnostics History application is used to log test information after the test is finished. 7002 Diagnostics History is launched from the `Navigate->History` menu. This screen is read-only (See Figure 4-13). If the diagnostic screen is closed, the diagnostic history is cleared.

Table 4-10 Diagnostics History for 7002

Diagnostics History	
`Start Time`	Date and time when test started
`Test`	Name of the test
`Test Time`	Duration of the test in hours:minutes:seconds format
`Test Results`	`OK` for a test that ran successfully
Button Controls	
`OK`	Dismisses the screen.

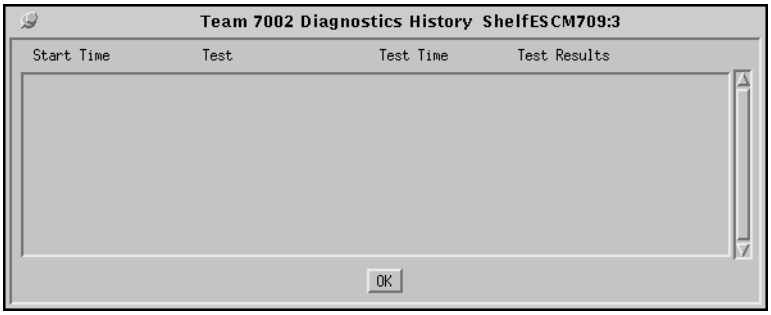

Figure 4-13 7002 Diagnostics History Screen

Maintenance

The Maintenance application displays and modifies 7002 attributes which are device specific and cannot be set as configuration options. 7002 Maintenance is activated from the HPOV Map `Configuration->Maintenance Menu` or from the Front Panel menu. There is one main window for this application (See Figure 4-14).

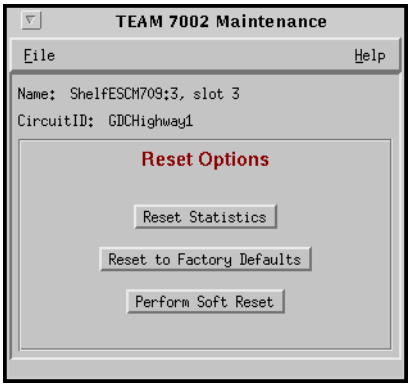

Figure 4-14 Maintenance Screen for the 7002

Window controls and their functions are as follows (Name and Circuit ID are read-only):

Table 4-11 Maintenance Menu for the 7002

Button	Description
`Reset Statistics`	Resets all 7002 loop statistics to zero. Resets near end and far end statistics.
`Reset to Factory Defaults`	Initiates a 7002 reset to default configuration parameters.
`Perform Soft Reset`	Initiates a 7002 board reset. Note: After performing the unit reset, set the correct time on the unit for the starting and ending times by single-clicking on the desired shelf from the Team Universe screen and then, selecting from the menu bar, the `Fault-->Set Time` on Shelf.

Information on the 7002

The Information screen shows you the current revision level and copyright notice of the current application. 7002 Information is launched from the HPOV `HPOV Shelf Map Misc->Information` Menu or from the Front Panel menu; or you can double click on the GDC Logo on the front panel. One window makes up the application and it is read-only.

Chapter 5: Team 7022

7022 Overview

This chapter covers the HPOV SNMP Manager Network for the Universal Access System (UAS) 7022 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

Communications for the 7022

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7022 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface for the 7022

The Graphical User Interface for the UAS 7022 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance
- Information

The following are GUI screens for the UAS 7022 which are integrated into HP OpenView. The application windows presented deal specifically with the 7022 family product. The Graphical Shelf and SCM applications are handled as TEAM CORE functionality across the SpectraComm products and are not presented in this manual.

Front Panel Application for the 7022

The front panel status application gives you an image (See Figure 5-1) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by selecting a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This

application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product. The GDC icon executes an information screen about the application. Figure 5-1 defines illuminated LEDs for the 7022 Front Panel.

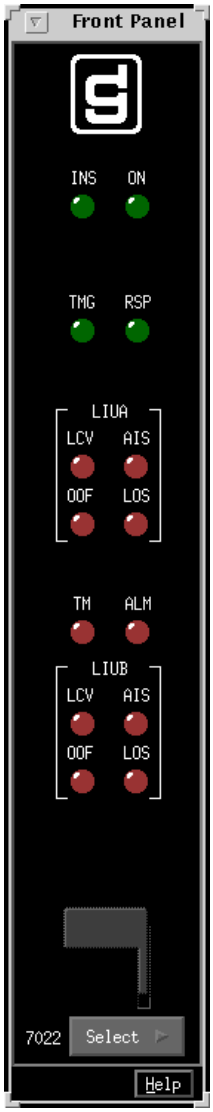

Figure 5-1 7022 Front Panel Status Screen

The GDC icon executes an information screen about the application. Table 5-1 defines illuminated LEDs for the 7022 Front Panel.

Table 5-1 7022 Front Panel LEDs

LED Displayed	LED Function
INS	Indicates unit is in-service.
ON	Indicates power is on.
TMG	Indicates unit is sourcing the system 4-MHz back-plane timing and 8-KHz reference back-plane timing.
RSP	Indicates transmission of the back-plane NMS command response.
LCV (LIU A and B)	Indicates Line Code Violation.
AIS (LIU A and B)	Indicates receiving Alarm Indication Sequence.
OOF (LIU A and B)	Indicates loss of selected E1 framing.
LOS (LIU A and B)	Indicates loss of E1 signal.
TM	Indicates unit is running a diagnostic.
ALM	The alarm LED by its color indicates that it has detected an alarm condition. The color of the alarm LED is the same color as that of the shelf slot icon. For no alarm the color is always green.

Select buttons for the 7022 front panel are identified in Table 5-2.

Table 5-2 7022 Front Panel Selections

Button	Button Function
Help	Selects Front panel descriptions
Select	Contains a menu with selections for:
• Performance	Alarms, Reports
• Configuration	Configuration, Maintenance
• Fault	Diagnostics
• Misc	Information
• Demand Poll	Polling of status to update the front panel
• Auto Poll	Periodic polling of status to update the front panel at 15, 30, 60-second rates, or Disable. Each time the front panel display is opened, its initial polling rate is determined by the front panel Poll Rate selection of the HPOV map window Misc menu.
• Exit	Closing the front panel application

Status Message Area for the 7022

The status message area at the bottom of the front panel displays messages which describe application activity and unit interaction. Examples are: time, not responding, etc.

Shelf Configuration for the 7022

Refer to *E1 Shelf Configuration Chapter in the TEAM 7626* screen specification for a description. This application selects data highway allocation and defines circuit names for the 7022 series units. You begin this application from the Shelf Universe submap by first choosing the desired shelf icon, then choosing `Configuration->E1 Shelf Configuration`.

Configuration for the 7022

The Graphical User Interface for the Configuration Application incorporates features for optioning the SNMP 7022 product. With the Configuration Application, you have access to unit level parameters via the SNMP queries when Windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit. The configuration application has templates for copying the same configurations to other units. Configuration templates are stored permanently and are easily accessed.

The 7022 Configuration is launched from the HPOV Shelf Map by first selecting a particular 7022 shelf slot, then choosing `Configuration->Configure` from the Menu bar or from the Front Panel application `Select` button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7022 Configuration (main widow), Unit Configuration Options, Alarms Reported, Local Alarms, and All Screens.

Configuration - Main Window for the 7022

The main window is comprised of four areas. The title bar provides the product name and configuration type. The name field contains the shelf name, slot number and symbol label. The menu bar provides file operations, navigation through subordinate screens and help. The main body of the window is composed of administrative read-only fields. The status message area at the bottom of the screen provides insight into the state of the application (See Figure 5-2).

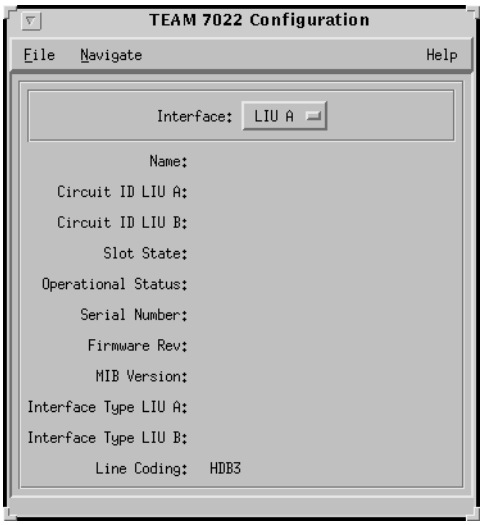

Figure 5-2 Configuration - Main Window Screen (7022)

Table 5-3 File Menu for the 7022

File Menu	
`File -> Refresh`	Causes all options to be read from the unit; outstanding edits are lost.
`File -> Save to Unit`	Causes all outstanding edits to be sent to the unit and saved.
`File -> Load Template`	Allows the selection of an existing 7022 template to be applied as edits to the current application. (A subsequent `File -> Save to Unit` operation implements the template changes.)
`File -> Save to Template`	Causes the configuration data of a unit to be saved as a specific template.
`File -> Compare to Template`	Causes the template file data to be compared to the configuration screen data and differences identified.
`File -> Exit`	Causes the application to terminate; outstanding edits are discarded.

Table 5-4 Navigate Menu for the 7022

Navigate Menu	
`Navigate -> LIU Configuration Options`	Displays the Options window.
`Navigate -> Alarms Reported`	Displays the `Alarms Reported/Thresholds` window.
`Navigate -> Local Alarms`	Displays the configuration Options for the alarm card window.
`Navigate -> All Screens`	Reads and displays all configuration screens.

Table 5-5 Help for the 7022

`Help`	Causes help to be displayed.

Table 5-6 Display Fields for the 7022

Fields (Note that all fields on this screen are read-only.)	
`Interface`	The Interface selector lets you choose an interface configuration option (LIU A or LIU B)
`Name`	Shelf name, slot, symbol label of the selected slot symbol from the shelf map.
`Circuit ID LIU A`	Optional name identifying the E1 circuit LIU A is connected to.
`Circuit ID LIU B`	Optional name identifying the E1 circuit LIU B is connected to.
`Slot State`	State of the shelf slot: active or inactive.

Table 5-6 Display Fields for the 7022 (Continued)

`Operational Status`	State of the current unit: up or down.
`Serial Number`	Unit serial number
`Firmware Revision`	Unit firmware version
`MIB Version`	Unit Management Information Base (MIB) version
`Interface Type LIU A`	Interface Type for LIU A
`Interface Type LIU B`	Interface Type for LIU B
`Line Coding`	HDB3 (Fixed)

Status message area of the window displays messages, describing application activity and unit interaction. Possible examples are: writing, saving to template, etc.

Operational Status of the 7022

The operational status displays a card in a shelf slot as `in or out` of service (up or down). To set the operational status of a card refer to *E1 Shelf Configuration Chapter for a description.* You begin this application from the Shelf Universe submap by first choosing the desired shelf icon, then choosing `Configuration->E1 Shelf Configuration`.

Unit Configuration Options for the 7022

This screen is shown when `Navigate->Unit Configuration Options` is selected on the 7022 Configuration main window. You can configure major options of the unit at this screen. (See Figure 5-3).

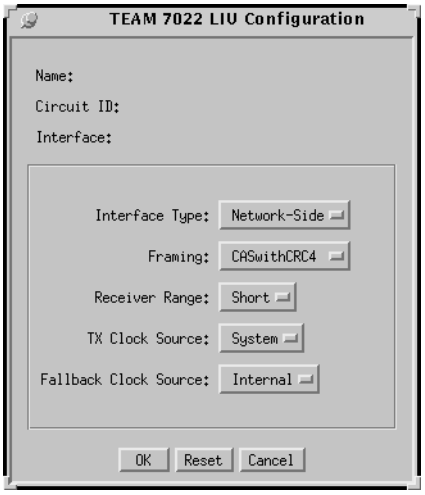

Figure 5-3 Unit Configuration Options Window Screen (7022)

Name, Circuit ID, and Interface are read-only fields. The Interface field displays if this screen represents LIU A or LIU B.

Table 5-7 Configuration Options (7022)

Unit Options	
`Interface Type`	Network-Side or **Not Assigned** (Not in Service)
`Framing`	**CAS with CRC4 - Channel Associated Signalling with CRC4** CAS without CRC4 - Channel Associated Signalling without CRC4 CCS with CRC4 - Common Channel Signalling with CRC4 CCS without CRC4 - Common Channel Signalling without CRC4
`Receiver Range`	**Short (6dB)** or Long (36 dB)
`TX Clock Source`	**System** - timing is derived from the backplane of the shelf. Recovered (slave) - timing from the Network E1 Internal - this unit is locally generating the clock source
`Fallback Clock Src`	System - timing is derived from the backplane of the shelf. Recovered (slave) - timing from the Network E1 **Internal** - this unit is locally generating the clock source
Action Buttons	
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
Note: Defaults are in bold.	

Alarms Reported for the 7022

The screen is shown when `Navigate->Alarms Reported` is selected on the 7022 Configuration main window (See Figure 5-4). This screen permits you to configure Alarm reporting with thresholds. You can report or not report any individual alarm by selecting the alarm. A selected alarm means that the alarm is reported in an SNMP Trap from the SCM to the Controller. Name, Circuit ID and Interface are read-only fields. The Interface field displays if this screen represents LIU A or LIU B.

Figure 5-4 Alarms Reported Screen (7022)

Note: Default is `Report None`.

Table 5-8 7022 Alarms

Declared Alarms	
`Signal Loss`	Loss of E1 signal
`Frame Loss`	Loss of selected E1 framing
`Timing Loss`	Loss of timing source
`Alarm Indication Signal`	Alarm Indication Sequence received
`Remote Alarm Indication`	Remote Alarm Indication Sequence received
Performance Alarms - Near End (NE) and Far End (FE)	
ES	Errored Seconds
BBE	Background Block Error
SES	Severely Errored Seconds

Table 5-8 7022 Alarms (Continued)

UAS	Unavailable Seconds
LCV	Line Code Violation (for Near End only)
Window	Data collection time period choices are 1 sec., 10 sec., 30 sec., 1 min., 15 min., 1 Hr., and 24 Hr., Infinite, or Disable.
Threshold	Choices are 1 occurrence, 3 occurrences, 10 occurrences, 100 occurrences, 1,000 occurrences, 10,000 occurrences within the window time frame.
Action Buttons	
Report All	Selects all alarms for reporting.
Report None	Deselects all alarms, no alarms reported.
OK	Holds edits and dismisses the screen.
Reset	Undoes pending edits since last File->Save to Unit operation.
Cancel	Same as Reset and dismisses the screen.

7022 Local Alarm Configuration

This screen is shown when Navigate->Local Alarms is selected. The Local alarm configuration screen is used to Mask or set the severity of given alarms that can trigger the Local Alarm Card for alarm display on a light panel. Local alarms do not create SNMP traps. These settings are stored within the 7022. For all alarms, the choices are Disabled, Enable Major, and Enable Minor. Name, Circuit ID, and Interface are read-only fields. The Interface field displays if this screen represents LIU A or LIU B (See Figure 5-5).

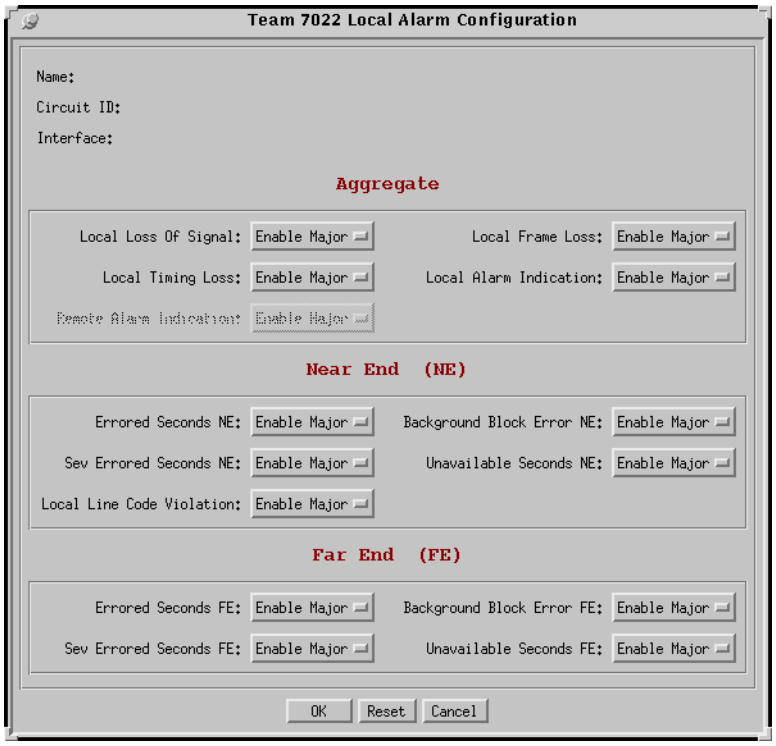

Figure 5-5 Local Alarm Configuration Screen (7022)

Note: Default is `All Disabled`.

Template Support for the 7022

Device configurations are saved in a file and are known as templates, which can be applied similarly to configure other units. You can `Save`, `Load`, or `Compare` templates by accessing the File menu; and when you invoke one of these three operations, you see a dialog window where you are asked to specify the template file name.

Alarm Detail for the 7022

7022 Alarm Detail is launched from the HPOV Shelf Map `Performance->Alarms` or from the Front Panel menu. The LIU A and LIU B alarms are depicted on the screen, as shown in Figure 5-6. When the alarm is off, the color you see is dark green; when on, you see orange for major, yellow for minor.

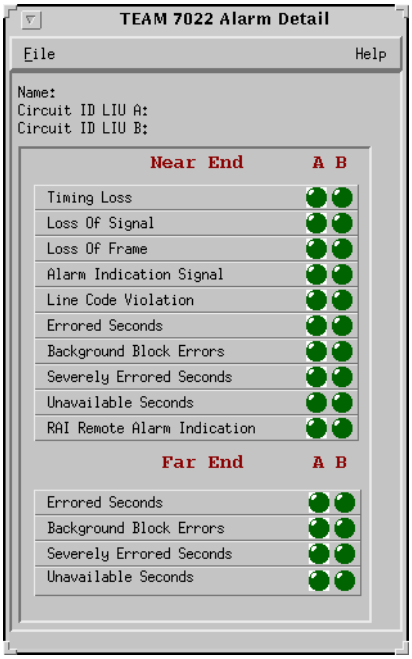

Figure 5-6 7022 Alarm Detail Screen

The severity of any alarm can be changed by the user via the Alarm Severity application which is accessed by `Misc->Alarm Severity`. Refer to the *TEAM CORE* manual for further information.

7022 Error Reports

The Error Reports (or just Reports) application is used to display statistics accumulated by the 7022 unit. Some features of the reporting function are:

- Background color (bisque) for graphs to emphasize graphical data
- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking
- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 4 hours worth of data
- Periodic polling for data

You can launch the 7022 reports function from the HPOV Shelf Map with `Performance->Reports` or from the Front Panel display `Select` button menu. When you launch the reports application, it initially displays an error reports summary window or main reports screen (See Figure 5-7) giving you the statistics for all error conditions tracked by this application.

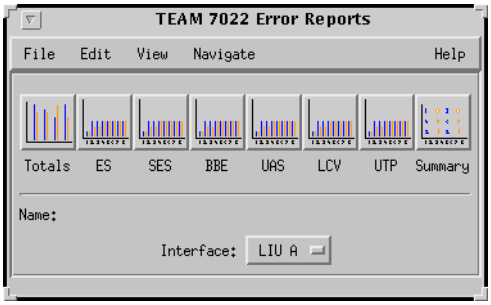

Figure 5-7 Error Reports Window

Two kinds of reports are included: TOTALS and SUMMARY. Each category is identified:

Error Reports (Current and recent 24-hour totals)

(ES) Errored Seconds (Graph)...

(SES) Severely Errored Seconds (Graph)...

(BBE) Background Block Errors (Graph)...

(UAS) Unavailable Seconds (Graph)...

(LCV) Line Code Violation (Graph)...

(UTP) Unavailable Time Periods (Text)...

Errors Summary (All the above statistical data in text format)...

The menu cells on the TEAM 7022 Error Reports screen are File, Edit, View, and Navigate. Help displays help information.

Note *No data is collected from the unit until* `File->Refresh` *is selected or the interface is changed.*

File

The menu item `File->Refresh` is an on-demand update of the data. `File->Auto Refresh` has menu items to periodically poll the unit for data and update the screens. `File->Auto Refresh->Off` disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item `File->Auto Refresh`. `File->Save Error Data to File...` saves the data to a file from the last poll. The data saved in the file is in text format. The `File->Exit` menu item closes all windows and terminates the application.

Edit

The `Edit->Reset Statistics` menu item sends an SNMP set to clear Near End and Far End statistics in the unit and to clear data presented on the screen as well.

View

The `View->Legend` displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms `ES`, `SES`, and the other error categories.

Navigate

The `Navigate` menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the network side reports: `24 Hour Error Totals...`, `Errored Seconds...`, `Severely Errored Seconds...`, `Background Block Errors...`, `Unavailable Seconds...`, `Line Code Violations`, `Unavailable Time Periods`, `Errors Summary...`, and `All Screens...`.

Thus, the `Navigate` menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition. Each error report window can also be accessed by clicking on its icon on the main window.

Interface Selector

The interface selection allows you to choose the interface for the report screens you want to display (LIU A or LIU B).

Help

Displays the on-line manual.

Error Totals

Error reports for the 7022 product are given as data collection in periods of real time. X-axis buttons of the graph represent data from error categories spread over 4 hours in 15-minute intervals; this is the same as using the `Navigate` menu for each error category. Time data presented in the `Collection Period` area uses a mechanism, statistics-last-initialized, to extract relative time and to convert it to real time.

Auto Ranging

This feature dynamically changes the Y-Axis scale, depending on the maximum value of any of the error categories data on the X-Axis. If the value for an error category (or interval) is `100`, then the Y-Axis maximum value is `100`. When the X-Axis value for an error category changes to `500` the Y-Axis maximum changes to `500`. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Network

The statistics displayed for the TEAM 7022 Network interface (See Figure 5-8) in the Error Reports window covers the current and recent 24 hours of operation. The vertical axis shows the number of errored seconds for the Network categories ES (Errored Seconds), SES (Severely Errored Seconds), BBE (Background Block Errors), UAS (Unavailable Seconds), and LCV (Line Code Violations). The Totals box shows the totals of each category collected so far for the current 24 hour period. The Collection Period box indicates the portion of the current 24 hour period collected so far. The real time range collected is shown. For the `Recent` 24 hours, the time range is always 24 hours.

Also the Errors Summary button in the upper right hand corner is equivalent to launching the `Navigate->Errors Summary` menu item which shows a textual summary of the valid intervals collected for all categories.

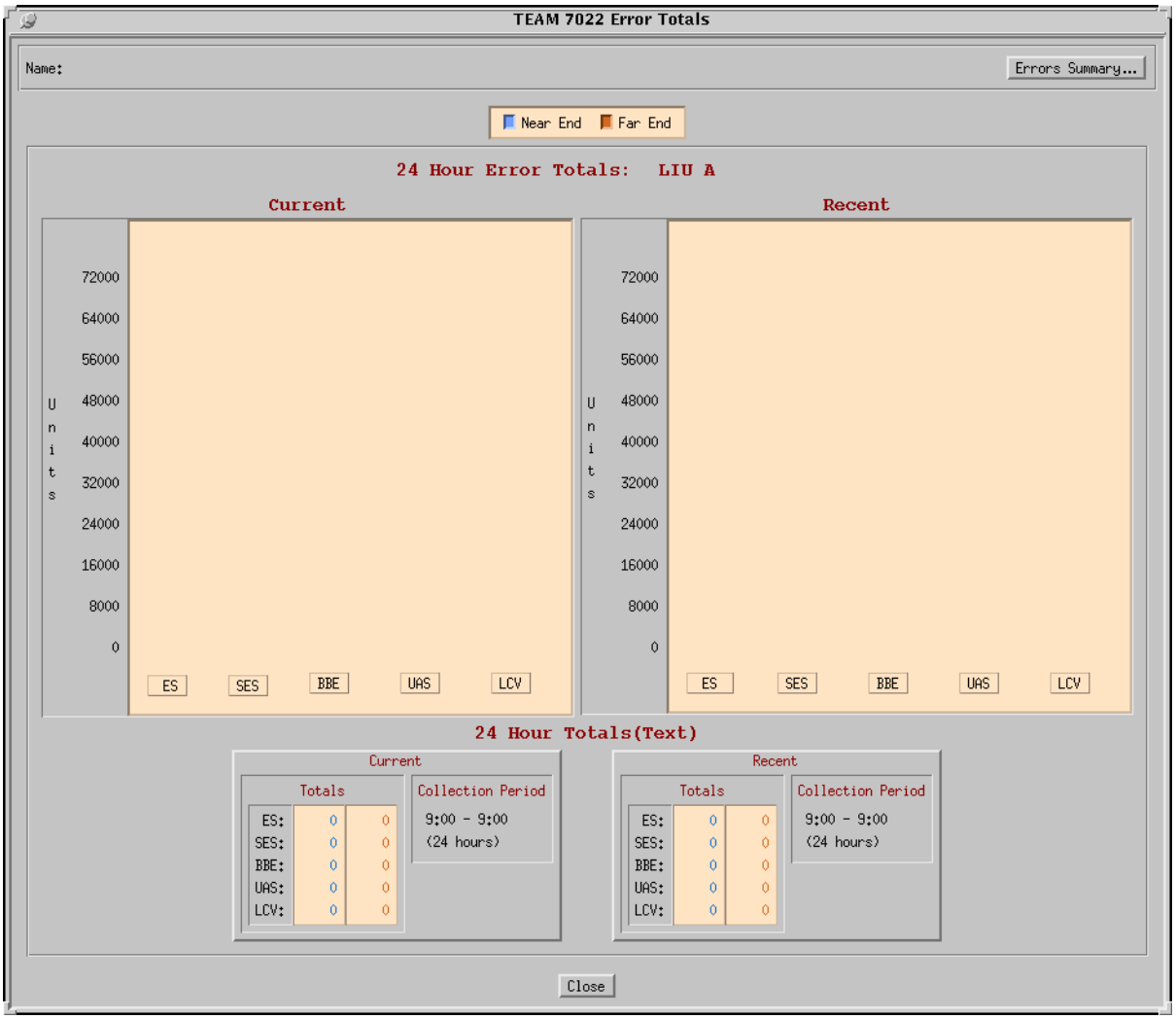

Figure 5-8 Twenty-Four Error Totals

Errored Seconds (ES) Report for the Team 7022

An errored second (ES) is defined as a second with at least one CRC error event. The Near End or Far End Errored Seconds occurs when the LTU detects at least one LCV or CRC error event in the signal it is receiving.

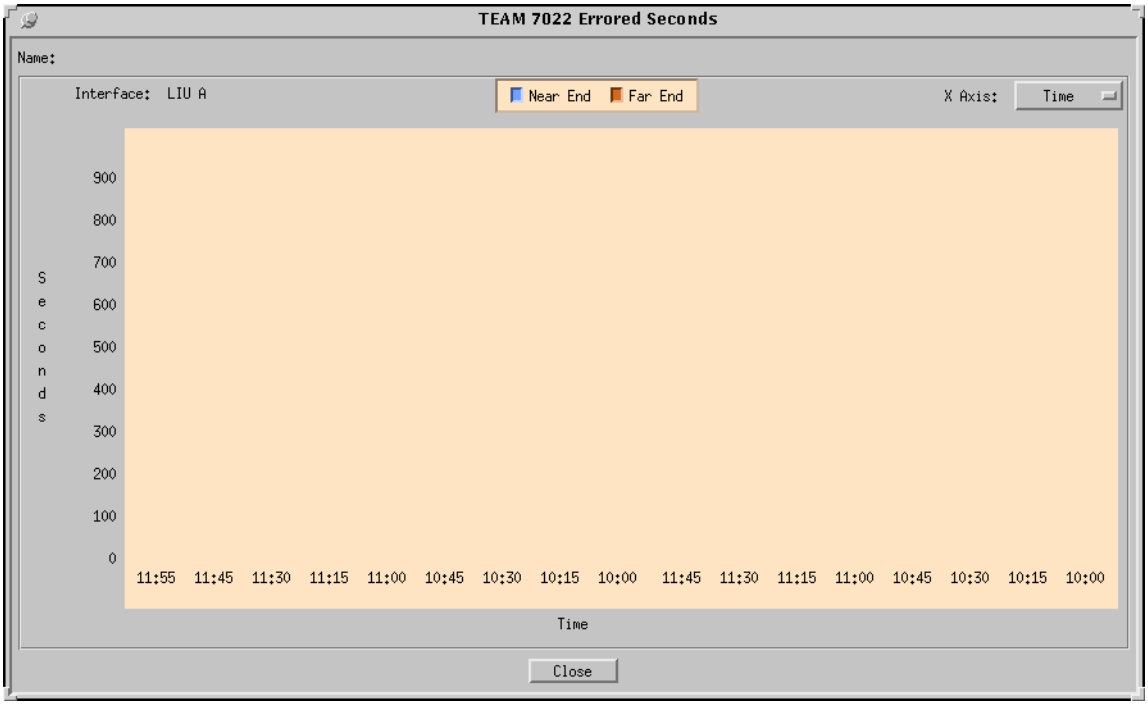

Figure 5-9 Errored Seconds (ES) Window

Figure 5-9 shows the basic screen for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the Y-Axis scale dynamically changes, depending on the maximum value of the valid intervals displayed. The X-Axis option button on the upper right hand corner allows the user to view the X-Axis as a time scale or interval scale, or both. If data has been collected for less than 4 hours, the time/intervals on the X-Axis of the graph are not displayed for the unavailable periods. You have 17 vertical pairs (near end, far end) of bar graphs of intervals (current, plus up to 16 accumulated). This screen graphically shows the number of errored seconds that have taken place in the last four hours. Near End and Far End graph bars are displayed in separate colors.

The vertical axis of the bar graph displays error seconds for 15-minute time periods. By accessing the `Time` button (upper right-had corner), you have a choice of time intervals for the X-axis. If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the `Close` button to dismiss the window.

All Other Network Error Categories

All other error categories with the exception of Unavailable Time Periods, have similar screens and explanations as the `Errored Seconds`.

Severely Errored Seconds (SES) Report for the Team 7022

A `Severely Errored Second` (SES) is defined as a one-second period having greater than or equal to 30% of errored blocks.

The Near End Severely Errored Seconds occurs (for greater than or equal to 300 errored blocks) when the local LTU detects 300 or more CRC error events in the signal it is receiving. For the Far End severely errored seconds take place when the remote unit detects the same threshold of errors.

Background Block Errors (BBE) Report for the Team 7022

Since an errored block is a block having one or more bits which are in error, we define a `Background Block Error` (BBE) as an errored block not occurring as part of an SES (Severely Errored Second) event.

The Near End or Far End Background Block Errors occur when there is an errored block not occurring as part of an SES (Severely Errored Second) event in the near end or far end.

The vertical axis of this graph is in units.

Unavailable Seconds (UAS) Report for the Team 7022

`Unavailable Seconds` is the period of the Unavailable Seconds Signal (UAS) State. UAS state is declared after the detection of 10 consecutive `Severely Errored Seconds` (SES), and is cleared after a 10-second period with no SES. Severely errored seconds are CRC errors greater than or equal to 300 errors per second.

Line Code Violation (LCV) Report for the Team 7022

`Line Code Violation` (LCV) event for a HDB3 coded signal is the occurrence of a received bipolar violation that is not part of a zero-substitution code. This pertains to the Near End only.

The vertical axis of this graph is in units.

Unavailable Time Periods (UTP)

The Unavailable Time Periods (UTP) display screen (Figure 5-10) lists the last six periods or occurrences of unavailable time during which UAS have occurred for the Near End and the Far End of the TEAM 7022. Each time period is specified by its `Start` time, `End` time, and `Duration`.

To set the correct time on the unit for the starting and ending times, single-click on the desired shelf from the Team Universe screen, then select from the menu bar `Fault-->Set Time` on Shelf.

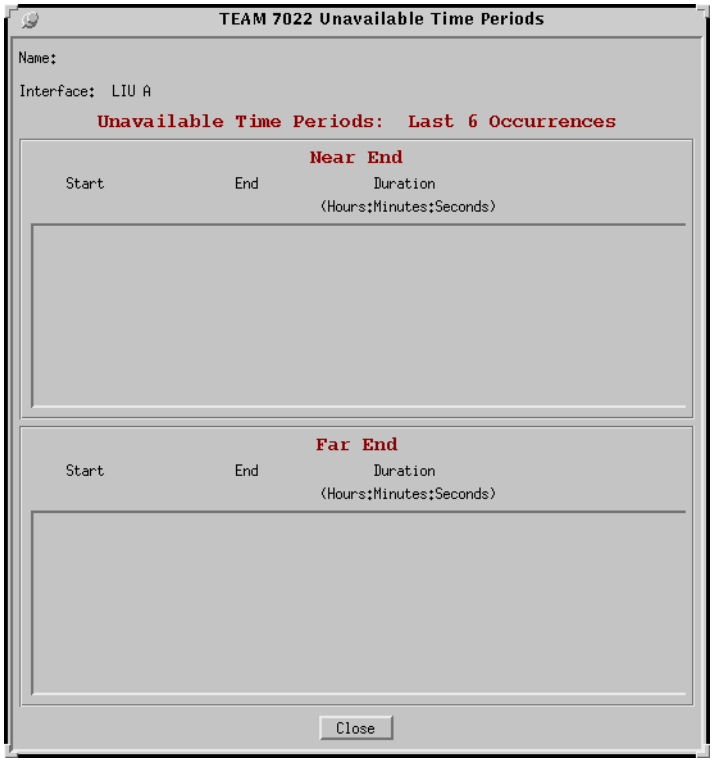

Figure 5-10 Unavailable Time Periods (UTP) Window

Errors Summary

This screen tabulates data on the error events that have occurred for each error category. The `File-->Save Error Data to File` option takes the data presented on this screen and saves it to the user's file. The Errors Summary (Figure 5-11) screen displays an array of error events (Y-axis) plotted over time (X-axis).

- Network Data

  If the collected network data covers less than four hours, the unrecorded time-intervals on the X-axis of the graph are not displayed. The current 24-hour totals at the bottom of the screen shows the total of each of the categories for the current 24 hour period. The Collection Period Represented box shows the time-range and length of time of the current 24 hours.

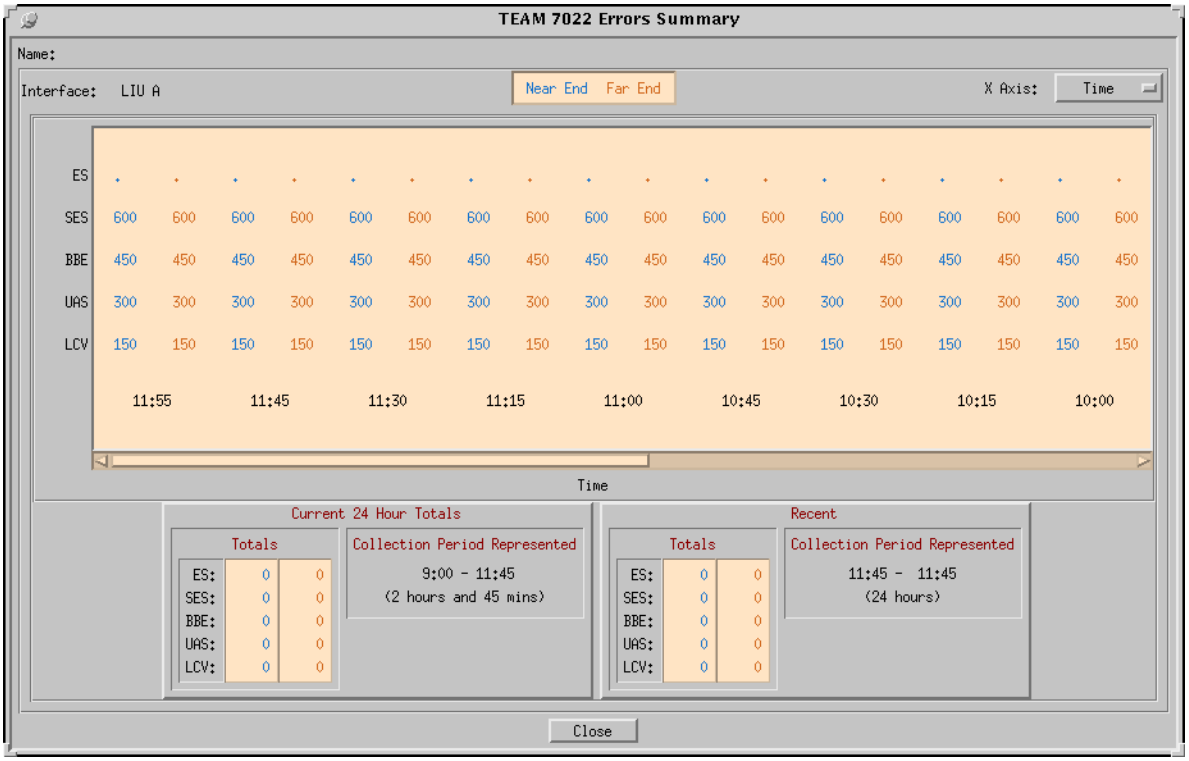

Figure 5-11 Error Summary Window

Diagnostics

The Diagnostic application is used to perform tests to isolate a data communication problem to the Network element or line. 7022 Diagnostic Test is launched from the HPOV Shelf Map `Fault Menu` or from the Front Panel menu (See Figure 5-12 and refer to Table 5-9). Diagnostic tests can run on each E1 line of the 7022 simultaneously. The application is comprised of one main window in five sections or parts, which are as follows:

- Section 1 has the menus - File, Navigate and Help.
- Section 2 is the name of the unit.
- Section 3 has the LIU A or B interface selection, tests, test timeout periods and test control buttons.
- Section 4 has the test graphics.
- Section 5 has circuit ID, test status, and time remaining in test.

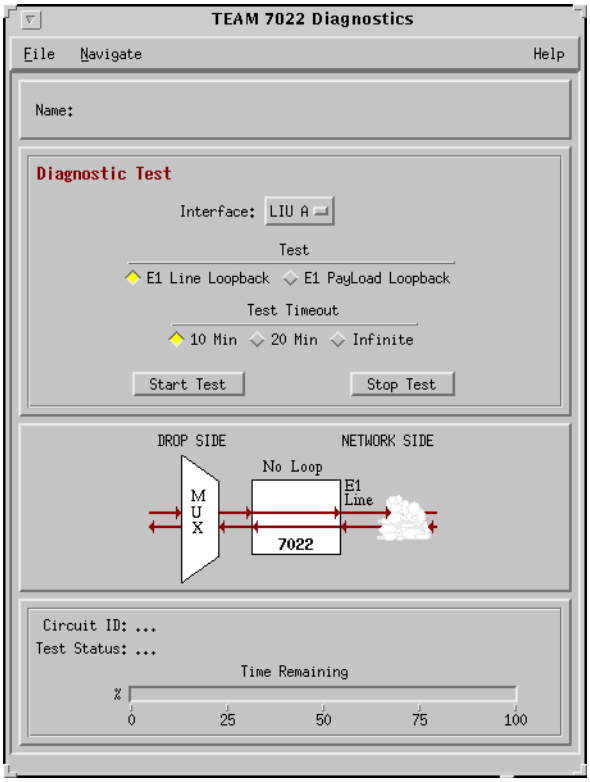

Figure 5-12 Diagnostic Test Screen for 7022

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Table 5-9 Diagnostics Screen Table for the 7022

	Description
Navigate	Diagnostics History
Name	Name of unit
Diagnostic Test	
Interface	The Interface selector lets you choose an E1 interface (LIU A or LIU B)
E1 Line Loopback	Loops the Telco transmit and receive paths back towards the E1 network.
E1 Payload Loopback	Loops the recovered E1 receive and transmit paths back towards the E1 network.
Test Timeout Periods	Maximum length of time the test runs. The choices are 10 minutes or 20 minutes, or infinite.
Buttons	
Start/Stop Test	Starts or stops the selected test.
Graphics	Displayed graphics depend on unit configuration. Loops are shown where appropriate.
Results	
Circuit ID	Circuit ID -- read only

Table 5-9 Diagnostics Screen Table for the 7022 (Continued)

`Test Status`	Displays status of the diagnostic test: Idle E1 line loopback E1 payload loopback
`Time Remaining`	Displays in meter format the time remaining in test.

Diagnostics History

The Diagnostics History application is used to log test information after the test is finished. 7022 Diagnostics History is launched from the `Navigate->History` menu. This screen is read-only (See Figure 5-13 and refer to Table 5-10). If the diagnostic screen is closed, the diagnostic history is cleared.

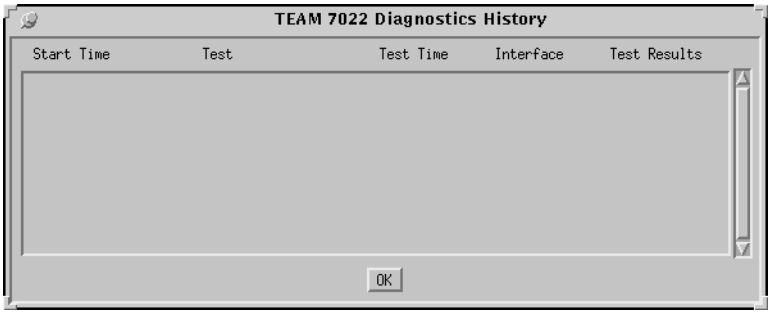

Figure 5-13 7022 Diagnostics History Screen

Table 5-10 Diagnostics History for 7022

Diagnostics History	
`Start Time`	Date and time when test started
`Test`	Name of the test
`Test Time`	Duration of the test in hours:minutes:seconds format
`Interface`	The Interface which the test was run on (LIU A or LIU B)
`Test Results`	`OK` for a test that ran successfully
Button Controls	
`OK`	Dismisses the screen.

Maintenance

The Maintenance application displays and modifies 7022 attributes which are device specific and cannot be set as configuration options. 7022 Maintenance is activated from the HPOV Map `Configuration->Maintenance Menu` or from the Front Panel menu. There is one main window for this application (See Figure 5-14 and refer to Table 5-10).

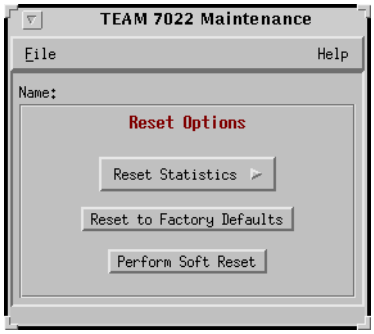

Figure 5-14 Maintenance Screen for the 7022

Window controls and their functions are as follows (Name and Circuit ID are read-only):

Table 5-11 Maintenance Menu for the 7022

Button	Description
`Reset Statistics`	Resets all 7022 aggregate statistics to zero. Resets near end and far end statistics per LIU. There is an additional selection for LIU A and/or B.
`Reset to Factory Defaults`	Initiates a 7022 reset to default configuration parameters.
`Perform Soft Reset`	Initiates a 7022 board reset. Note: After performing the unit reset, set the correct time on the unit for the starting and ending times by single-clicking on the desired shelf from the Team Universe screen and then, selecting from the menu bar, the `Fault-->Set Time` on Shelf.

Information on the 7022

The Information screen shows you the current revision level and copyright notice of the current application. 7022 Information is launched from the HPOV `Shelf Map Misc->Information` Menu or from the Front Panel menu; or you can double click on the GDC Logo on the front panel. One window makes up the application and it is read-only.

Chapter 6: 7000 E1 Shelf Configuration

Overview

This chapter covers the design of the7000 E1 Shelf Configuration Application for the Universal Access System (UAS) E1 products. Graphical User Interface (GUI) windows are a significant part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework. Information contained here relates to the 7000 E1 shelf configuration support only. The System Shelf configuration application configures the E1 time slots allocation, defines circuit names, and sets administrative status for the 7002, 7022, 7722, 7616, and 7626 units.

Communications

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, status, and other functions on the SCM, 7002, 7022, 7722, 7616, and 7626 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. The Manager furnishes the protocol stack for the SNMP Communications.

User Interface

The Graphical User Interface for the 7000 E1 Shelf Configuration consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- E1 Shelf Configuration Status
- E1 Shelf Timing
- E1 Highway Assignment
- 7616 Time Slot Assignment
- 7626 Time Slot Assignment
- 7722 Time Slot Assignment
- E1 Slot Service States
- E1 Time Slot Status

The following are GUI screens for the 7000 E1 Shelf Configuration which are integrated into HP OpenView. The application windows presented deal specifically with 7002, 7022, 7722, 7626, and 7616 products. The Graphical Shelf and SCM applications are handled as core functionality across the SpectraComm products and are not presented in this specification.

Status Application

This application is started from the Team Universe submap by selecting the desired shelf icon and then selecting `Configuration->7000 E1 Shelf Configuration` (Figure 6-1). Shelf configuration consists of assigning backplane highway(s) to a unit, mapping the time slots of the

highways to the E1, and setting `Reference Timing` and `System Timing`. The channels of the 7616 can be assigned to time slots of any two of the four highways. The six loops of the 7626 can be assigned to time slots of any of the 8 highways. The two loops of the 7722 can be assigned to time slots of any of the 8 highways.

A 7002 can be assigned to only one highway of Highways `1` to `4`. Never available for customer payload is `Time Slot 0` and `16`. A 7022 has 2 E1 lines each of which can be assigned to Highways `1` to `8`. Never available for customer payload is `Time Slot 0`. The main menu bar has `File`, `Navigate`, and `Help` selections. Each of these are described below in the tables, Table 6-1 through Table 6-4.

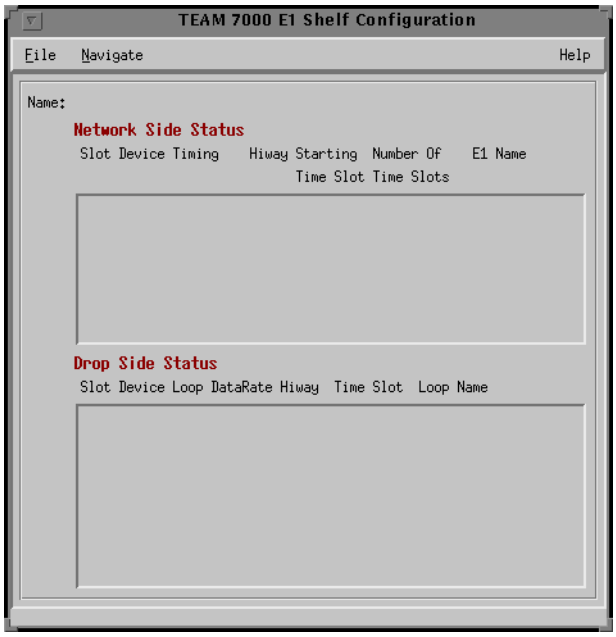

Figure 6-1 Shelf or System Configuration Status Screen, E1

Table 6-1 File Menu, E1 Shelf Configuration

File Menu	
`File -> Refresh`	Read and update all data on all screens of this application.
`File -> Exit`	Causes the application to terminate, with outstanding edits discarded first.
NOTE: It is critical to this application to perform a `Refresh` if any 7002, 7022, 7626, or 7616 Unit Configuration is changed in this shelf. `Refresh` provides current configuration information of the shelf units to the 7000 E1 Shelf Configuration application for proper updating. Otherwise, misleading information could be viewed and misinterpreted.	

Table 6-2 Navigate Menu, E1 Shelf Configuration

Navigate Menu	
`Navigate -> E1 Shelf Timing`	Displays the primary and secondary units responsible for system timing.
`Navigate -> 7000 E1 Highway Assignment`	Displays the E1 highway assignments.
`Navigate -> 7616 Time Slot Assignment`	Displays the 7616 time slot assignments.
`Navigate -> 7626 Time Slot Assignment`	Displays the 7626 time slot assignments.
`Navigate -> 7722 Time Slot Assignment`	Displays the 7722 time slot assignments.
`Navigate -> E1 Slot Service States`	Displays the operational status of E1 7000 card types in the shelf.
`Navigate -> E1 Time Slot Status`	Displays the E1 time slot status.
`Navigate -> All`	Displays all of the above screens

Table 6-3 Help, E1 Shelf Configuration

`Help`	Displays the Help menu.

Table 6-4 Display Fields, E1 Shelf Configuration

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name
`Network Side Status`	Displays the system configuration of the network side of the 7002s or 7022s in the shelf.
`Slot`	Unit Shelf slot number - `1` to `32`
`Device`	Device type 7002 or 7022
`Timing`	System or reference timing - primary, secondary, or none
`Hiway`	Backplane data highway - `1` to `8`, or `Not Assigned`
`Starting Time Slot`	Starting time slot assigned on the highway. Value must be `1` to allocate the entire E1 bandwidth. Time Slots `0` and `16` are not available for the 7002. Time Slot `0` is not available for the 7022.
`Number of Time Slots`	Number of time slots assigned on the highway. Value must be `31` to allocate the complete E1 bandwidth, excluding Time Slot `0`, which is not available.
`E1 Name`	E1 line name
`Drop Side Status`	Displays the system configuration of the 7616 and/or 7626 in the shelf.
`Slot`	Unit Shelf slot number - `1` to `32`
`Device`	Device type 7616, 7722, or 7626
`Loop`	7616 - Loop and channel - Loops `1` to `3`, each with Channels `A` or `B` 7626 - Loops `1` to `6` 7722 - Loops `1` to `2`

Table 6-4 Display Fields, E1 Shelf Configuration (Continued)

`Data Rate`	Data rate assigned to this loop: `64 Kbps`, `128 Kbps`, etc., up to 115.2Kbps, or `Inhibit`.
`Hiway`	Backplane data highway - `1` to `8`, or `Not Assigned`
`Time Slot`	`1` to `31` (`0` not available)
`Loop Name`	Name of loop

Status message area of the window displays messages, describing application activity and unit interaction. Possible examples are: reading, writing, saving, etc.

Shelf Timing and Configuration

This screen is shown when `Navigate->E1 Shelf Timing` is selected on the 7000 E1 Shelf Configuration main window. You can configure major options of the unit at this screen (See Figure 6-2 and refer to Table 6-5).

Figure 6-2 Shelf Timing Screen, E1

This screen designates the unit and slot number and LIU A or B for 7022 in the shelf providing the user with System Timing and Reference Timing. The primary and secondary boxes list all the 7002s and 7022s in the shelf, or says None if there are no 7002s or 7022s in the shelf. The selected unit has its System Timing Generator (STG) and Reference Timing Generator enabled. You can select a unit as a primary or secondary timing source. All other units have their timing generators disabled. Note, however, that the unit you select as secondary STG activates automatically when the primary STG unit has failed. Selecting option None from the list for primary or secondary results in disabling the primary or secondary timing source.

Table 6-5 Fields for the E1 Shelf Timing Menu

Fields	
`Name`	Shelf Name (read-only)
`Selections`	
`Primary`	Primary System Timing Generator
`Secondary`	Secondary System Timing Generator

Table 6-5 Fields for the E1 Shelf Timing Menu (Continued)

Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to 7000 E1 units in the shelf.
Cancel	Cancels any changes made and restores options to previous selections.

Note *For greater reliability, do not use the same LIU of the 7022 unit for primary timing source and LIU B for secondary timing source, or vice-versa.*

Highway Assignment, E1

This screen is shown when `Navigate->7000 E1 Highway Assignment` is selected. Use the screen to select which highway a 7000 E1 is assigned to, and then assign an arbitrary name to the E1 (See Figure 6-3 and refer to Table 6-6).

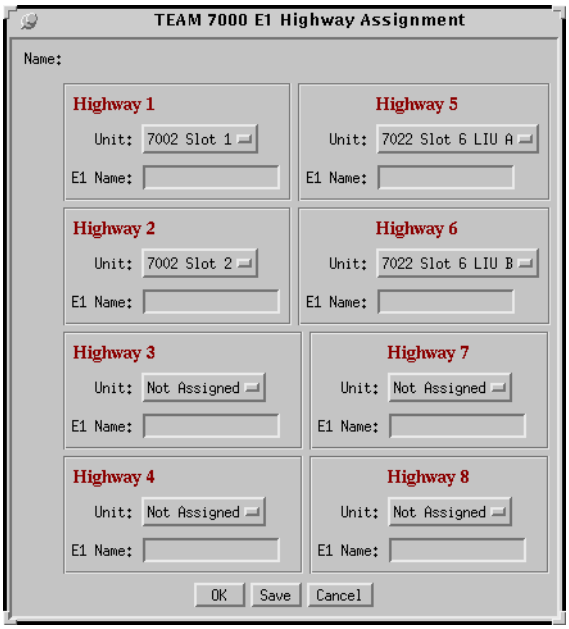

Figure 6-3 Highway Assignment Screen, E1

Table 6-6 E1 Highway Assignment Menu

Name	Shelf Name (read-only)
Selections	For Highways 1 to 4 for 7002, 1 to 8 for 7022 LIU A and LIU B

Table 6-6 E1 Highway Assignment Menu (Continued)

`Unit`	Displays listing of all 7002 and 7022 units in the shelf. Choose the 7002 or 7022 LIU A or B you want assigned to a particular highway. The entire bandwidth of E1, excluding `0` is allocated. `Not Assigned` leaves the highway unassigned. Note: Drop-side devices (7626, 7722, 7616) should be placed `Out of Service` if their associated aggregate card (7002, 7022) is placed in `Not Assigned` highway condition. This prevents erroneous transmission of data into the network.
`E1 Name`	User given name assigned to the E1 line.
Controls	
`OK`	Retains changes and closes the window.
`Save`	Saves changes to 7002 and 7022 units in shelf.
`Cancel`	Cancels your last changes and restores options to previous selections.

Time Slot Assignment, 7616

This screen is shown when `Navigate->7616 Time Slot Assignment` is selected. The 7616 Time Slot Assignment screen assigns 7616 loops to time slots within highways.You can assign 7616 loops to two of the four highways. You can use the highway selection boxes to choose which highway to use. Highway choices are N/A (not assigned), 1 - 4. For each loop, boxes select which time slot is used for the selected highway. Choices are N/A (not assigned), 1 - 31 (excluding 16). See Figure 6-4 and refer to Table 6-7.

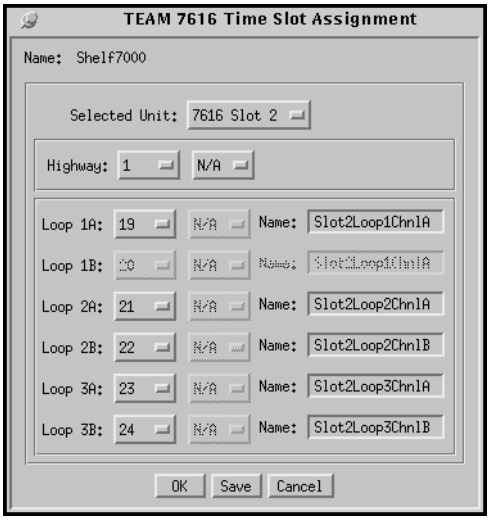

Figure 6-4 Time Slot Assignment Screen, 7616

Table 6-7 Time Slot Assignment Menu, 7616

Name	Shelf Name (read-only)
Selections	For Highways 1 through 4
Selected Unit	Lists 7616s previously configured as drop side. If you choose a unit, it loads its current assignments to the screen.
Highway	Two of the four highways
1st Highway	Left column of controls. You select 1 through 4, or unassigned.
2nd Highway	Right column of controls. You select 1 through 4, or unassigned.
Loops 1A through 3B	Select time slot assigned to the loop on one highway, under left or right columns.
Note: If Channel A of a loop is configured for 128 kbps, then Channel B controls are grayed-out. Moreover, the range for time slot selection is limited to 30 for each channel and the same name is used for both Channels A and B. It is a mandatory rule that Channel B of a 128-kbps channel is one time-slot greater than that of Channel A so that the channels are in a consecutive sequence (except 15 and 17 are assigned since 16 is not available). If both Channels A and B were previously operating at 64 kbps and not assigned to consecutive time slots, and if Channel A has been changed to 128 kbps (Channel B is grayed-out), then to allocate the required consecutive time slots, click on the Save button. Even though no changes were made on the screen, the application automatically assigns consecutive time slots to a 128-kbps Channel A.	
Name	An optional 16-character name can be assigned to each channel.
Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to the selected 7616 unit in the shelf. Note: If another 7616 unit in the shelf is selected before current edits are saved for the previous 7616, then all edits for the previous 7616 are lost.
Cancel	Cancels any changes made and restores options to previous selections.

Time Slot Assignment, 7626

This screen is presented when Navigate->7626 Time Slot Assignment is selected. The screen assigns 7626 loops to time slots within highways. You can assign 7626 loops to any of the eight highways. You can use the highway selection box to choose your highway. Highway choices are N/A (not assigned), or 1 - 8. For each loop, a time slot selection box selects a time slot for a specific highway. Options are N/A (not assigned), or 1 - 31. If a loop is configured for 128Kbps, then consecutive pairs of time slots are shown as options (See Figure 6-5 and refer to Table 6-8).

Figure 6-5 Time Slot Assignment Screen, 7626

Table 6-8 Time Slot Assignment Menu, 7626

Name	Shelf Name (read-only)
Selections	For Highways 1 through 8
Selected Unit	Lists 7626 cards in the shelf. If you choose a unit, it loads its current assignments to the screen.
Highway	One of the eight highways 1- 8, N/A for Not Assigned
Time Slot	Time slots, 1 - 31, and N/A for Not Assigned.
Loops 1 through 6	Selects time slot assigned to the loop on one highway. If a loop is 64Kbps, then a time slot is allocated; for a 128Kbps-loop, two consecutive time slots are allocated.
Loop Name	An optional 16-character name can be assigned to each loop.
Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to the selected 7626 unit in the shelf. Note: If another 7626 unit in the shelf is selected before current edits are saved for the previous 7626, then all edits for the previous 7626 are lost.
Cancel	Cancels any changes made and restores options to previous selections.

Time Slot Assignment, 7722

This screen is presented when `Navigate->7722 Time Slot Assignment` is selected. The screen assigns 7722 loops to time slots within highways. You can assign 7722 loops to any of the eight highways. You can use the highway selection box to choose your highway. Highway choices are `N/A` (not assigned), or `1 - 8`. For each loop, boxes select a time slot for a specific highway. Options are `N/A` (not assigned), or `1 - 31`. Also selected for each loop is starting time slot and if time slot 16 is Used or Skipped. The number of time slots used is displayed and derived from the Unit Configuration of the 7722. See Figure 6-6 and refer to Table 6-9.

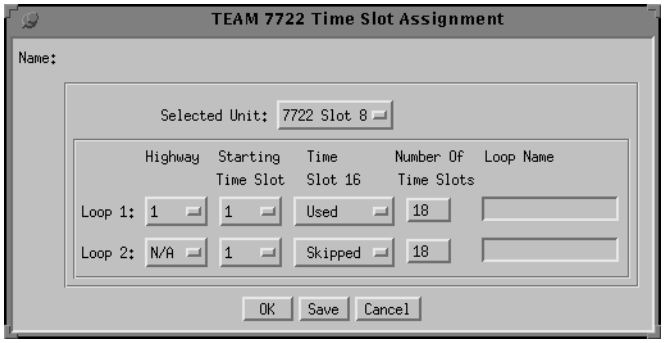

Figure 6-6 Time Slot Assignment Screen, 7722

Table 6-9 Time Slot Assignment Menu, 7722

`Name`	Shelf Name (read-only)
`Selections`	For Highways 1 through 8
`Selected Unit`	Lists 7722 cards in the shelf. If you choose a unit, it loads its current assignments to the screen.
`Loops 1 or Loop 2`	Selects starting time slot to the loop on one highway. Also, time slot 16 can be configured for passing data and a loop name can be assigned.
`Highway`	One of the eight highways 1 to 8, N/A for Not Assigned
`Starting Time Slot`	Time slot 1 - 31 - the first time slot allocated for this loop
`Time Slot 16`	Selection if time slot 16 is Used or Skipped for data purposes
`Number Of Time Slots`	The number of time slots assigned based upon the configured data rate in the 7722 Unit Configuration
`Loop Name`	An optional 16-character name can be assigned to each loop.
Controls	
`OK`	Retains the changes and closes the window.
`Save`	Saves changes to the selected 7722 unit in the shelf. Note: If another 7722 unit in the shelf is selected before current edits are saved for the previous 7722, then all edits for the previous 7722 are lost.
`Cancel`	Cancels any changes made and restores options to previous selections.

E1 Slot Service States

This screen is presented when `Navigate->E1 Slot Service States` is selected. The screen sets the 7002, 7022, 7626, 7722, or 7616 into or out of service. You can use the Select Unit selection box to choose the device in a particular slot and select Up for in service or Down for out of service. See Figure 6-7 and refer to Table 6-10.

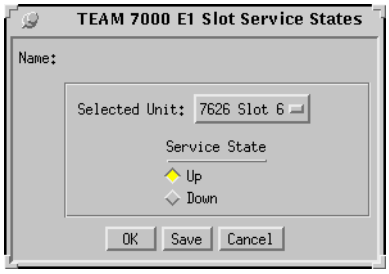

Figure 6-7 E1 Slot Service States

Table 6-10 E1 Slot Service States Descriptions

Name	Shelf Name (read-only)
Selections	
Selected Unit	Lists 7001, 7002, 7022, 7616, 7722 and 7626 cards in the shelf. If you choose a unit, it loads its current assignments to the screen. The 7022 unit type has LIU A or LIU B selections.
Service Status	Up - in service, Down - out of service
Controls	
OK	Retains the changes and closes the window.
Save	Saves changes to the selected unit in the shelf. Note: If another unit in the shelf is selected before current edits are saved for the previous unit, then all edits for the previous unit are lost.
Cancel	Cancels any changes made and restores options to previous selections.

Time Slot Status, E1

This is a read-only screen that shows the source of each E1 Time slot of the selected highway (See Figure 6-8 and Table 6-11). This screen is selected when you choose `Navigate->E1 Time Slot Status`.

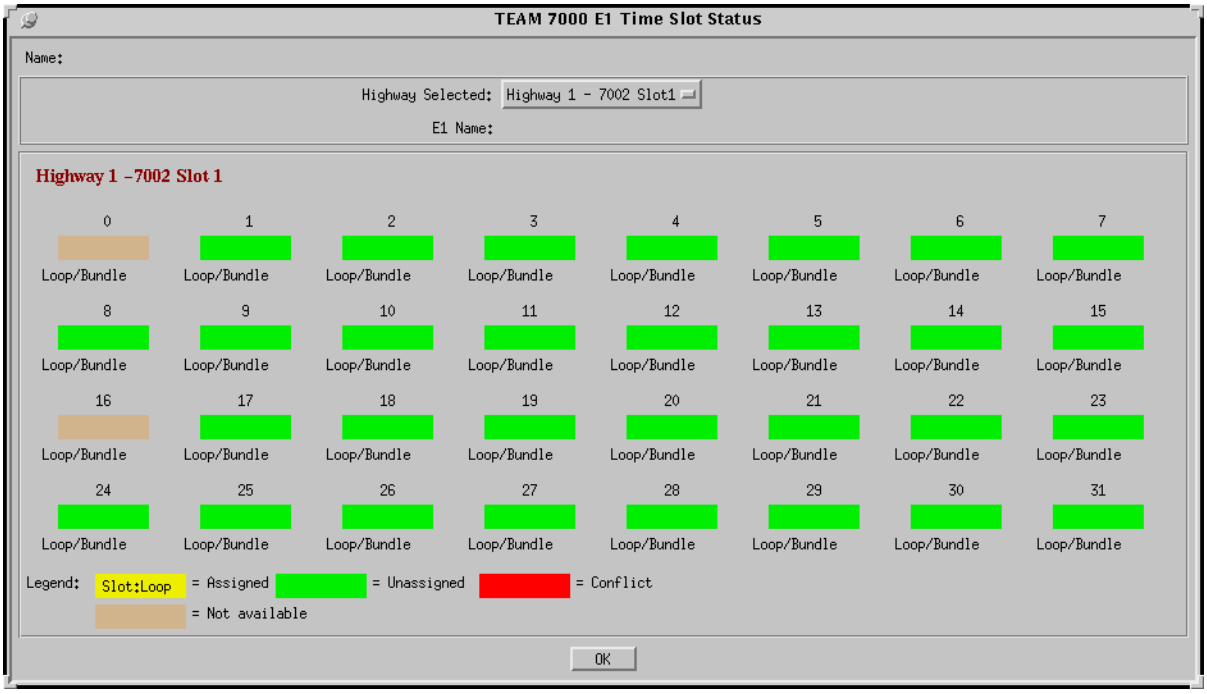

Figure 6-8 E1 Time Slot Status Screen

When 7616, 7722, or 7626 is your source, the shelf slot number for the unit and its loop number are shown in the designated time slot with the optional loop name displayed, highlighted in `yellow`. For a time slot assignment overlap, where the last unit in the shelf conflicts with a specific time slot, it is highlighted in `red`. `Green` color means an unassigned time slot.

Table 6-11 E1 Time Slot Status Information

`Selections`
 	
`Highway Selected`
	Selects the list of 7002 and 7022 units in the shelf assigned to Highways 1 to 4. The choices include highway numbers in addition to the 7002 or 7022 slot number and LIU A or LIU B assigned to the highway.

`E1 Name`	Name assigned by the user to the E1 line
`Color Codes`	`Green` - unassigned time slot `Tan` - Time slot unavailable for assignment (Time Slot 0 for both 7002 and 7022 and also time slot 16 when 7002 is assigned to the highway) `Yellow` - Time slot assigned to a 7626 or 7616 or 7722 `Red` - Time slot conflict or overlap
Controls	
`OK`	Closes the window.
`Selections`	

Chapter 7: Team 7616

7616 Overview

This chapter covers the HPOV SNMP Network Manager for the Universal Access System (UAS) 7616 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

7616 Communications

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7616 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

7616 User Interface

The Graphical User Interface for the UAS 7616 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance
- Information

The following are GUI screens for the UAS 7616 which are integrated into HP OpenView. The application windows presented deal specifically with the 7616 family product. The Graphical Shelf and SCM applications are handled as TEAM CORE functionality across the SpectraComm products and are not presented in this manual.

Front Panel, 7616 Application

The front panel status application gives you an image (See Figure 7-1) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by selecting a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product.

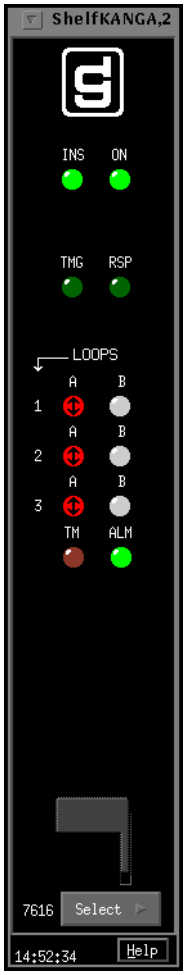

Figure 7-1 7616 Front Panel Status Screen

The GDC icon executes an information screen about the application. Table 7-1 defines illuminated LEDs for the 7616 Front Panel.

Table 7-1 7616 Front Panel LEDs

LED Displayed	LED Function
INS	Indicates unit is in-service.
ON	Indicates power is on.
TMG	Indicates unit is sourcing the system 4-MHz back-plane timing and the system 8-KHz reference back-plane timing.
RSP	Indicates transmission of the back-plane command response.

Table 7-1 7616 Front Panel LEDs (Continued)

`Loop 1,2,3 Channel A,B`	(Green/Red) These LEDs are green when indicated channel is active. The LED is red-solid when the indicated channel is in test mode and red-flashing to indicate errors. There are individual LEDs for each channel of each loop. Both the CH A and CH B LEDs are on when the loop is operating in the 128 Kbps mode.
`TM`	Indicates unit is running a diagnostic.
`ALM`	The alarm LED by its color indicates that it has detected an alarm condition. The color of the alarm LED is the same color as that of the shelf slot icon. For no alarm, the color is always green.

Buttons for the 7616 front panel are identified in Table 7-2.

Table 7-2 7616 Front Panel Buttons

Button	Button Function
`Help`	Selects Front panel descriptions
`Select`	Contains a menu with selections for:
• `Performance`	Alarms, Reports
• `Configuration`	Configuration, Maintenance
• `Fault`	Diagnostics
• `Misc`	Information
• `Demand Poll`	Polling of status to update the front panel
• `Auto Poll`	Periodic polling of status to update the front panel at 15, 30, 60-second rates, or `Disable`. Each time the front panel display is opened, its initial polling rate is determined by the front panel Poll Rate selection of the HPOV map window Misc menu.
• `Exit`	Closing the front panel application

Status Message Area (7616)

The status message area displays messages which describe application activity and unit interaction. Examples are: time, not responding, etc.

Shelf Configuration for 7001 and 7616 Units

Refer to *7000 T1 or 7000 E1 Shelf Configuration* Chapter for a description. This application selects time slot allocation and defines circuit names for the 7000 series units. You begin this application from the Shelf Universe submap by first choosing the desired shelf icon, then choosing `Configuration->7000 E1` or `7000 T1 Shelf Configuration`.

7616 Configuration

The Graphical User Interface for the Configuration Application incorporates features for optioning the 7616 product. With the Configuration Application, you have access to unit level parameters via the SNMP queries when Windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit. The configuration application has templates for copying the same configurations to other units. Configuration templates are stored permanently and are easily accessed.

The 7616 Configuration is launched from the HPOV Shelf Map by first selecting a particular shelf slot, then choosing `Configuration->Configure` from the Menu bar or from the Front Panel application `Select` button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7616 Configuration (main widow), Unit Configuration Options, Alarms Reported, Local Alarm Configuration, Add Remotes, and All Screens.

7616 Configuration - Main Window

The main window is comprised of four areas. The title bar provides the product name and configuration type. The name field contains the Shelf name, slot number and symbol label. The menu bar provides file operations, navigation through subordinate screens and help. The main body of the window is composed of administrative read-only fields. The status message area at the bottom of the screen provides insight into the state of the application (See Figure 7-2).

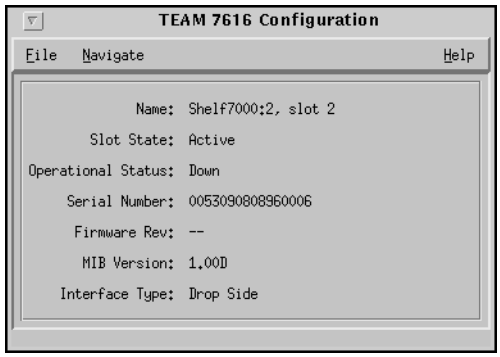

Figure 7-2 7616 Configuration - Main Window Screen

Table 7-3 7616 File Menu

File Menu	
`File -> Refresh`	Causes all options to be read from the unit; outstanding edits are lost.
`File -> Save to Unit`	Causes all outstanding edits to be sent to the unit and saved.
`File -> Load Template`	Allows the selection of an existing 7616 template to be applied as edits to the current application. (A subsequent `File -> Save to Unit` operation implements the template changes.)

Table 7-3 7616 File Menu (Continued)

`File -> Save to Template`	Causes the configuration data of a unit to be saved as a specific template.
`File -> Compare to Template`	Causes the template file data to be compared to the configuration screen data and differences identified.
`File -> Exit`	Causes the application to terminate; outstanding edits are discarded.

Table 7-4 7616 Navigate Menu

Navigate Menu	
`Navigate -> Unit Configuration`	Displays the Options window.
`Navigate -> Alarms Reported`	Displays the `Alarms Reported/Thresholds` window.
`Navigate -> Local Alarms`	Displays the configuration Options for the alarm card window.
`Navigate -> Add Remotes`	Adds remote units to the 7616 loops.
`Navigate -> All Screens`	Reads and displays all configuration screens.

Table 7-5 7616 Help

`Help`	Causes help to be displayed.

Table 7-6 7616 Display Fields

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name, slot, symbol label of the selected slot symbol from the shelf map.
`Slot State`	State of the shelf slot: active or inactive.
`Operational Status`	State of the current unit: up or down.
`Serial Number`	Unit serial number.
`Firmware Version`	Unit firmware version.
`MIB Version`	Unit Management Information Base (MIB) version.
`Interface Type`	Dropside configuration.

`Status Message`. Status message area displays messages, describing application activity and unit interaction. Possible examples are: writing, saving to template, etc.

Operational Status of the 7616

The operational status displays a card in a shelf slot as `in or out` of service (up or down). To set the operational status of a card:

1. Start at the `TEAM Universe` submap and select the desired shelf icon by clicking once with the mouse.
2. Then, select `Configuration->7000 E1` or `7000 T1 Shelf Configuration`.
3. From the `Shelf Configuration` screen, select `Navigate->E1 or T1 Slot Service States` to display the E1 or T1 `Slot Service States` screen.
4. At the `Select Unit:` selection, choose your 7616 card slot to be put into or out of service.

Once your card slot is selected, the controls on the screen display the slot up or down status.

5. Select the service state of your choice.
6. To save your selected status, select the `Save` button.

7616 Unit Configuration Options

This screen is shown when `Navigate->Unit Configuration Options` is selected on the 7616 Configuration main window. You can configure major options of the unit at this screen (See Figure 7-3).

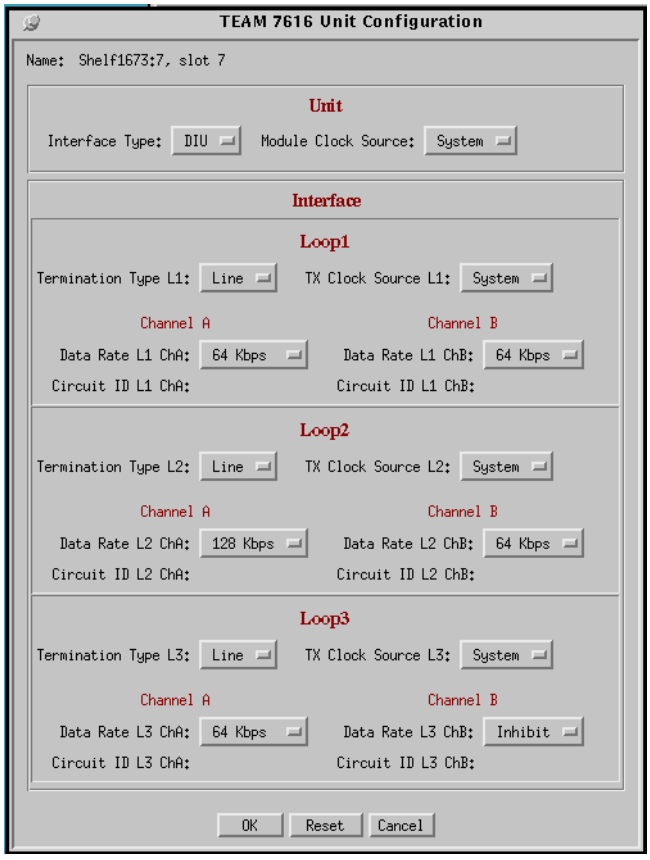

Figure 7-3 7616 Unit Configuration Options Window Screen

Name is a read-only field.

Table 7-7 7616 Configuration Options

Unit Options	
`Interface Type`	Drop-side (default)
`Module Clock Source`	System (one choice)
Interface Loop Options (Options for all three loops are displayed and changeable)	
`Termination Type`	Line (one choice)
`TX Clock Source`	System (one choice)
`Circuit ID`	An information-only field for Channels A and B (read-only).
`Loop Data Rate`	Choices are 64 Kbps, 128 Kbps, or **Inhibit** for Channels A and B. Inhibit is default. Channel A Channel B 64K 64K 128K Inhibit Inhibit Inhibit
Action Buttons	
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
Note: Default in bold type.	

7616 Alarms Reported

The screen is shown when `Navigate->Alarms Reported` is selected on the 7616 Configuration main window (See Figure 7-4). This screen permits you to configure Alarm reporting with thresholds. You can report or not report any individual alarm by selecting the alarm. A selected alarm means that the alarm is reported in an SNMP Trap from the SCM to the Controller. Name field is read-only.

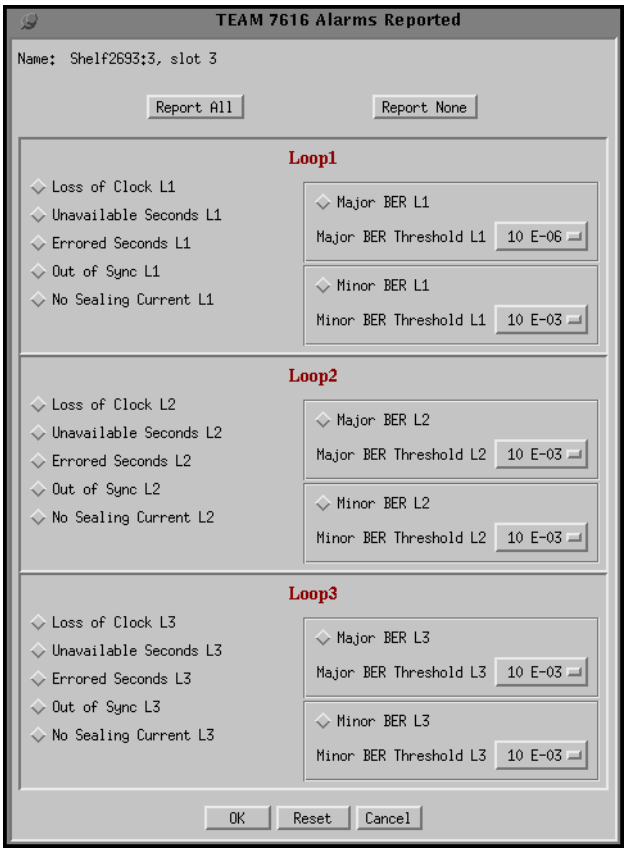

Figure 7-4 7616 Alarms Reported Screen

Table 7-8 7616 Loop Alarms

Loop Alarms (Alarms for all loops are displayed on this screen.)	
Loss of Clock	Clock source was lost.
Out of Sync	Advises you that there was no framing on the U-loop signal (or it has been lost).
No Sealing Current	Indicates that a 2-wire connection to the U-loop is not detected (or it has been broken).
UAS	Unavailable Seconds
ES	Errored Seconds
Major BER	Major Bit Error Rate based on threshold
Minor BER	Minor Bit Error Rate based on threshold
Threshold	10E-03, 10E-04, 10E-05, and 10E-06 bit error rates

Table 7-8 7616 Loop Alarms (Continued)

Action Buttons	
`Report All`	Selects all alarms for reporting.
`Report None`	Deselects all alarms, no alarms reported.
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
`Note: Default in bold.`	

7616 Local Alarm Configuration

This screen is shown when `Navigate->Local Alarm` is selected. The Local alarm configuration screen is used to Mask or set the severity of given alarms that can trigger the Local Alarm Card for alarm display on a light panel. Local alarms do not create SNMP traps. These settings are stored within the 7616. For all alarms, the choices are `Disabled`, `Enable Major`, and `Enable Minor`. The name is read-only. On this screen, all configurable alarm types as described above are found, except Major BER and Minor BER. Alarms for all loops are displayed (See Figure 7-5). `All Disabled` is the default.

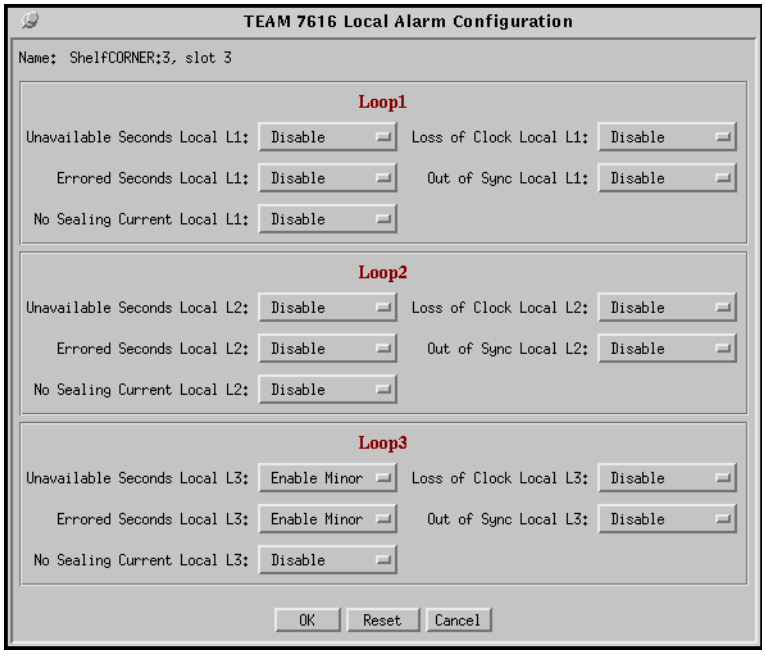

Figure 7-5 7616 Local Alarm Configuration Screen

Add or Delete Remotes for the 7616

Add Remotes screen is shown when you select `Navigate->Add Remotes` on the 7616 Configuration main window (See Figure 7-6). This screen permits you to add or delete remote units to or from the 7616 loops. This screen displays the current remotes of the 7616 by loop number, unit type, and serial number.

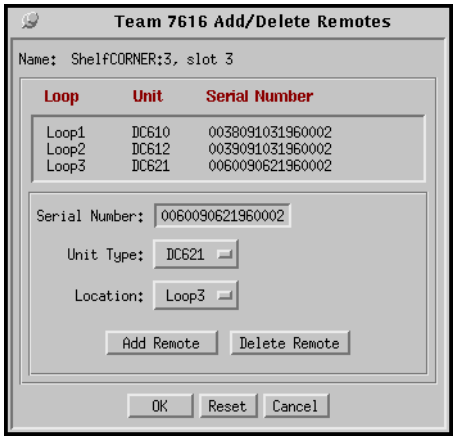

Figure 7-6 7616 Add or Delete Remotes Screen

To add a remote:

1. Select `Location:` loop number
2. Select `Unit Type`: select the desired unit to be added or deleted.
3. Enter remote serial number of the unit:
4. Select `Add Remote` button.

The new remote is displayed on this screen and the 7616 submap. To display the 7616 submap, double click on the 7616 shelf slot icon after adding a remote.

To delete a remote:

1. Select `Location`: loop number
2. Select `Delete Remote`.

Action Buttons for the 7616

`OK`, `Reset`, and `Cancel` have the same functions as those on the other configuration screens.

All Screens for the 7616

This reads and displays all the configuration screens for this network element.

Template Support for the 7616

Device configurations are saved in a file and are known as templates, which can be applied similarly to configure other units. You can `Save`, `Load`, or `Compare` templates by accessing the File menu; and when you invoke one of these three operations, you see a dialog window where you are asked to specify the template file name.

Alarm Detail for the 7616

7616 Alarm Detail is launched from the HPOV Map `Performance->Alarm` or from the Front Panel menu. The alarms are depicted on the screen, as shown in Figure 7-7. When the alarm is off, the color you see is dark green; when the alarm is on, you see orange for major alarm, yellow for minor, and blue for warning.

The severity of any alarm can be changed by the user via the Alarm Severity application which is accessed by `Misc->Alarm Severity`. Refer to the *TEAM CORE* manual for further information.

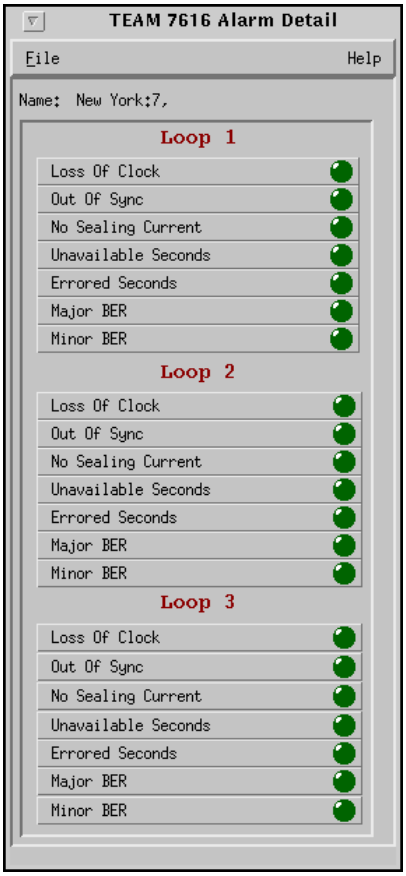

Figure 7-7 7616 Screen

Error Reports for the 7616

The error reports application is used to display statistics accumulated by the 7616 unit. Some features of the reporting function are:

- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking
- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 24 hours worth of data
- Periodic polling for data

You can launch the 7616 report screens by selecting the HPOV Shelf Map slot icon and then selecting the `Performance->Reports` menu item; or you can click the front panel display Select button. The first window you would see is the main window (See Figure 7-8 below). It introduces you to each error category which has its own graph or statistics report, displayed in a specific screen. Two kinds of reports are included: `TOTALS` and `SUMMARY` and each error category is identified as `ES`, `SES`, `UAS`, and `FEBE`. The menu cells on the TEAM 7616 Error Reports screen are `File`, `Edit`, `View`, and `Navigate`. `Help` displays help information.

Note *No data is collected from the unit until* `File-->Refresh` *is selected or the interface is changed.*

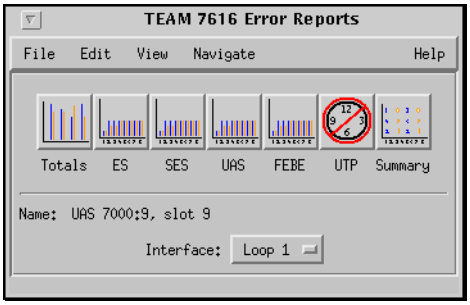

Figure 7-8 Error Reports Window

File

The menu item `File->Refresh` is an on-demand update of the data. `File->Auto Refresh` has menu items to periodically poll the unit for data and update the screens. `File->Auto Refresh->Off` disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item `File->Auto Refresh`. `File->Save Error Data to File...` saves the data to a file from the last poll. The data saved in the file is in text format. The `File->Exit` menu item closes all windows and terminates the application.

Edit

The `Edit->Reset Statistics` menu item sends an SNMP set to clear statistics in the unit and to clear data presented on the screen as well.

View

The `View->Legend` displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms ES, SES, and the other error categories.

Navigate

The `Navigate` menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the reports: `24 Hour Error Totals...`, `Errored Seconds...`, `Severely Errored Seconds...`, `Unavailable Seconds...`, `Far End Block Errors...`, `Errors Summary...`, and `All Screens...`.

Thus, the Navigate menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition. Each error report window can also be accessed by clicking on its icon on the menu window.

Interface Selector

The interface selection allows you to choose the interface for the report screens you want to display (Loop 1, 2, and 3).

Error Totals

Error reports for the 7616 product are given as data collection in periods of real time. X-axis buttons of the graph represent data from error categories spread over four hours in 15-minute intervals; this is the same as using the Navigate menu for each error category.

Auto Ranging

This feature dynamically changes the Y-Axis scale, depending on the maximum value of any of the error categories data on the X-Axis. If the value for an error category (or interval) is 100, then the Y-Axis maximum value is 100. When the X-Axis value for an error category changes to 500 the Y-Axis maximum changes to 500. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Loops

The statistics displayed for the selected TEAM 7616 loop Interface (Figure 7-9) in the Error Reports window cover 48 hours of operation, divided into 24 Hour Error Totals, Current and Recent, for a particular loop. You select which loop (Loop 1, 2, or 3) that you want to view from the interface selection on the top level screen. The vertical axis of the two 24-hour periods, current and recent, shows the number of errored seconds for the loop categories: ES (Errored Seconds), SES (Severely Errored Seconds), and UAS (Unavailable Seconds). For the FEBE (Far End Block Error), the number of counts is displayed along the vertical axis.

The Current and Recent boxes at the bottom of the screen show the totals of each category collected so far from the current 24 hours and the totals for the recent 24 hours respectively. The real-time range is displayed. The Recent box always applies to the previous full 24 hours. The Current box presents the portion of the current 24 hours collected so far.

Also, the Errors Summary... button in the upper right hand corner is equivalent to the Navigator-->Errors Summary menu item, which gives you a text summary of the valid intervals collected for all categories.

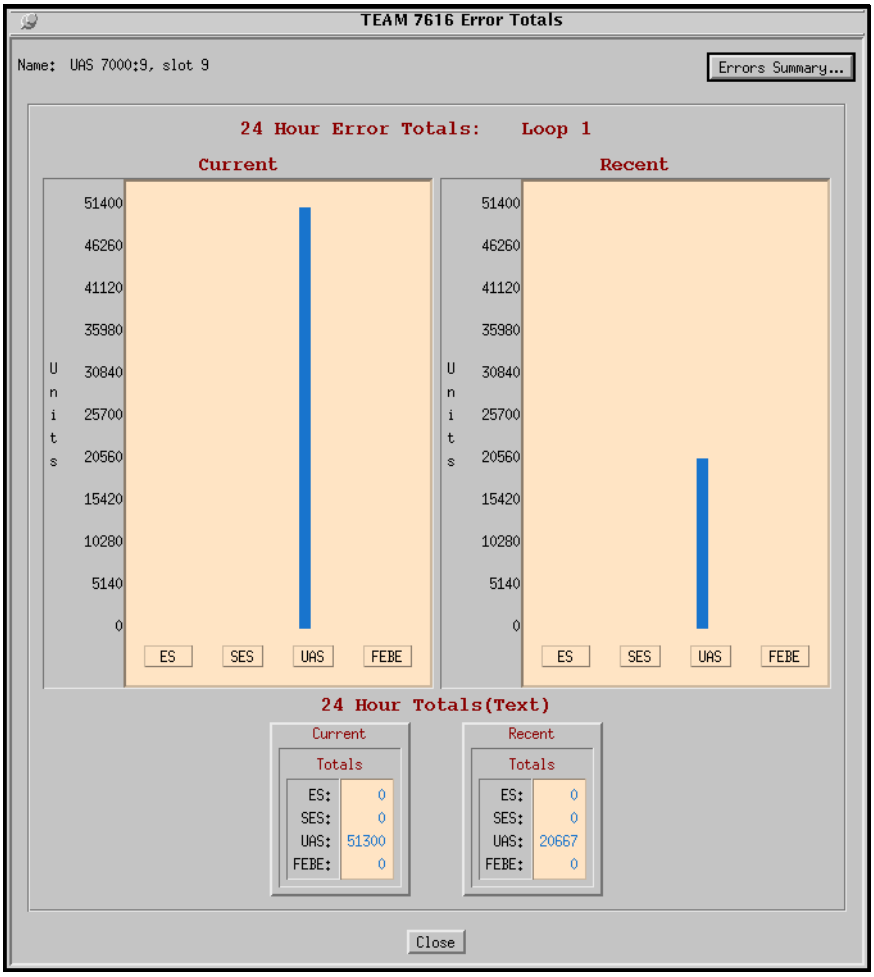

Figure 7-9 Error Totals

Errored Seconds (ES)

An errored second (ES) is defined as a second with at least one CRC error event. Table 7-10 is the basic screen for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the Y-Axis scale dynamically changes, depending on the maximum value of a certain interval. The X-Axis option button on the upper right hand corner allows the user to view the X-Axis as a time scale or interval scale, or both. If data has been collected for less than 4 hours, the time/intervals on the X-Axis of the graph are not displayed for the unavailable intervals. You have 17 vertical bar graphs of intervals (current plus up to 16 accumulated). This screen graphically shows the number of errored seconds that have taken place in the last four hours.

The vertical axis of the bar graph displays error seconds for 15-minute time periods. By accessing the Time button (upper right-had corner), you have a choice of time, intervals or both for the X-axis, and depending on what you choose for the horizontal axis, the Y-axis changes accordingly. If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the `Close` button to dismiss the window.

- All Other Error Categories

All other error categories for the loop interfaces have similar screens and explanations as the Errored Seconds does.

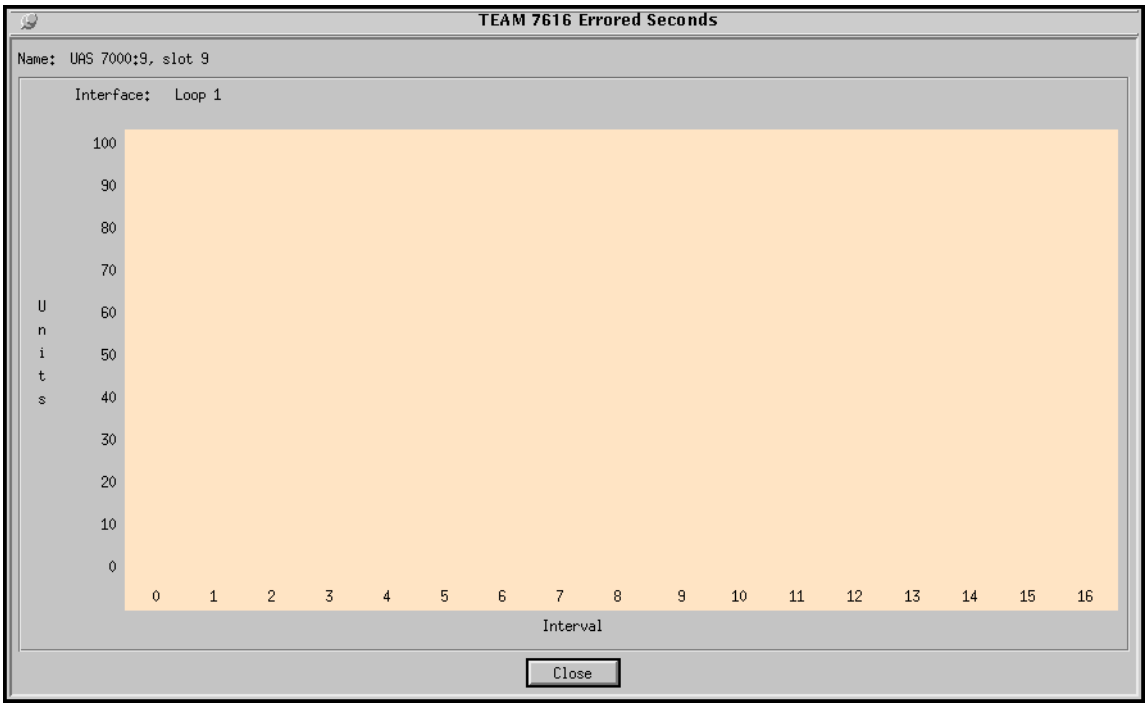

Figure 7-10 Errored Seconds (ES) Window

Severely Errored Seconds (SES)

A Severely Errored Second (SES) is defined as a one-second period having greater than or equal to 30% of errored blocks.

Unavailable Seconds (UAS)

Unavailable Seconds is the period of the Unavailable Seconds Signal (UAS) State. UAS state is declared after the detection of 10 consecutive Severely Errored Seconds (SES), and is cleared after a 10-second period with no SES. Severely errored seconds are CRC errors that are greater than or equal to 300 errors per second.

Far End Block Errors (FEBE)

A Far End Block Error is a frame error at the remote unit.

Errors Summary

The Errors Summary screen is shown in Figure 7-11. It tabulates data on the error events that have occurred for each error category. The `File-->Save Error Data to File` option takes the data presented on this screen and saves it to the user's file. The `Errors Summary` screen displays an array of error events (Y-axis) plotted over time (X-axis).

- Loop Data

If the quantity of collected loop data is less than seventeen (current plus sixteen accumulated), then the remaining unfilled quantities are not displayed. Note, however, that after four hours of operation, all loop quantities have data. The current box at the bottom of the screen shows a total for each category and for the portion of the 24-hour period accumulated so far. The Recent box always shows the accumulated total for each category taken from the previous 24 hours.

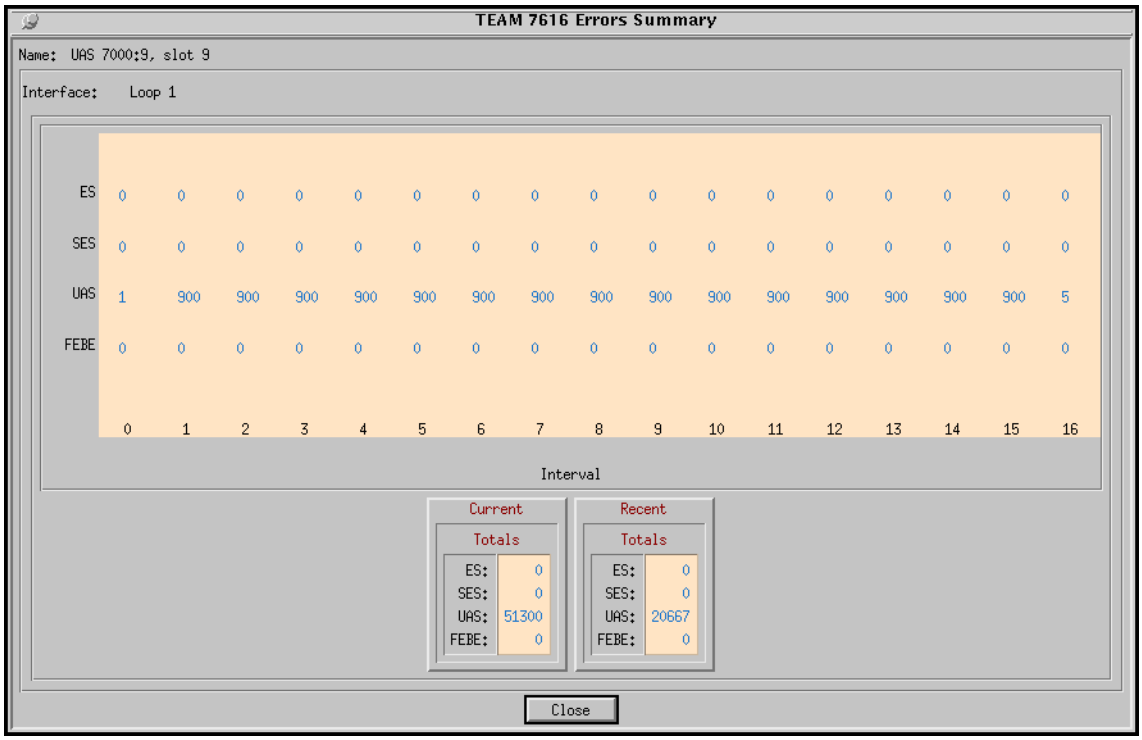

Figure 7-11 Error Summary Window

Unavailable Time Periods (UTP)

The Unavailable Time Periods (UTP) display screen (See Figure 7-12) lists the last six periods or occurrences of unavailable time during which UAS have occurred for the TEAM 7616. Each time period is specified by its `Start` time, `End` time, and `Duration`. To set the correct time on the unit for the starting and ending times, single-click on the desired shelf from the Team Universe screen, then select from the menu bar `Fault-->Set Time` on Shelf.

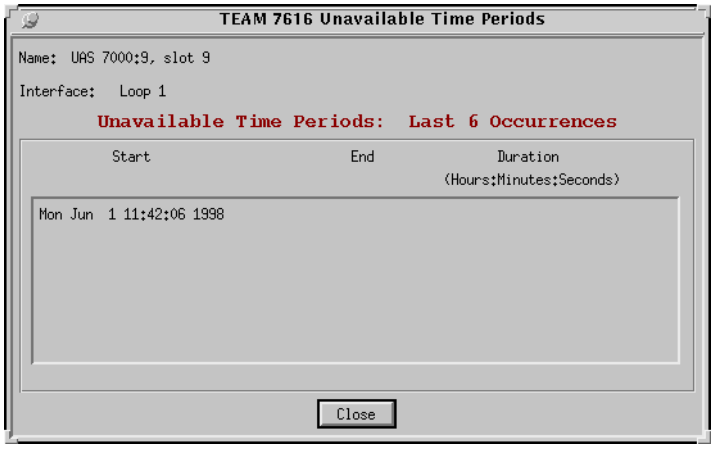

Figure 7-12 Unavailable Time Periods Screen, 7616

7616 Diagnostics

The Diagnostic application is used to perform tests to isolate a data communication problem to the Network element or line. 7616 Diagnostic Test is launched from the HPOV Map `Fault Menu` or from the Front Panel menu (See Figure 7-13). The application is comprised of one main window in five sections or parts, which are as follows:

- Section 1 is the menu - `Navigate` selects Diagnostic History - this section is described below.
- Section 2 is the name of the unit.
- Section 3 has the loop interface and channel selections, remote unit bit pattern, tests, and test control buttons.
- Section 4 has the test graphics.
- Section 5 has circuit ID, test status and results.

Table 7-9 Diagnostics Screen for the 7616

Menu Section	
	Description
`Navigate`	Diagnostics History
`Name`	Name of unit

`Test`
`Interface Selection`
`Channel Selection`
`Test Pattern`
	
	Loop 1, 2, or 3
	
	Channel A or B
	Bit Pattern for remote unit testing 2047 or 511

Table 7-9 Diagnostics Screen for the 7616 (Continued)

`Diagnostic Test`	Tests Unit Test - unit health check Self Test (Note that the 7616 allows only a 2047-pattern.) Digital Loopback Remote Digital Loopback Remote Digital Loopback with Self Test Remote to Remote ST Remote Bi Loopback Remote Channel Loopback Remote Bi Loopback with Self Test Master to Remote Self Test
	Buttons
• `Start/Stop Test`	Starts or stops the selected test.
• `Reset Errors`	Resets the errors to zero without having to stop and restart the test.
• `Graphics`	Loops are shown where appropriate.
• `Circuit ID`	Circuit ID - read only.
• `Test Status`	Idle Unit Test - unit health check Self Test (Note that the 7616 allows only a 2047-pattern.) Digital Loopback Remote Digital Loopback Remote Digital Loopback with Self Test Remote to Remote ST Remote Bi Loopback Remote Channel Loopback Remote Bi Loopback with Self Test Master to Remote Self Test
• `Results`	Test results are in bit errors and displayed for only those tests where the Pattern Generator is on.

Note *After certain tests are completed, the graphic of the remote unit may disappear. Once the 2B1Q loop regains synchronization, the graphic of the remote unit should reappear within 30 to 90 seconds.*

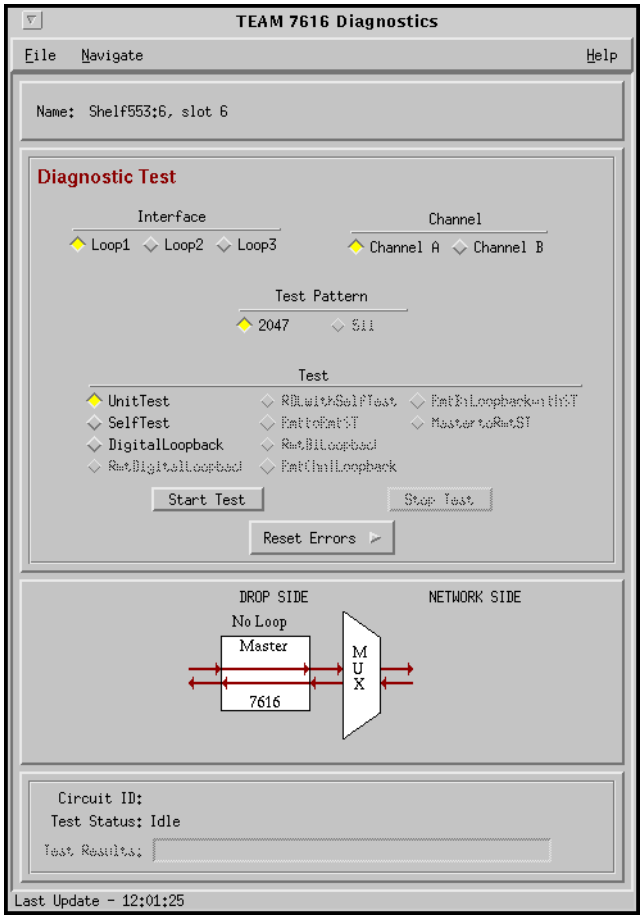

Figure 7-13 Diagnostic Test Screen for the 7616

Diagnostics History for the 7616

The Diagnostics History application is used to log test information after the test is finished. 7616 Diagnostics History is launched from the `Diagnostics->Navigate` menu. This screen is read-only (See Figure 7-14). The information on the screen is inserted only after a test has been completed. If the diagnostic screen is closed, the diagnostic history is cleared.

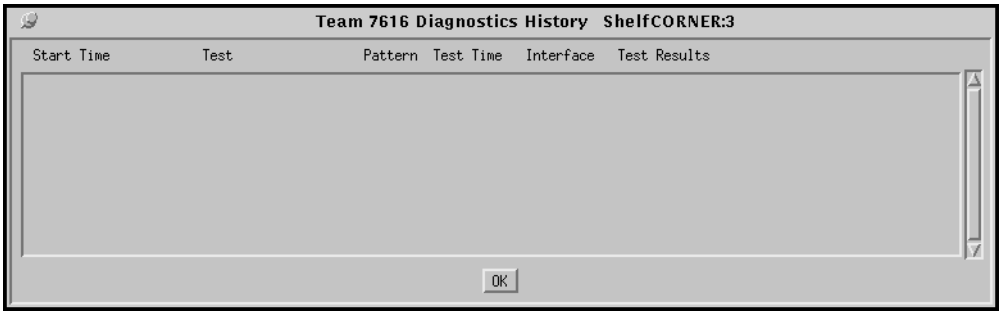

Figure 7-14 Diagnostics History Screen for the 7616

Table 7-10 Diagnostics History Menu for the 7616

Diagnostics History	
`Start Time`	Date and time when test started.
`Test`	Name of the test.
`Pattern`	Test pattern selected (511 or 2047).
`Test Time`	Duration of the test in hours:minutes:seconds format
`Interface`	Designates which loop and channel the test had run on.
`Test Results`	`OK` for a test that does not involve Selftest, or for a test with Selftest, where no errors are found. `Bit Errors` are followed by a bit error number for a test with Selftest, where errors are found.
Button Controls	
`OK`	Dismisses the screen.

7616 Maintenance

The Maintenance tool displays and modifies 7616 attributes which are device specific and cannot be set as configuration options. 7616 Maintenance is activated from the HPOV Map `Configuration->Maintenance Menu` or from the Front Panel menu. There is one main window for this application (See Figure 7-15).

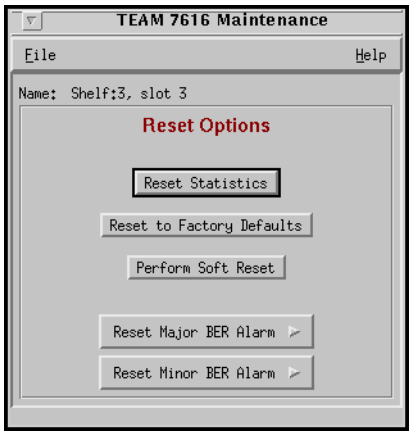

Figure 7-15 7616 Maintenance Screen

Window controls and their functions are as follows (Name is read-only):

Table 7-11 7616 Maintenance Menu

Button	Description
`Reset Statistics`	Resets all 7616 loop statistics to zero.
`Reset to Factory Defaults`	Initiates a 7616 reset to default configuration parameters.
`Perform Soft Reset`	Initiates a 7616 board reset. Note: After performing the unit reset, set the correct time on the unit for the starting and ending times by single-clicking on the desired shelf from the Team Universe screen and then, selecting from the menu bar, the Fault-->Set Time on Shelf.
`Reset Major BER Alarm`	Resets Major BER Alarm and Counts for Loops 1, 2, or 3.
`Reset Minor BER Alarm`	Resets Minor BER Alarm and Counts for Loops 1, 2, or 3.

Information on the 7616

The Information screen shows you the current revision level and copyright notice of the current application. 7616 Information is launched from the HPOV Map `Misc->Information` Menu or from the Front Panel menu; or you can double click on the GDC Logo on the front panel. One window makes up the application and it is read-only.

Chapter 8: Team 7626

Overview

This chapter covers the HPOV SNMP Network Manager for the Universal Access System (UAS) 7626 product. Graphical User Interface (GUI) windows are part of the description. The UAS manager applications are built on the HP OpenView network management platform. HP Open View provides the framework for the user interface application and the SNMP protocol for the communications framework.

7626 Communications

UAS uses Simple Network Management Protocol (SNMP) to carry out configuration, maintenance, status, and other functions on the SCM and 7626 cards. The IP (Internet Protocol) addressable SCM is an SNMP agent that proxies requests to the other cards in the SpectraComm Shelf. Alarms from the devices are sent to the HP OpenView Manager via SNMP Traps. The Manager furnishes the protocol stack for the SNMP Communications.

7626 User Interface

The Graphical User Interface for the UAS 7626 Management consists of several applications that are integrated to run under HP OpenView. The applications are summarized here:

- Front Panel
- Configuration
- Alarms
- Reports
- Diagnostics
- Maintenance
- Information

The following are GUI screens for the UAS 7626 which are integrated into HP OpenView. The application windows presented deal specifically with the 7626 family product. The Graphical Shelf and SCM applications are handled as TEAM CORE functionality across the SpectraComm products and are not presented in this manual.

Front Panel, 7626 Application

The front panel status application gives you an image (See Figure 8-1) of the face plate of a shelf card. This application is started from the Graphical Shelf Application by selecting a particular shelf card icon and then selecting `Performance->Front Panel`, or by double clicking on a shelf card icon. The front panel contains LED images animated to reflect actual card status. This application offers you a summary of the real-time events that the unit is undergoing as well as a convenient launching point for all the major applications related to the product.

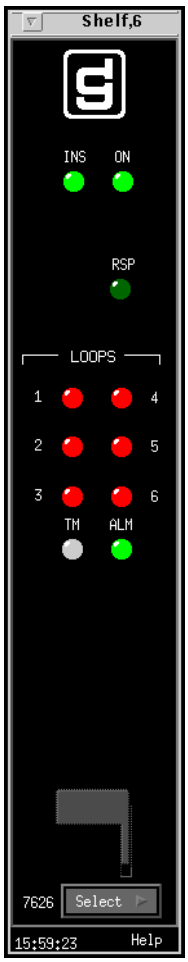

Figure 8-1 7626 Front Panel Status Screen

The GDC icon executes an information screen about the application. Table 8-1 defines illuminated LEDs for the 7626 Front Panel.

Table 8-1 7626 Front Panel LEDs

LED Displayed	LED Function
INS	Indicates unit is in-service.
ON	Indicates power is on.
RSP	Indicates transmission of the back-plane command response.
Loop 1,2,3,4,5,6	(Green/Red) Loop LED is GREEN when loop is in service and in sync with its remote. The LED is SOLID RED when the loop is in test mode. A loop LED is out when the loop is not configured. There are individual LEDs for each loop.
TM	Indicates unit or its loop is running a diagnostic.
ALM	The alarm LED by its color indicates that it has detected an alarm condition. The color of the alarm LED is the same color as that of the shelf slot icon. For no alarm, the color is always green.

Buttons for the 7626 front panel are identified in Table 8-2.

Table 8-2 7626 Front Panel Buttons

Button	Button Function
Help	Selects Front panel descriptions
Select	Contains a menu with selections for:
• Performance	Alarms, Reports
• Configuration	Configuration, Maintenance
• Fault	Diagnostics
• Misc	Information
• Demand Poll	Polling of status to update the front panel
• Auto Poll	Periodic polling of status to update the front panel at 15, 30, 60-second rates, or Disable. Each time the front panel display is opened, its initial polling rate is determined by the front panel Poll Rate selection of the HPOV map window Misc menu.
• Exit	Closing the front panel application

Status Message Area (7626)

The status message area displays messages which describe application activity and unit interaction. Examples are: time, not responding, etc.

Shelf Configuration for 7626 Units

Refer to *7000 E1* or *7000 T1 Shelf Configuration* Chapter for a description. This application selects on allocation and defines circuit names for the 7001, 7002, 7022, 7616, and 7626 units.

Note *When configuring an E1 system (7002 or 7022 LIU), check the LIU configuration to determine whether or not Timeslot 16 is available for data. Some applications require that particular timeslot for management signalling. The TEAM application does not provide any special restrictions on the timeslot for those applications.*

You begin this application from the Team Universe submap by first choosing the desired shelf icon, then choosing `Configuration->7000 E1` or `7000 T1 Shelf Configuration`.

7626 Configuration

The Graphical User Interface for the Configuration Application incorporates features for optioning the 7626 product. With the Configuration Application, you have access to unit level parameters via the SNMP queries when Windows are displayed or refreshed. Through SNMP set commands, modifications are applied to the unit. The configuration application has templates for copying the same configurations to other units. Configuration templates are stored permanently and are easily accessed.

The 7626 Configuration is launched from the HPOV Shelf Map by first selecting a particular shelf slot, then choosing `Configuration->Configure` from the Menu bar or from the Front Panel application `Select` button menu. One main window and a set of transient windows, offering unit optioning, make up this application. Included are the 7626 Configuration (main widow), Unit Configuration Options, Alarms Reported, Local Alarm Configuration, and Add/Delete Remotes.

7626 Configuration - Main Window

The main window is comprised of four areas. The title bar provides the product name and configuration type. The name field contains the Shelf name, slot number and symbol label. The menu bar provides file operations, navigation through subordinate screens and help. The main body of the window is composed of administrative read-only fields. The status message area at the bottom of the screen provides insight into the state of the application (See Figure 8-2).

Figure 8-2 7626 Configuration - Main Window Screen

Table 8-3 7626 File Menu

File Menu	
`File -> Refresh`	Causes all options to be read from the unit; outstanding edits are lost.
`File -> Save to Unit`	Causes all outstanding edits to be sent to the unit and saved.
`File -> Load Template`	Allows the selection of an existing 7626 template to be applied as edits to the current application. (A subsequent `File -> Save to Unit` operation implements the template changes.)
`File -> Save to Template`	Causes the configuration data of a unit to be saved as a specific template.
`File -> Compare to Template`	Causes the template file data to be compared to the configuration screen data and differences identified.
`File -> Exit`	Causes the application to terminate; outstanding edits are discarded.

Table 8-4 7626 Navigate Menu

Navigate Menu	
`Navigate -> Unit Configuration Options`	Displays the Unit Options window.
`Navigate -> Alarms Reported`	Displays the `Alarms Reported/Thresholds` window.
`Navigate -> Local Alarms Configuration`	Displays the configuration options for the alarm card window.
`Navigate -> Add Remotes`	Adds remote units to the 7626 loops.
`Navigate -> All Screens`	Reads and displays all configuration screens.

Table 8-5 7626 Help and Interface Selector

`Help`	Causes help to be displayed.
`Interface Selector`	Choose one of six loops by clicking on the button selector.

Table 8-6 7626 Display Fields

Fields (Note that all fields on this screen are read-only.)	
`Name`	Shelf name, slot, symbol label of the selected slot symbol from the shelf map.
`Slot State`	State of the shelf slot: active or inactive.
`Operational Status`	State of the current unit: up or down.

Table 8-6 7626 Display Fields (Continued)

`Serial Number`	Unit serial number.
`Active Firmware Rev`	Unit firmware version that is currently in operation.
`Stand-by Firmware Rev`	Unit firmware version that is inactive.
`MIB Version`	Unit Management Information Base (MIB) version.
`Interface Type`	Dropside - fixed
`Termination Type`	Line - fixed
`Module Clock Source`	System - fixed
`TX Clock Source`	System - fixed

`Status Message`. Status message area at the bottom of the window displays messages, describing application activity and unit interaction. Possible examples are: writing, saving to template, etc.

Operational Status of the 7626

The operational status displays a card in a shelf slot as `in or out of service` (up or down). To set the operational status of a card:

1. Start at the `TEAM Universe` submap and select the desired shelf icon by clicking once with the mouse.
2. Then, select `Configuration->7000 E1` or `7000 T1 Shelf Configuration`.
3. From the 7001 E1 or 7000 T1 `Shelf Configuration` screen, select `Navigate->E1` or `T1 Slot Service States` to display the E1 or T1 `Slot Service States` screen.
4. At the Select Unit selection, choose your 7001, 7002, 7022, 7616, or 7626 card slot to be put into or out of service.

Once your card slot is selected, the controls on the screen display the slot up or down status.

5. Select the `Service State` of your choice.
6. To save your selected status, select the SAVE button.

7626 Unit Configuration Options

This screen is shown when `Navigate->Unit Configuration Options` is selected on the 7626 Configuration main window. You can configure major options of the unit at this screen (See Figure 8-3).

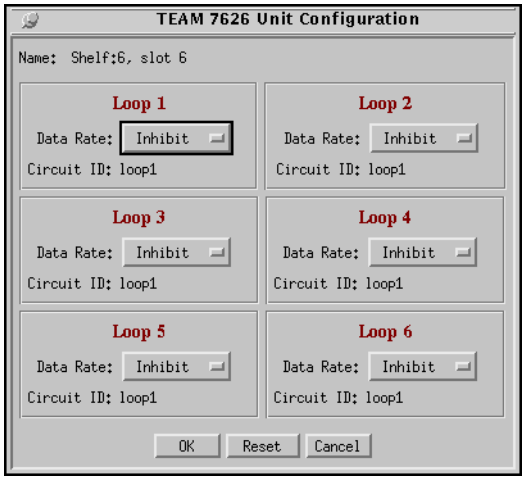

Figure 8-3 7626 Unit Configuration Options Window Screen

Name is a read-only field.

Table 8-7 7626 Configuration Options

Interface Loop Options (Options for all six loops are displayed and changeable)	
`Loop Data Rate`	Choices are 64 Kbps, 128 Kbps, or **Inhibit** for each loop. Inhibit is default.
`Circuit ID`	An information-only field for loops, defined in the shelf configuration (read-only).
Action Buttons	
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.
Note: Default in bold type.	

7626 Alarms Reported

The screen is shown when `Navigate->Alarms Reported` is selected on the 7626 Configuration main window (See Figure 8-4). This screen permits you to configure Alarm reporting with thresholds. You can report or not report any individual alarm by selecting the alarm. A selected alarm means that the alarm is reported in an SNMP Trap from the SCM to the Controller. Name field is read-only. The interface number is the loop interface selected on the main configuration window.

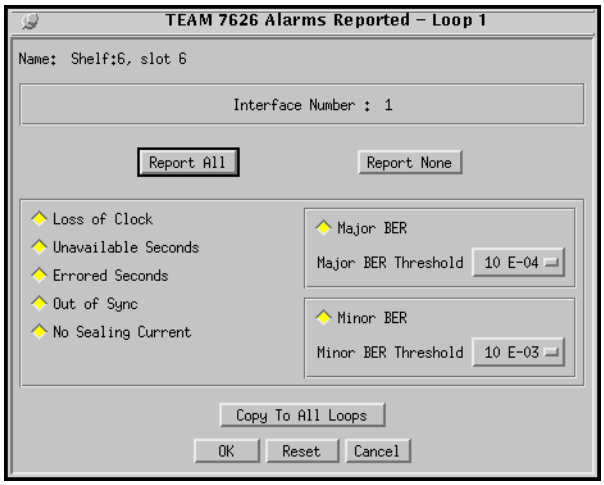

Figure 8-4 7626 Alarms Reported Screen

Table 8-8 7626 Loop Alarms

Loop Alarms (Alarms for all loops are displayed on this screen.)	
`Loss of Clock`	Clock source was lost.
`Unavailable Seconds`	Unavailable Seconds
`Errored Seconds`	Errored Seconds
`Out of Sync`	Advises you that there was no framing on the U-loop signal (or it has been lost).
`No Sealing Current`	Indicates that a 2-wire connection to the U-loop is not detected (or it has been broken).
`Major BER`	Major Bit Error Rate based on threshold
`Minor BER`	Minor Bit Error Rate based on threshold
• `Threshold` (Major/Minor BER)	10E-03, 10E-04, 10E-05, and 10E-06 bit error rates
Action Buttons	
`Report All`	Selects all alarms for reporting.
`Report None`	Deselects all alarms, no alarms reported.
`Copy to All Loops`	Copies the selected Alarms Reported Configuration of the selected loop to the other loops of this 7626. This is saved only to the 7626 when `File-->Save to Unit` is selected.
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.

7626 Local Alarm Configuration

This screen is shown when `Navigate->Local Alarm` is selected. The Local alarm configuration screen is used to Mask or set the severity of given alarms that can trigger the Local Alarm Card for alarm display on a light panel. Local alarms do not create SNMP traps. These settings are stored within the 7626. For all alarms, the choices are `Disabled`, `Enable Major`, and `Enable Minor`. The name is read-only. On this screen, all configurable alarm types as described above are found, except Major BER and Minor BER. Alarms for all loops are displayed (See Figure 8-5 and refer to Table 8-9). `All Alarms Disabled` is the default.

Table 8-9 Buttons and Interface Number for the Local Alarm Configuration

`Interface Number`	The loop number selected on the main configuration screen. In this example (Figure 8-5), the chosen loop is `Loop 6`.
`Copy to All Loops`	Copies the selected Alarms Reported Configuration of the selected loop to the other loops of this 7626. This is saved only to the 7626 when `File-->Save to Unit` is selected.
`OK`	Holds edits and dismisses the screen.
`Reset`	Undoes pending edits since last `File->Save to Unit` operation.
`Cancel`	Same as Reset and dismisses the screen.

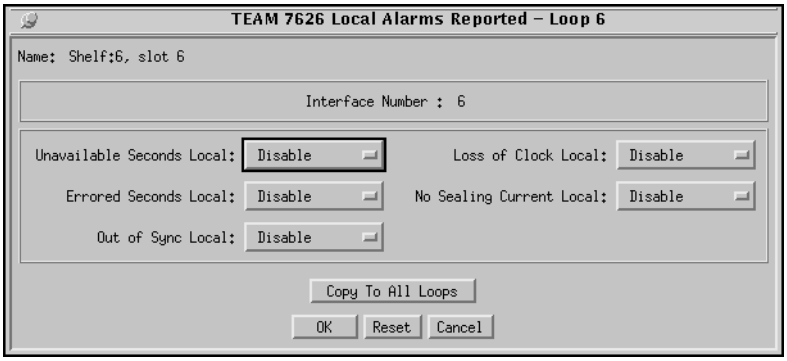

Figure 8-5 7626 Local Alarm Configuration Screen

Add or Delete Remotes for the 7626

Add/Delete Remotes screen is shown when you select `Navigate->Add Remotes` on the 7626 Configuration main window (See Figure 8-6). This screen permits you to add or delete remote units, to or from the 7626 loops. This screen displays the current remotes of the 7626 by loop number, unit type, and serial number.

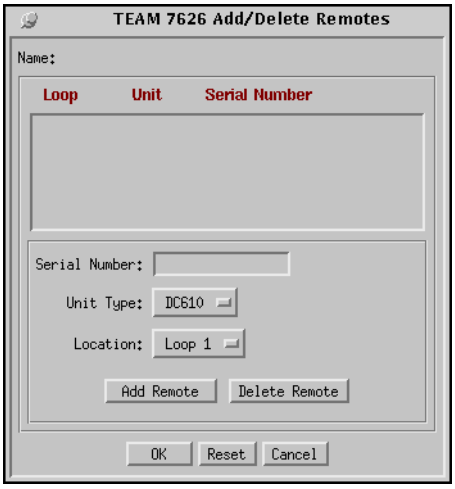

Figure 8-6 7626 Add or Delete Remotes Screen

To add a remote:

1. Select `Location:` loop number
2. Select `Unit Type`: select the type of unit you want to add or delete.
3. Enter remote serial number of the unit:
4. Select `Add Remote` button.

The new remote is displayed on this screen and the 7626 element submap. To display the 7626 submap, double click on the 7626 shelf slot icon after adding a remote.

To delete a remote:

1. Select `Location`: loop number
2. Select `Delete Remote`.

Action Buttons for the 7626

- `Add Remote`
- `Delete Remote`

`OK`, `Reset`, and `Cancel` have the same functions as those on the other configuration screens.

All Screens for the 7626

This reads and displays all the configuration screens for this network element.

Template Support for the 7626

Device configurations are saved in a file and are known as templates, which can be applied similarly to configure other units. You can `Save`, `Load`, or `Compare` templates by accessing the File menu; and when you invoke one of these three operations, you see a dialog window where you are asked to specify the template file name.

Alarm Detail for the 7626

7626 Alarm Detail is launched from the HPOV Map `Performance->Alarms` or from the Front Panel menu. The alarms are depicted on the screen, as shown in Figure 8-7. When the alarm is off, the color you see is dark green; when the alarm is on, you see orange for major, yellow for minor, or blue for warning alarm.

The severity of any alarm can be changed by the user via the Alarm Severity application which is accessed by `Misc->Alarm Severity`. Refer to the *TEAM CORE* manual for further information.

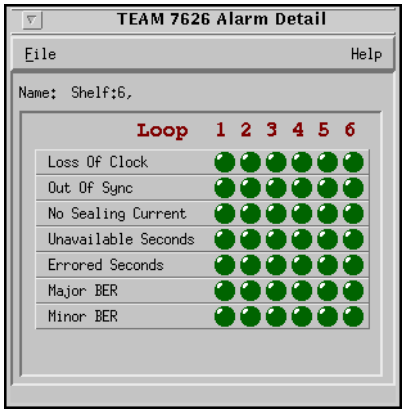

Figure 8-7 7626 Alarm Detail Screen

Error Reports for the 7626

The error reports application is used to display statistics accumulated by the 7626 unit. Some features of the reporting function are:

- Auto-ranging of Y-Axis
- X-Axis glyph labels lead to pop-up windows by pointing and clicking
- Real-time representation of the intervals
- Interval based graphs have scrolling capability to view all 24 hours worth of data
- Periodic polling for data

You can launch the 7626 report screens by selecting the HPOV Shelf Map slot icon and then selecting the `Performance->Reports` menu item; or you can click the front panel display Select button. The first window you would see is the main window (See Figure 8-8 below). It introduces you to each error category which has its own graph or statistics report, displayed in a specific screen. Two kinds of reports are included: `TOTALS` and `SUMMARY` and each error category is identified as `ES`, `SES`, `UAS`, and `FEBE`. The menu cells on the TEAM 7626 Error Reports screen are `File`, `Edit`, `View`, and `Navigate`. `Help` displays help information.

Note *No data is collected from the unit until* `File-->Refresh` *is selected or the interface is changed.*

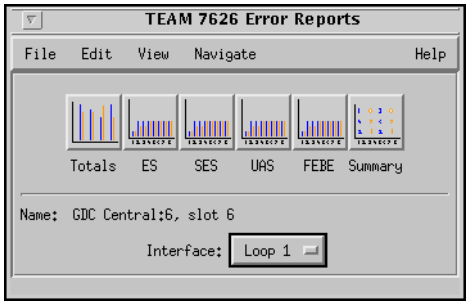

Figure 8-8 Error Reports Window

File

The menu item `File->Refresh` is an on-demand update of the data. `File->Auto Refresh` has menu items to periodically poll the unit for data and update the screens. `File->Auto Refresh->Off` disables periodic poll; any other option periodically refreshes at the selected value. Poll time is dynamically appended to the menu item `File->Auto Refresh`. `File->Save Error Data to File...` saves the data to a file from the last poll. The data saved in the file is in text format. The `File->Exit` menu item closes all windows and terminates the application.

Edit

The `Edit->Reset Statistics` menu item sends an SNMP set to clear statistics in the unit and to clear data presented on the screen as well.

View

The `View->Legend` displays any legend areas that exist for all the screens. The legend area describes any notations used. For example, the main window has a legend area which contains the expansions for the acronyms ES, SES, and the other error categories.

Navigate

The `Navigate` menu consists of several menu items to open other screens that are part of the errors reports application. The screen pertains to the reports: `24 Hour Error Totals...`, `Errored Seconds...`, `Severely Errored Seconds...`, `Unavailable Seconds...`, `Far End Block Errors...`, `Errors Summary...`, and `All Screens...`.

Thus, the `Navigate` menu of the error reports window lets you access individual windows which show more detailed statistics on each error condition. Each error report window can also be accessed by clicking on its icon or on the menu window.

Interface Selector

The interface selection allows you to choose the interface for the report screens you want to display (`Loop 1, 2, . . . , 6`).

Error Totals

Error reports for the 7626 product are given as data collection in periods of real time. X-axis buttons of the graph represent data from error categories spread over four hours in 15-minute intervals; this is the same as using the `Navigate` menu for each error category. Time data presented in the `Collection Period` area uses a mechanism, statistics-last-initialized, to extract relative time and to convert it to real time.

Auto Ranging

This feature dynamically changes the Y-Axis scale, depending on the maximum value of any of the error categories data on the X-Axis. If the value for an error category (or interval) is 100, then the Y-Axis maximum value is 100. When the X-Axis value for an error category changes to 500 the Y-Axis maximum changes to 500. This way, the graphs are more readable when the values for all error categories (or intervals) fall in the same range.

Loops

The statistics displayed for the selected TEAM 7626 loop Interface (Figure 8-9) in the `Error Reports` window cover 48 hours of operation, divided into `24 Hour Error Totals`, `Current` and `Recent`, for a particular loop. You select which loop (`Loop 1`, `2`, `.`, or `6`) that you want to view from the interface selection on the top level screen. The vertical axis of the two 24-hour periods, current and recent, shows the number of errored seconds for the loop categories: `ES` (Errored Seconds), `SES` (Severely Errored Seconds), and `UAS` (Unavailable Seconds). For the `FEBE` (Far End Block Error), the number of counts is displayed along the vertical axis.

The `Current` and `Recent` boxes at the bottom of the screen show the totals of each category collected so far from the current 24 hours and the totals for the recent 24 hours respectively. The real-time range is displayed. The `Recent` box always applies to the previous full 24 hours. The `Current` box presents the portion of the current 24 hours collected so far and the corresponding real-time range.

Also, the `Errors Summary...` button in the upper right hand corner is equivalent to the `Navigator-->Errors Summary` menu item, which gives you a text summary of the valid intervals collected for all categories.

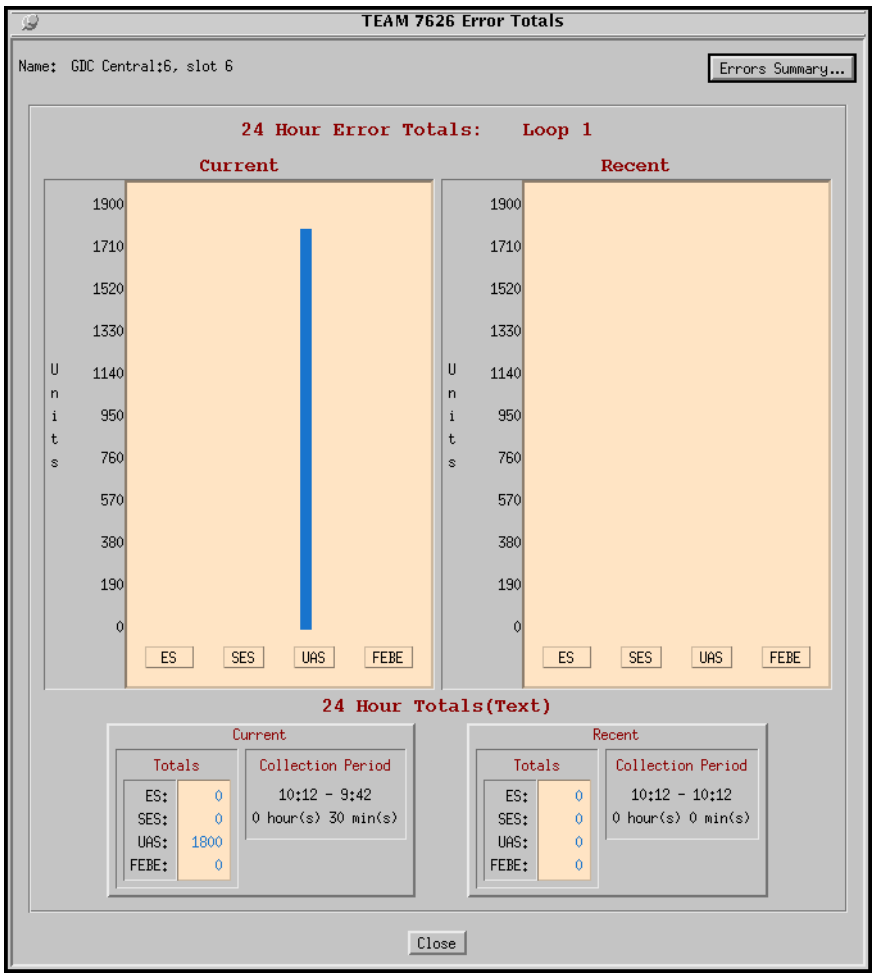

Figure 8-9 Error Totals

Errored Seconds (ES)

An errored second (ES) is defined as a second with at least one CRC error event. Figure 8-10 is the basic screen for all individual statistical error categories like UAS, SES, and so forth. Like all other graphs, the Y-Axis scale dynamically changes, depending on the maximum value of a certain interval. The X-Axis option button on the upper right hand corner allows the user to view the X-Axis as a time scale or interval scale, or both. If data has been collected for less than 4 hours, the time/intervals on the X-Axis of the graph are not displayed for the unavailable intervals. You have 17 vertical bar graphs of intervals (current plus up to 16 accumulated). This screen graphically shows the number of errored seconds that have taken place in the last four hours.

The vertical axis of the bar graph displays error seconds for 15-minute time periods. By accessing the Time button (upper right-had corner), you have a choice of time, intervals or both for the X-axis, and depending on what you choose for the horizontal axis, the Y-axis changes accordingly. If the unit has not completed four hours of operation, then the unavailable intervals are not displayed. When you are finished with this screen, click on the `Close` button to dismiss the window.

- All Other Error Categories

All other error categories for the loop interfaces have similar screens and explanations as the Errored Seconds does.

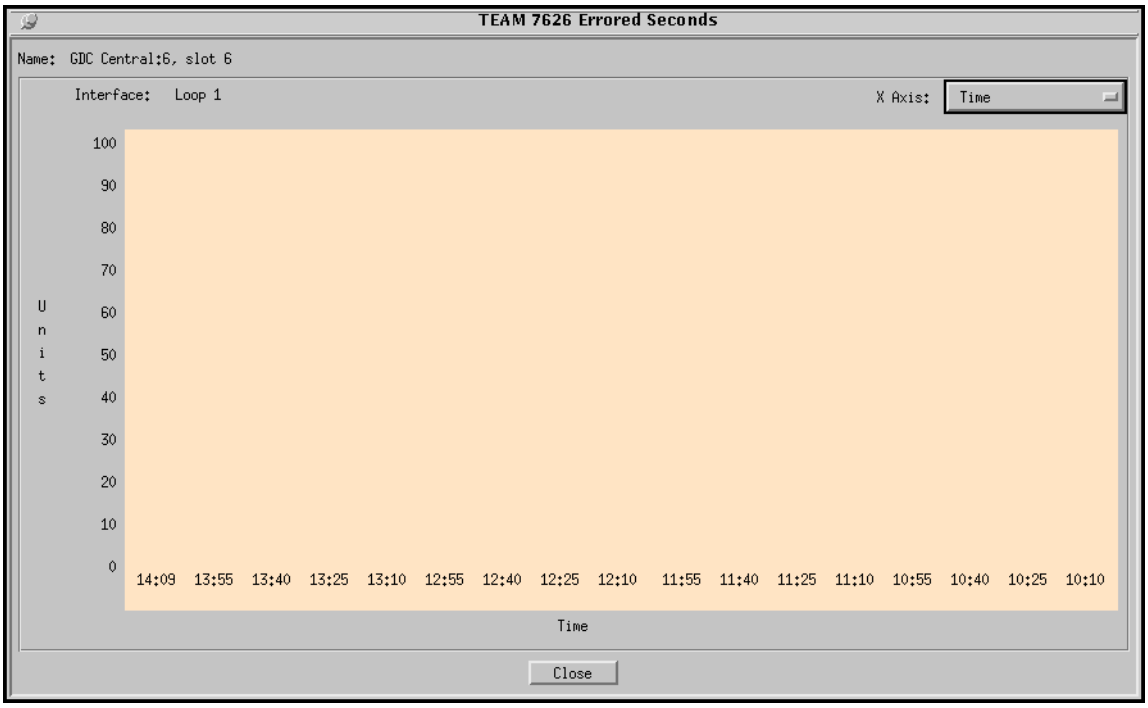

Figure 8-10 Errored Seconds (ES) Window

Severely Errored Seconds (SES)

A Severely Errored Second (SES) is defined as a one-second period having greater than or equal to 30% of errored blocks.

Unavailable Seconds (UAS)

Unavailable Seconds is the period of the Unavailable Seconds Signal (UAS) State. UAS state is declared after the detection of 10 consecutive Severely Errored Seconds (SES), and is cleared after a 10-second period with no SES. Severely errored seconds are CRC errors that are greater than or equal to 300 errors per second.

Far End Block Errors (FEBE)

A Far End Block Error is a frame error at the remote unit.

Errors Summary

The Errors Summary screen is shown in Figure 8-11. It tabulates data on the error events that have occurred for each error category. The `File-->Save Error Data to File` option takes the data presented on this screen and saves it to the user's file. The `Errors Summary` screen displays an array of error events (Y-axis) plotted over time (X-axis).

- Loop Data

If the quantity of collected loop data is less than seventeen (current plus sixteen accumulated), then the remaining unfilled quantities are not displayed. Note, however, that after four hours of operation, all loop quantities have data. The current box at the bottom of the screen shows a total for each category and for the portion of the 24-hour period accumulated so far. The Recent box always shows the accumulated total and time range for each category taken from the previous 24 hours.

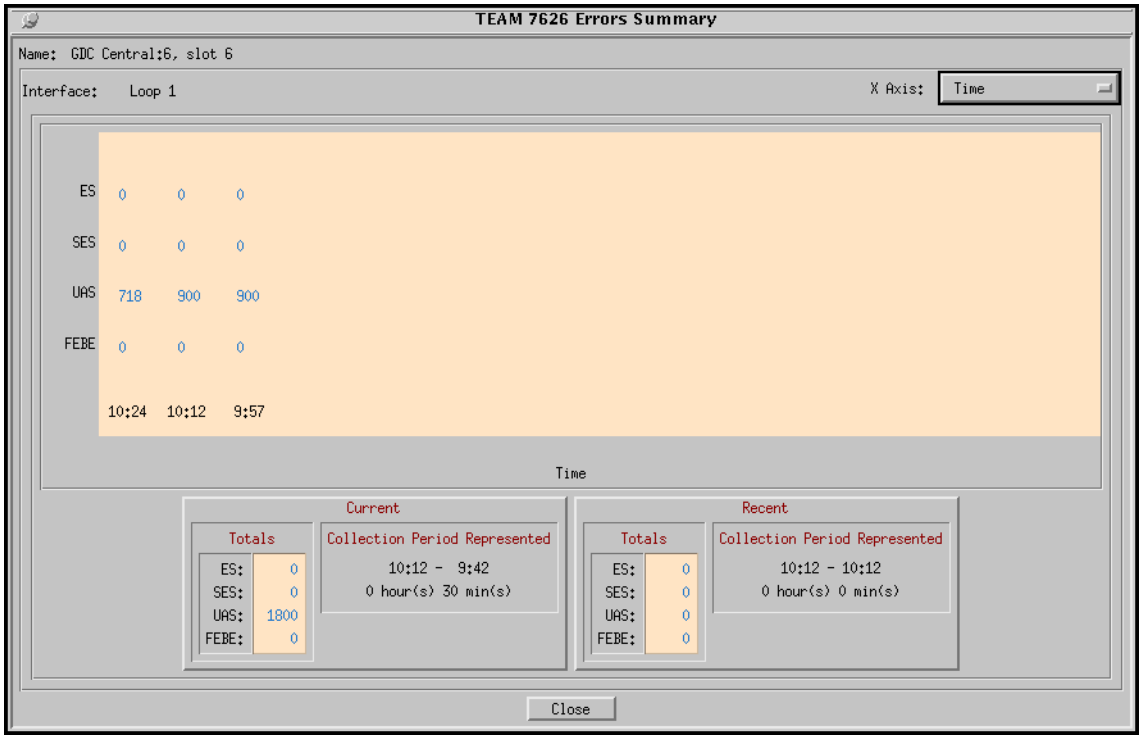

Figure 8-11 Error Summary Window

7626 Diagnostics

The Diagnostic application is used to perform tests to isolate a data communication problem to the network element or line. 7626 Diagnostic Test is launched from the HPOV Map `Fault Menu` or from the Front Panel menu (See Figure 8-12). The application is comprised of one main window in five sections or parts, which are as follows:

- Section 1 is the menu - `Navigate` selects Diagnostic History - this section is described below.
- Section 2 is the name of the unit.
- Section 3 has the loop interface, tests, and test control buttons.
- Section 4 has the test graphics.
- Section 5 has circuit ID, test status, and results.

Table 8-10 Diagnostics Screen for the 7626

Menu Section	
	Description
Navigate (Section 1)	Diagnostics History
Name (Section 2)	Name of unit
Test (Section 3)	
• Interface Selection	Loops 1, 2, 3, 4, 5, or 6
• Diagnostic Test	Tests Unit Test - unit health check Self Test (**Note that the 7626 allows only a 2047-pattern and only one loop at a time.**) Digital Loopback toward the network Remote Digital Loopback Remote Digital Loopback with Self Test Remote to Remote ST Remote Bi Loopback Remote Bi Loopback with Self Test Master to Remote Self Test
	Buttons
• Start/Stop Test	Starts or stops the selected test.
• Reset Errors	Resets the errors to zero without having to stop and restart the test.
Graphics (Section 4)	Displayed graphics depend on unit configuration: loops are shown where appropriate.
Circuit ID (Section 5)	Circuit ID - read only.
• Test Status (Section 5)	Idle Unit Test - unit health check Self Test (Note that the 7626 allows only a 2047-pattern.) Digital Loopback Remote Digital Loopback Remote Digital Loopback with Self Test Remote to Remote ST Remote Bi Loopback Remote Bi Loopback with Self Test Master to Remote Self Test
• Results (Section 5)	Test results are in bit errors and displayed for only those tests where the Pattern Generator is on.

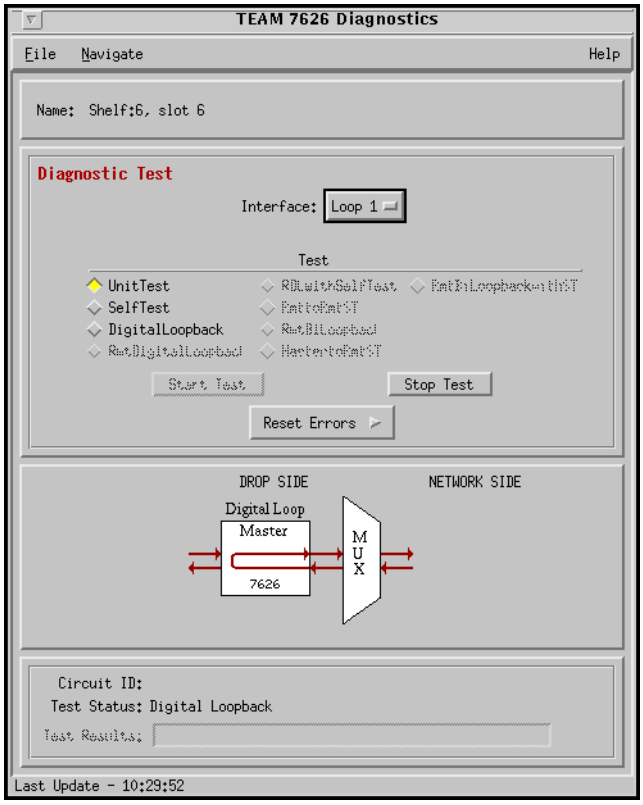

Figure 8-12 Diagnostic Test Screen for the 7626

Diagnostics History for the 7626

The Diagnostics History application is used to log test information after the test is finished. 7626 Diagnostics History is launched from the `Diagnostics->Navigate` menu. This screen is read-only (See Figure 8-13). The information on the screen is inserted only after a test has been completed. If the diagnostic screen is closed, the diagnostic history is cleared.

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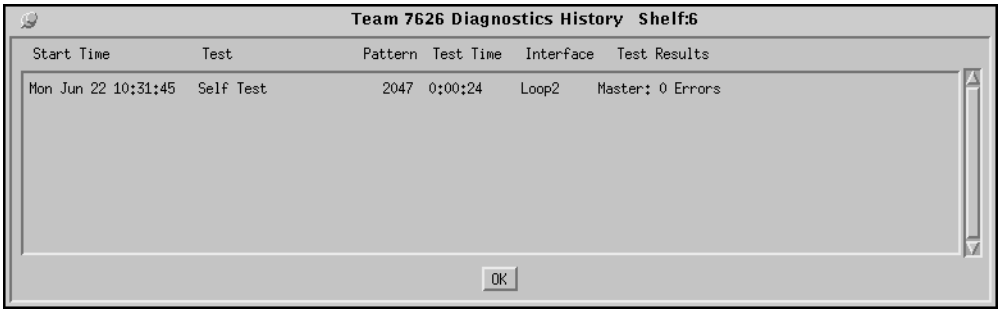

Figure 8-13 Diagnostics History Screen for the 7626

Table 8-11 Diagnostics History Menu for the 7626

Diagnostics History	
`Start Time`	Date and time when test started.
`Test`	Name of the test.
`Pattern`	Test pattern selected (2047).
`Test Time`	Duration of the test in hours:minutes:seconds format
`Interface`	Designates which loop and channel the test had run on.
`Test Results`	`OK` for a test that does not involve Selftest, or for a test with Selftest, where no errors are found. `Bit Errors` are followed by a bit error number for a test with Selftest, where errors are found.
Button Controls	
`OK`	Dismisses the screen.

7626 Maintenance

The Maintenance screen displays and modifies 7626 attributes which are device specific and cannot be set as configuration options. 7626 Maintenance is activated from the HPOV Map `Configuration->Maintenance` menu or from the front panel menu. There is one main window for this application (See Figure 8-14).

Figure 8-14 7626 Maintenance Screen

Window controls and their functions are as follows (Name is read-only):

Table 8-12 7626 Maintenance Menu

Button	Description
`Reset Statistics`	Resets 7626 loop statistics to zero. Loops are selected individually.
`Reset to Factory Defaults`	Initiates a 7626 reset to default configuration parameters.
`Perform Soft Reset`	Initiates a 7626 board reset. Note: After performing the unit reset, set the correct time on the unit for the starting and ending times by single-clicking on the desired shelf from the Team Universe screen and then, selecting from the menu bar, the `Fault-->Set Time` on shelf.
`Reset Major BER Alarm`	Resets Major BER Alarm and Counts for Loops 1, 2, 3, 4, 5, or 6.
`Reset Minor BER Alarm`	Resets Minor BER Alarm and Counts for Loops 1, 2, 3, 4, 5, or 6.

Information on the 7626

The `Information` screen shows you the current revision level and copyright notice of the current application. 7626 Information is launched from the HPOV Map `Misc->Information` menu or from the front panel menu; or you can double click on the GDC logo on the front panel. One window makes up the application and it is read-only.

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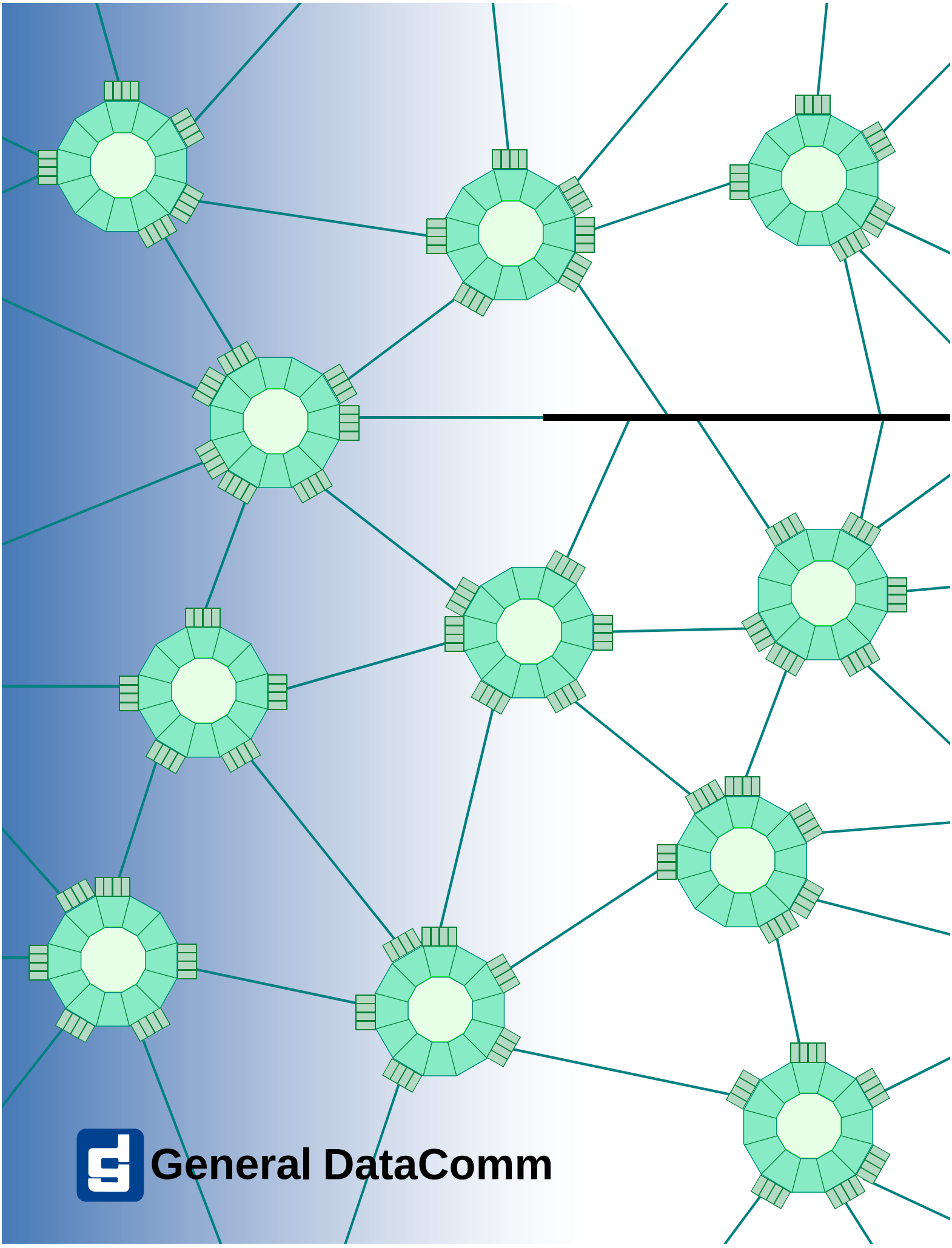
General DataComm